

UNIVERSITY OF DELHI

CNC-II/093/1/EC-1273/2025/15/

Dated: 26.06.2025

NOTIFICATION

Sub: Amendment to Ordinance V

(ECR 38-8 dated 17.01.2025)

Following addition be made to Appendix-II-A to the Ordinance V (2-A) of the Ordinances of the University;

Add the following:

The Syllabi of the following Programmes for Semester-VII and Semester-VIII under the Department of Home (Faculty of Science) based on Undergraduate Curriculum Framework 2022, are notified herewith for the information of all concerned:

1. BA (Prog.) Food Technology (**Appendix -1**)
2. B.A. Programme with Apparel Design & Construction (ADC) (**Appendix -2**)
3. B.A. (Prog.) with Human Development and Family Empowerment (**Appendix -3**)
4. B.A. (Prog.) with Nutrition and Health Education (NHE) (**Appendix -4**)
5. B.Sc. (Hons.) Home Science - Semester-VII (**Appendix -5**)
6. B.Sc. (Hons.) Home Science - Semester-VIII (**Appendix -6**)
7. B.Sc. (Prog.) Home Science – Semester-VII (**Appendix -7**)
8. B.Sc. (Prog.) Home Science – Semester-VIII (**Appendix -8**)
9. B.Sc. (Hons.) Food Technology – Semester-VII (**Appendix -9**)
10. B.Sc. (Hons.) Food Technology – Semester-VIII (**Appendix -10**)



REGISTRAR



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Department of Home Science

Semester -VII & VIII

B.A (PROG) WITH FOOD TECHNOLOGY (FT)

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B.A. (PROG) WITH FOOD TECHNOLOGY (FT)

SEMESTER VII

**DISCIPLINESPECIFICCORECOURSE–DSC- 13
FOOD SAFETY AND QUALITY TESTING**

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

CourseTitle & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre- requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Food Safety and Quality Testing	4	3	0	1	Appeared for Sem 6	

LEARNING OBJECTIVES:

- To sensitize students regarding the significance of quality testing in ensuring food safety
- To provide knowledge on regulatory aspects of quality testing
- To facilitate understanding of some commonly used methods of quality testing

LEARNING OUTCOMES:

After completion of the course, the students will be able to:

- Appreciate the scope of regulations governing food safety and quality testing
- Describe various methods of objective and subjective evaluation of food
- Perform key food quality testing methods

SYLLABUS OF DSC-13-FT

THEORY

(Credits: 3; Hours: 45)

UNITI: Introduction to Food Safety and Quality Testing

(10 Hours)

Unit Description: It will introduce to the students the concept of quality and the scope of quality testing for ensuring food safety. It will also help them understand the various physical, chemical and biological parameters based on which safety/quality of food can be judged.

Subtopics:

- Key terms, significance of quality testing in ensuring food safety
- Characteristics of quality of food.
- Commonly assessed parameters for quality testing – physical, chemical, biological
- Objective and subjective evaluation of food

UNIT II: Regulations and Standards

(10 Hours)

Unit Description: This unit will help students to understand the protocols laid down by national regulatory authority for collection and analysis of food samples, cutoff values for judging the quality, food recall and auditing. It will also briefly introduce to the scope of certain international organizations which promote food safety through quality testing.

Subtopics:

- Food Safety and Standards (Laboratory and Sampling Analysis) regulations, 2011
- Food Safety and Standards (Food Product Standards and Food Additives) regulations, 2011
- Food Safety and Standards (contaminants, toxins and residues) regulations, 2011
- Food Safety and Standards (Food Recall Procedures) regulations, 2017
- Food Safety and Standards (Food Safety Auditing) regulations, 2018
- ISO, IUPAC, AOAC, WTO and Codex – brief introduction

UNIT III: Sensory Evaluation of Food

(10 Hours)

Unit Description: This unit will help students learn and apply various sensory evaluation tests at laboratory as well as industry level.

Subtopics:

- Sensory characteristics of food
- Human senses in sensory evaluation
- Applications of sensory evaluation
- Pre-requisites for sensory testing procedure
- Methods of sensory evaluation

UNIT IV: Quality Testing – Commonly used Methods

(15 Hours)

Unit Description: In this unit, the student will learn about salient methods commonly employed for assessing physical, chemical and microbiological quality of ingredients/food products.

Subtopics:

- Physical such as oflactometer, electronic nose and tongue, viscometer, penetrometer, farinograph, extensograph, amylograph, biscuit texture meter, bake-spread
- Chemical or proximate analysis such as moisture, ash, protein, fat content, presence of adulterants, pH, TSS, acidity.
- Microbiological: plate count, direct microscopic count (sauce, puree, pastes), fermentation (incubation) test, MBRT.

PRACTICAL (Credit: 1; Hours: 30)

1. Prepare a presentation on any one FSSAI regulation related to food quality testing/standards
2. Assess adulteration in commonly consumed foods
- 3.
4. Learn to perform various types of sensory evaluation of food
5. Conduct consumer acceptability trial for any one canteen dish
6. Perform any two tests for assessing physical characteristics of food/ water
7. Perform any two tests for assessing chemical characteristics of food/ water

8. Perform any two tests for assessing microbial load of food/ water

ESSENTIAL/ RECOMMENDED READINGS (Theory and Practical):

- Suri, S. & Malhotra, A. (2014). Food Science Nutrition and Safety. Delhi: Pearson India Ltd.
- Mathur, P. (2018). Food Safety and Quality Control. Delhi: Orient Blackswan.
- Rao, E.S. (2013). Food Quality Evaluation. First Edition. Variety Books Publisher's Distributors.
- FSSAI (2019). Compendium of the Food Safety and Standards Act, 2006. Universal India Publishers.
- Rao, M.K (2007). Food and Dairy Microbiology.

SUGGESTED READINGS:

- Kumar, A(2024). Fundamentals of Food Hygiene, Safety and Quality. Wiley India
- Kuddus, M., Ashraf, S.A. & Rahman, P. (2024). Food Safety: Quality Control and Management. CRC Press LLC.
- Ahmad, R.S., Munawar, H., Saima, H. & Siddique, F (2023). Food Safety- New Insights. IntechOpen
- Ali, I (2004). Food Quality Assurance: Principles and Practices. CRC Press LLC.
- Food Safety and Standards (Laboratory and Sampling Analysis) regulations, 2011. Internet:
https://www.fssai.gov.in/upload/uploadfiles/files/Compendium_Lab_Sample_Regulations_04_03_2021.pdf (Accessed on 15 December 2024).
- Food Safety and Standards (Food Product Standards and Food Additives) regulations, 2011. Internet:
https://www.fssai.gov.in/upload/uploadfiles/files/Compendium_Food_Additives_Regulations_20_12_2022.pdf (Accessed on 15 December 2024).
- Food Safety and Standards (contaminants, toxins and residues) regulations, 2011. Internet:
https://www.fssai.gov.in/upload/uploadfiles/files/Compendium_Contaminants_Regulations_20_08_2020.pdf (Accessed on 15 December 2024).
- Food Safety and Standards (Food Recall Procedures) regulations, 2017. Internet:
https://www.fssai.gov.in/upload/uploadfiles/files/Guidelines_Food_Recall_28_11_2017.pdf (Accessed on 15 December 2024).
- Food Safety and Standards (Food Safety Auditing) regulations, 2018. Internet:
https://fssai.gov.in/upload/uploadfiles/files/Gazette_Notification_Food_Safety_Auditing_07_09_2018.pdf (Accessed on 15 December 2024)
- FSSAI (2024). FSSAI Manual on Methods of analysis- Microbiological examination of food and water.
https://fssai.gov.in/upload/uploadfiles/files/Manual%20on%20Microbiological%20Examination%20of%20Food%20and%20Water_compressed.pdf (Accessed on 15 December 2024)
- Association of Official Chemical Analysts (AOAC). (1990). Official Methods of Analysis. 15th Edition. Internet: <https://law.resource.org/pub/us/cfr/ibr/002/aoac.methods.1.1990.pdf> (Accessed on 15 December 2024).
- International Union for Pure and Applied Chemistry (IUPAC). (2017). IUPAC Standards. Internet: <https://iupac.org/iupac-standards-online/> (Accessed on 15 December 2024).

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi.

B.A. (PROG) WITH FOOD TECHNOLOGY (FT)

SEMESTER VIII

DISCIPLINESPECIFICCORECOURSE–DSC-14 APPLIED FOOD CHEMISTRY

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

CourseTitle & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Applied Food Chemistry	4	3	0	1	Appeared for Sem 6	Nil

LEARNING OBJECTIVES:

- To impart students' basic knowledge related to the principles of food chemistry and their applications on food systems.
- Highlight the importance of knowledge in food chemistry for the production of nutritious and wholesome foods in benefit of consumers and the food industry.
- Introduce students to food additives and their applications in food preservation, flavor enhancement, and texture improvement.
- Encourage the practical application of theoretical knowledge to address real-world food industry challenges.

LEARNING OUTCOMES:

After completion of the course, the students will be able to:

- Describe the chemical composition of food and the functional roles of major and minor food components.
- Understand key food reactions such as Maillard browning, caramelization, lipid oxidation, and enzymatic processes, and their practical applications.
- Assess the roles of food additives like emulsifiers, sweeteners, stabilizers, and preservatives in enhancing food quality, safety, and shelf life.
- Apply theoretical knowledge to address practical challenges in food processing and product development.

SYLLABUS OF DSC-14-FT

THEORY

(Credits 3; Hours 45)

UNIT I: Introduction to Applied Food Chemistry

(4 Hours)

Unit Description: This unit introduces the chemical composition of foods and the functional roles in quality, safety, nutrition and new food product development.

Subtopics:

- Introduction and scope of food chemistry

- Difference between basic and applied food chemistry

UNIT II: Food Components and their Functional Applications

(20 Hours)

Unit Description: This unit explores the properties, functional roles, and applications of food components—water, carbohydrates, proteins, and lipids, vitamins, minerals and phytochemicals in maintaining food quality, stability, and texture.

Subtopics:

- Water: Properties of water, Water activity and its role in food stability.
- Carbohydrates: Properties, functions, and food applications. Role of starches, gums, and fibers in food thickening and stabilization. Modified starches in processed foods.
- Proteins: Functional properties and applications, role in texture development of gels, foams, and emulsions.
- Lipids: Functional properties, and role in food systems: Shortening, emulsification, and flavor carriers. Applications in margarine, chocolate, and frying oils. Modification of lipids.
- Vitamins: Application as nutritional additives in food.
- Minerals: Essential minerals and their application as nutritional additives in food.
- Phytochemicals: Antioxidants, polyphenols, flavonoids; applications in functional foods.

UNIT III: Food Reactions and their Practical Implications

(10 Hours)

Unit Description: This unit examines key food reactions like Maillard browning, caramelization, lipid oxidation, and enzymatic processes, focusing on their impact on food quality, flavor, and texture.

Subtopics:

- Maillard Browning and Caramelization: Applications in baked goods, coffee, and confectionery.
- Lipid Oxidation and hydrogenation.
- Enzymatic Reactions: Use of enzymes in clarification of fruit juices, baking, and dairy products.

UNIT IV: Food Additives and their Applications

(11 Hours)

Unit Description: This unit explores the role of food additives such as emulsifiers, stabilizers, sweeteners, and preservatives in enhancing food quality, texture, and shelf life. It also covers the use of natural and synthetic flavor and color enhancers.

Subtopics:

- Emulsifiers and stabilizers in processed foods.
- Flavor and Color Enhancers: Natural vs. synthetic.
- Sweeteners: Use of artificial and natural sweeteners in low-calorie products.
- Chemical preservatives in shelf-life extension.
- Leavening agents.

PRACTICAL (Credit: 1; Hours: 30)

1. Measurement of the moisture content of a given food sample.
2. Estimation of reducing and non-reducing sugars using potassium ferricyanide method.

3. Determination of smoke point and percent fat absorption for different fat and oils.
4. Determination of percent free fatty acids.
5. Estimation of saponification value.
6. Estimation of total ash content.
7. Preparation and testing stability of fruit juice with added stabilizers
8. Preparation and testing stability of oil-in-water emulsions using different emulsifiers (e.g., lecithin, gum arabic)
9. Effect of enzymes (e.g., pectinase, pectic enzymes) in juice clarification.

ESSENTIAL/ RECOMMENDED READINGS (Theory and Practical):

- O. R. Fennema. (2003) Food Chemistry, 3rd Ed, Tata McGraw-Hill, New York.
- DeMan. (2007). Principles of Food Chemistry. Springer, 3rd edition.
- Suri, S., & Malhotra, A. (2013). *Food science, nutrition and safety*. Pearson Education India
- Whitehurst and Law. (2002). Enzymes in Food Technology. Canada: CRC Press.
- Brannen and et al., Food Additives, Marcel Dekker, New York, 1990

SUGGESTED READINGS:

- Potter, N.N. and Hotchkiss, J.H. (1999). Food Science, 5th Ed., Chapman & Hall.
- Wong, Dominic WS. (2018). Food Enzymes. New York: Chapman and Hall.
- Meyer, L.H. (2004). Food Chemistry. CBS Publishers & Distributors Pvt Ltd, India.
- Desrosier, Norman W. and Desrosier, James.N. (2018). The technology of food preservation, 4th Ed. Westport, Conn.: AVI Pub. Co.
- Hui, Y. H., & Evranuz, E. Ö. (Eds.). (2015). Handbook of vegetable preservation and processing. CRC press.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi.

B.A. (PROG) WITH FOOD TECHNOLOGY (FT)

POOL DSE: ODD SEMESTER

DISCIPLINE SPECIFIC ELECTIVE COURSE – DSE-1-FT: CEREAL AND PULSE TECHNOLOGY

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Cereal and Pulse Technology	4	3	0	1	Class XII Pass	NIL

LEARNING OBJECTIVES:

1. To acquaint students with various types of indigenous grains available.
2. To impart knowledge regarding post-harvest technology of various cereals, millets and pulses.
3. To acquaint students with processing of cereals, millets and pulses with principles, mechanism and machinery involved.

COURSE OUTCOMES:

After completion of the course the students will be able to -

1. Understand basic composition and structure of food grains.
2. Understand the basics of milling operations and storage of grains.
3. Learn processing of food grains into value added products.
4. Access the physical and cooking properties of cereals, millets and pulses.

SYLLABUS OF DSE-1-FT

THEORY (Credits 3: 45 Hours)

UNIT I: Introduction to Cereals, Millets and Pulses

(7 Hours)

- *Unit Description:* This unit will introduce the students to various grains in Indian context with its production, utilization, availability and grading standards.
- *Subtopics:*
 - General introduction
 - Production and utilization trends
 - Grain classification
 - Classification of cereals, pulses and millets
 - Market varieties of various grains available in India
 - Grading standards of various grains

UNIT II: Staple Grain Processing

(18 Hours)

- *Unit Description:* This unit will focus on various aspects pertaining to the composition and processing of staple cereals with the related processed products.
- *Subtopics:*
 - Structure, physico-chemical properties of staple grains (wheat, rice, corn)
 - Wheat processing
 - Cleaning, tempering, conditioning and milling of wheat
 - Flour treatments (bleaching, maturing) and grading
 - Wheat products (Wheat flour, semolina, dahlia)
 - Rice processing
 - Milling and parboiling of paddy
 - Curing and ageing of paddy and rice; cooking and storage qualities of raw and parboiled rice
 - Rice products (Polished rice, Brown rice, popped, puffs, rice rawa, rice flour)
 - Corn processing
 - Dry and wet milling
 - Starch and its conversion products and processed corn products (popped corn, corn flakes etc.)

UNIT III: Coarse grain and Millet Processing

(10 Hours)

- *Unit Description:* This unit describes the composition and processing of coarse grains and millets with their respective products.
- *Subtopics:*
 - Oats Processing
 - Physico-chemical properties and composition of millets
 - Primary processing operations of millets
 - Coarse grain and millet processed products.

UNIT IV: Pulse Processing

(10 Hours)

- *Unit Description:* This unit will focus on composition and processing of pulses with its respective products.
- *Subtopics:*
 - Structure, physico-chemical properties and composition of pulses and legumes
 - Traditional and modern milling methods
 - Soybean Processing
 - Products and by-products of pulse milling

PRACTICAL **(Credits 1: 30 Hours)**

1. Physical properties of staple grains (seed weight, seed volume, seed density and hydration capacity)
2. Physical properties of millets (seed weight, seed volume, seed density and hydration capacity)
3. Cooking parameters of rice (water uptake ratio, gelatinization temperature)
4. Popping of grains (wheat/rice/corn/millets)
5. Product preparation from pulses (cleaning, soaking, drying, de-husking, product preparation)
6. Preparation of amylase rich/malt flour from grains

7. Visit to a cereal/pulse processing plant.

ESSENTIAL READINGS (Theory and Practical):

- Rosentrater, K. A., and Evers, A. D. (2017). *Kent's Technology of Cereals: An Introduction for Students of Food Science and Agriculture*. Woodhead Publishing.
- Rice Milling Manual by IRRI. http://www.knowledgebank.irri.org/ericeproduction/PDF_&_Docs/Teaching_Manual_Rice_Milling.pdf(accessed on 17.3.2023)
- Kate, A. and Singh, A. (2021). Processing Technology for Value Addition in Millets. In: Kumar, A., Tripathi, M.K., Joshi, D., Kumar, V. (eds) *Millets and Millet Technology*. Springer, Singapore. https://doi.org/10.1007/978-981-16-0676-2_11(accessed on 17.3.2023)
- Chapke et al. 2020. Latest millet production and processing technologies. Indian Institute of Millet Research. https://www.millets.res.in/farmer/Latest_Millet_English_Full_Book_2020.pdf
- Potter, N. N., and Hotchkiss, J. H. 2012. *Food Science*. Springer Science and Business Media.
- Williams, P.C.; Nakoul, H. and Singh, K.B. (1983). Relationship between cooking time and some physical characteristics in chickpea (*Cicer arietinum* L.). *J. Fd. Sci. Agric.* 34: 492-495.
- Oko, A.O., Ubi, B.E., Efisue, A.A. and Dambaba, N. (2012). Comparative analysis of the chemical nutrient composition of selected local and newly introduced rice varieties grown in Ebonyi state of Nigeria. *International Journal of Agriculture and Forestry*. 2(2): 16-23.
- Chandra, S. and Samsher, L. (2013). Assessment of Functional Properties of Different Flours. *African Journal of Agricultural Research*, 8, 4849-4852.
- <https://egyankosh.ac.in/bitstream/123456789/45848/1/Experiment-12.pdf>(accessed on 17.3.2023)
- <http://ecoursesonline.iasri.res.in/mod/resource/view.php?id=5933>(accessed on 17.3.2023)
- Nwosu, J.N.; Owuamanam, C.I., Omeire, G.C. and Eke, C.C. (2014). Quality parameters of bread produced from substitution of wheat flour with cassava flour using soybean as an improver. *American J. Res. Commu.*, 2 (3): 99-118.

SUGGESTED READINGS:

- Davis, J. G. (1982). *Food Science and Technology*: By Magnus Pyke, revised and enlarged by LelioParducci. John Murray, London, 304 pp
- Chakraverty, A., Raghavan, G. S. V., & Ramaswamy, H. S. (2003). *Handbook of post-harvest technology*. Marcel Dekker, Inc
- Hoseney, R. C. and Delcour J. A. (2010). *Principles of Cereal Science and Technology* (No. Ed. 3). American Association of Cereal Chemists (AACC).
- Dendy DAV and Dobraszczyk B.J. (2001). *Cereal and Cereal Products*. Aspen
- Karl, K. (2000). *Handbook of Cereal Science and Technology*. 2nd Rev. Edition. CRC Press
- Matthews, R. H. (1989). *Legumes: Chemistry, Technology, and Human Nutrition*. American Association of Cereal Chemists (AACC).
- Sethi, P. and Lakra, P. (2015). *Aahar Vigyan, Poshan Evam Suraksha*. Delhi: Elite Publishing House Pvt. Ltd.
- Sahay, K.M. and K.K. Singh. (1994). *Unit Operations in Agricultural Processing*, Vikas Publishing House Pvt. Ltd., New Delhi, p.340.

**DISCIPLINE SPECIFIC ELECTIVE – DSE-3-FT:
FOOD CULTURAL PERSPECTIVES**

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Food Cultural Perspectives	4	3	0	1	Class XII Pass	NIL

LEARNING OBJECTIVES:

1. To make students aware of the rich cultural food heritage of India.
2. To make students understand the importance of food in social events and the intercultural communications.

LEARNING OUTCOMES:

After completion of the course, the students will be able to:

1. Understand the factors influencing the diversity in diets of India
2. Comprehend the Indian rich cultural parameters related to food during various community and family social occasions and events
3. Have knowledge regarding variation in Indian food as per the religion
4. Get acquainted with the various myths, beliefs and intercultural communications related to diverse Indian food culture

SYLLABUS OF DSE-3-FT

**THEORY
(Credits 3: 45 Hours)**

UNIT I: Introduction: Influences on Food and Food Habits (10 Hours)

- *Unit Description:* This unit is about food culture around the world and the varied factors influencing the Indian food cultural practices.
- *Subtopics:*
 - Introduction, Early food habits, Food around the world – current scenario
 - Agricultural developments over the years
 - Factors influencing diets- geography, environmental factors (water, climate, soil, weather, natural calamities), trade, war and peace.

UNIT II: Cultural Parameters (10 Hours)

- *Unit Description:* This unit is about the importance and type of food offered on various special occasions and events in Indian society.
- *Subtopics:*

- Birth and Death
- Architecture/Housing
- Language
- Lifestyle
- Art and literature
- Immigration/travel
- Festivals, special occasions and events

UNIT III: Identity of Food - Religion, beliefs, myths

(15 Hours)

- *Unit Description:* The unit describes the Indian food cultural diversity according to the varied religions of India and the common food myths and beliefs.
- *Subtopics:*
 - Food habits and practices – Hinduism, Jainism, Buddhism, Muslim, Christianity
 - Common food myths and beliefs

Unit IV: Food - Intercultural Communications

(10 Hours)

- *Unit Description:* This unit will discuss the effect of customs, traditions, culture on the way food is cooked, served, consumed and associated with.
- *Subtopics:*
 - Language (mother tongue)
 - Body language and Customs
 - Food attitude and traditions
 - Cultural differences – food-based practices.
 - Food – a mode of communicating at international level/other social functions of food

PRACTICAL (Credits 1: 30 Hours)

1. Preparation of types of questionnaires for interview/ survey.
2. Exploring the menu of various cultural food outlets around your locality.
3. Identify and compare the two diverse Indian regional meals/ cuisines.
4. Identify and present the *PRASADAM* and its cultural importance at various Indian religious places.

OR

Prepare a brief report/ Power Point Presentation (PPT) on FSSAI initiative BHOG (Blissful Hygienic Offering to God).

5. Explore and present Food as Medicine in Indian literature.
6. Organize Indian regional cuisine Exhibition/ competition/ Quiz in your institution.
7. Critically evaluate any Indian folk tale/song w.r.t food cultural behaviour.

OR

Write a critique on magazine and newspaper articles pertaining to Indian cultural food habits and patterns.

8. Visit to food fair.

ESSENTIAL READINGS (Theory and Practical):

- McWilliams, M. (2015). *Food Around the World: A Cultural Perspective*. Fourth Edition. Pearson Education Inc.
- Srinivas, T. (2011). *Exploring Indian Culture through Food*. *Food, Culture and Asia*; 16(3): 38-41.
- Sen, C.T. (2004). *Food Culture in India*. Greenwood Press.
- Nandrajog, H. and Suri, S. (2021). *The Saga of Food: Reflections on Technology and Culture*. International Book House.

SUGGESTED READINGS:

- Szanto, D., Battista, A.D. and Knezevic, I. (2022). *Food Studies: Matter, Meaning and Movement*. Food Studies Press.
- Kittler, P.G. and Sucher, K.P. (2008). *Food and Culture*. Fifth Edition. Thomson Wadsworth Publishing.
- Albala, K. (2013). *Food: A Cultural Culinary History*. The Great Courses.
- Acharya, K.T. (2000). *Indian Food: A Historical Comparison*. Oxford Press.
- Bhushi, K. (2018). *Farm to Fingers: The Culture and Politics of Food in Contemporary India*. First Edition. Cambridge University Press.
- Lonely, P. (2001). *World Food: India*. Lonely Planet Oakland.
- Ali, E., Naquiah, N. and Nizar, A. (2018). *Preparation and Processing of Cultural Food*. First edition. Woodhead Publishing House (Elsevier).

DISCIPLINE SPECIFIC ELECTIVE – DSE-5-FT: OPERATIONAL LEADERSHIP AND MANAGEMENT: FOOD INDUSTRY

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Operational Leadership and Management	4	3	0	1	Class XII Pass	NIL

LEARNING OBJECTIVES:

1. To understand the basic concepts related to operational leadership and management.
2. To know the characteristics of a good leader and effective leadership in variable situations.
3. To be able to conceptualize the role and responsibilities of a manager in various unit operations in food industry.

LEARNING OUTCOMES:

After completion of the course, the students will be able to:

1. Gain the skills of operational leadership and management in food handling and processing
2. Develop strategic plan of action which can support principles and framework of operational management
3. Work in a lead role for managing unit operations/assembly lines in food processing units and various food businesses.

SYLLABUS OF DSE-5-FT

THEORY (Credits 3: 45 Hours)

UNIT I: Introduction

(8 Hours)

- *Unit Description:* This chapter will introduce to the students to the concept of operational leadership and management, the historical background, importance and challenges in the field especially with relevance to the food industry.
- *Subtopics:*
 - Introduction to basic concepts: unit operations, management, leadership, operational leadership, operational management, operational thinking.
 - Operational leadership and operational management: evolution, scope, emerging concerns.
 - Approaches to management of food manufacturing and food service unit.

UNIT II: Operational leadership

(12 Hours)

- *Unit Description:* This unit will help students know about the basics of leadership, leadership styles, characteristics and responsibilities of an effective leader viz-a-viz operational leader.
- *Subtopics:*
 - Leadership – concept, qualities of an effective leader
 - Leadership styles, difference between strategic and operational leadership
 - Characteristics or role of operational leaders
 - Communications for effective operational leadership

UNIT III: Basics of Management

(10 Hours)

- *Unit Description:* The unit will help student understand the importance, principles and functions of management. It will also help them to understand the work responsibilities of a manager with regards to judicious management of human resources for efficient productivity.
- *Subtopics:*
 - Introduction, significance and scope of management
 - Principles of management
 - Functions of management
 - Role of manager/supervisor in work productivity (vertical/horizontal division of labour, departmentalization, organization chart) with relevance to food industry.

- Decision making – steps and barriers; importance of decision making in operations management.

Unit IV: Operational Management in food industry

(15 Hours)

- *Unit Description:* Through this unit the student will learn about efficient administration of business practices which is the primary responsibility of an operational manager. The chapter will discuss about the various aspects of operational management which can lead to enhanced quality and productivity in an efficient manner.
- *Subtopics:*
 - Importance of operations manager and operational management in food industry (models/process)
 - Job Analysis and description (ergonomics, role of duty rosters and SOP), work design and work measurement
 - Material Management (purchase, store, inventory, standardization)
 - Improving productivity (forecasting, scheduling and controlling production activities)
 - System design and capacity planning
 - Food Safety Management System
 - Role of automation and Artificial Intelligence in operational management

PRACTICAL (Credits 1: 30 Hours)

1. Prepare a summary report on a short film/documentary on manufacturing a food product to study management of assembly lines or during various stages of production.
or
Critically review approaches of management in a food enterprise unit through a short film/documentary.
2. Prepare a presentation on the leadership styles and stages of operational management through a short film/documentary on the success story of food enterprise led by a woman leader.
3. Visit a nearby small-scale food production unit such as college canteen and understand the applications of “forecasting” for any 2 food products.
4. As an operation manager, prepare an organizational chart, duty roster and job description for a bakery/food preservation unit.
5. Develop an operational leader assessment worksheet in a food production or food processing unit.
<https://clgm.net/files/pdf/OPERATIONAL%20LGL%20Profile%20November%202014.pdf>
6. Prepare a presentation on role of computers, artificial intelligence and CAD currently being used in the food processing industry.
7. Prepare a work flowchart for a food processing unit for material handling.
8. Conduct SWOT analysis in a given case study regarding operational management of a process in a food processing unit.

ESSENTIAL READINGS (Theory and Practical):

- Gupta, S. and Starr, M. (2014). *Production and Operation Management System*. London: CRC press Taylor & Francis Group.
- Kumar, A.S. and Suresh, N. (2008). *Production and Operations Management* (skill Development, Caselets and Cases). Bangalore: New Age International (P) Limited Publisher.
- Render, B. (2012). *The Encyclopedia of Operations Management. A field Manual and Glossary of Operations Management Terms and Concepts*. Pearson.

- Stevenson, W.J. (2018). *Operations Management*. (13th edn.). McGraw-Hill Education, New York
- Greasley, A. (2013). *Operations management*. (3rd edn.). John Wiley & Sons, Limited.
- Young, S.T. (2010). *Essentials of Operations Management*. Sage Publications, United State of America.
- Reid, R., and Sanders, N.R. (2010). Chapter 1. Introduction to Operations Management. In: *Operations Management*. (4th edn.). John Wiley & Sons, Inc.
 - a. <https://catalogimages.wiley.com/images/db/pdf/9781119497332.excerpt.pdf>
- Morill, R.L. (2010). *Strategic Leadership*. United Kingdom: Rowman & Little field Publishers.
- Merel, S. (2017). *Leadership Styles in the Context of the Food Processing Industries*. Wageningen Research. <https://livrepository.liverpool.ac.uk/3090163/>

SUGGESTED READINGS:

- Certified Local Government Manager (CLGM), Society of Local Government Managers of Alberta (SLGM) (2014). Operational local government leader profile <https://clgm.net/files/pdf/OPERATIONAL%20LGL%20Profile%20November%202014.pdf>
- Dittmer, P.R, and Keefe, J.D. (2009). *Principles of Food, Beverage and Labour Cost Controls* (9th edn.). John Wiley & Sons, United State of America.
- Kumar, S.A, Suresh, N. (2009). *Operations Management*. New Age International Publishers. Delhi.
- Palacio, J. and Theis, M. (2009). *Food Service Management: Principles and Practices*. New Jersey: Pearson.
- Russell, R.S., Taylor, B.W (2011). *Operations Management – Creating Value Along the Supply Chain* (7th edn.). John Wiley and Sons, Inc. United States of America.
- Seuring, Stefan, Sarkis, Joseph and Klassen, Robert 2014. Sustainable operations management: recent trends and future directions [Editorial]. *International Journal of Operations and Production Management* 34 (5) 10.1108/IJOPM-12-2013-0557
- Smith, R.A. and Siquaw, J. (2010). *Strategic Hospitality Leadership*. John Wiley & Sons Pte. Ltd.
- Stevenson, W.J. (2018). *Operations Management*. (13th edn.). McGraw-Hill Education, New York.
- Wallis, J. (2016). Operational Leadership. In: Farazmand, A. (eds) *Global Encyclopedia of Public Administration, Public Policy, and Governance*. Springer, Cham. https://doi.org/10.1007/978-3-319-31816-5_1921-1

**DISCIPLINE SPECIFIC ELECTIVE – DSE-6-FT:
RESEARCH METHODS IN HOME SCIENCE**

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Research Methods in Home Science	4	3	0	1	Class XII Pass	NIL

LEARNING OBJECTIVES:

1. To provide students understandings about the basic concepts, approaches and methods in conducting Home Science research.
2. To enable learners to appreciate and critique the nuances of designing a research study well.
To sensitize students towards ethical concerns while conducting Home Science research.

LEARNING OUTCOMES:

Upon successful completion of this course, students will be able to:

1. Demonstrate knowledge of the scientific method, purpose and approaches to research in Home Science
2. Compare and contrast quantitative and qualitative research approaches
3. Explain different types of research design and their applicability in Home Science research
4. Understand the key elements of a research process
5. Explain ethical principles, issues and procedures

SYLLABUS OF DSE-6-FT

THEORY
(Credits: 3; Hours: 45)

UNIT I: Research Purpose and Design

(10 Hours)

This unit will deal with meaning and importance of research in various areas of Home Science. Exposure to different types of research designs and measurement in Home Science research would also be given.

- Meaning, purpose and significance of research
- Research as a scientific method
- Types of research
- Quantitative, Qualitative and mixed method approaches
- Research Designs –Experimental and Non-Experimental; Descriptive and Observational; Participatory research
- Internal and external validity of research design
- Variables, concepts and measurement in research

- Levels of measurement
- Units of analysis

UNIT II: Sampling and Research tools & techniques (15 Hours)

This unit will introduce the student to the concept of sampling and methods used to draw sample from population using examples from Home Science discipline. Students would also learn about types of data, its collection and reliability and validity concerns.

- Role of sampling in research
- Sampling techniques and their applicability, Sample size and sampling error
- Types of data: Primary and Secondary
- Tools of data collection; types, construction and administration- Interview, Questionnaire, Observation, Focus group discussion and other methods
- Validity and reliability of data collection tools

UNIT III: The Research Process (15 Hours)

This unit will elaborate upon the various steps involved in conducting and reporting researches in Home Science.

- Defining the problem, research questions, objectives, hypotheses
- Review of related literature and originality in writing
- Systematic research: concept and methodology
- Planning the research
- Identifying variables and constructing hypothesis
- Selecting appropriate research methodology and tools
- Data analysis: coding and tabulation
- Writing a research report: styles and formats
- Citation formats: in medical sciences, social sciences

UNIT IV: Values, Social Responsibility and Ethics in Research (5 Hours)

This unit will apprise the students about ethical concerns while conducting and reporting research.

- Ethical principles guiding research: from inception to completion and publication of research
- Plagiarism and Academic integrity in research: plagiarism tools and software
- Ethical issues relating to research participants and the researcher
 - Rights, dignity, privacy and safety of participants
 - Informed consent, confidentiality, anonymity of respondents, voluntary participation, harm avoidance

PRACTICAL (Credit: 1; Hours: 30)

1. Data visualization
2. Levels of Measurement
3. Types of research designs
 - a. Experimental and non-experimental; Descriptive and observational
 - b. Qualitative, Quantitative and mixed method
4. Sampling techniques and sample size calculation
 - a. Probability sampling method
 - b. Non-Probability sampling methods

5. Tools of data collection- Interview schedule, questionnaire and FGD
 - Designing/ Construction
 - Preparation of tools for ethical review
 - Pilot testing/ validity and reliability of the tool\
6. Data collection and analysis process: conducting interviews, administering questionnaire
7. Coding and tabulation of data for analysis
8. Citation formats and Plagiarism
9. Reviewing a research paper from a specific area of specialization in Home Science

ESSENTIAL READINGS (Theory and Practical):

- Kerlinger F. N. and Lee, H.B. (2017). *Foundations of Behavioral Research* 4th Ed. Harcourt College Publishers.
- Kothari, C. R. (2019). *Research Methodology: Methods and Techniques*. New Age International Pvt Ltd, New Delhi.
- Kothari, C. R. (2022). *ShodhPadhati* 1st Ed. New Age International Pvt Ltd, New Delhi.
- Kumar, R. (2019) *Research Methodology: A Step-by-Step Guide for Beginners*. 5th Ed. Sage Publications, New Delhi.

SUGGESTED READINGS:

- Bernard, H. R. (2000). *Social research methods: Qualitative and quantitative approaches*. Thousand Oaks, CA.: Sage.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage Publications.
- Davis, A. M., Treadwell, D. (2019). *Introducing Communication Research: Paths of Inquiry*. United Kingdom: SAGE Publications.
- Flynn, J.Z., Foster, I.M. (2009). *Research Methods for the Fashion industry*. Fairchild books, Bloomsbury publishing.
- Indian National Science Academy (INSA) (2019). *Ethics in Science Education, Research and Governance*. ISBN:978-81-939482-1-7. <http://www.insaindia.res.in/pdf/EthicsBook.pdf>
- Jacobsen, K. H. (2020). *Introduction to health research methods: A practical guide*. Jones & Bartlett Publishers.
- UGC (2021) *Academic Integrity and Research Quality*. New Delhi: UGC, Retrieved from https://www.ugc.ac.in/e-book/Academic%20and%20Research%20Book_WEB.pdf

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi.

**DISCIPLINE SPECIFIC ELECTIVE – DSE-7-FT:
DATA ANALYSIS AND STATISTICAL TOOLS**

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Data Analysis and Statistical Tools	4	3	0	1	Class XII Pass	NIL

LEARNING OBJECTIVES

- To provide an understanding of the basic statistical concepts and methods.
- To enable learners to collect, organize, summarize and present data using tables, graphs, and statistical plots.
- To gain the ability to collate, analyse and interpret the results of datasets using basic statistical tools and techniques.

LEARNING OUTCOMES

After completing this course, the learner will be able to:

- Explain fundamental statistical concepts and tools relevant to basic research.
- Summarize and visualize data effectively using descriptive statistics and statistical plots.
- Apply inferential statistical techniques to draw meaningful conclusions from sample data.
- Interpret and communicate statistical findings in the context of research.

SYLLABUS OF DSE-11-ADC

**THEORY
(Credits 3; Hours 45)**

UNIT 1: Fundamentals of Statistics

10 Hours

This unit establishes the foundational principles of statistics, focusing on its application in social sciences.

- Role and functions of statistics in social science and market research
- Types of Statistics: Descriptive and Inferential
- Types and Sources of Data
- Measurement Scales: Nominal, Ordinal, Interval, Ratio
- Importance of Reliability and Validity

UNIT II: Data Organization and Summarization

15 Hours

This unit focuses on summarizing and visualizing data for analysis and interpretation.

- Organising data: frequency distribution tables
- Statistical graphs and visual interpretation: Histogram, Pie Chart, Bar Graph, Line Graph, Frequency Polygon, Ogive
- Measures of Central Tendency for ungrouped and grouped data: Mean, Median, Mode
- Measures of Dispersion for ungrouped and grouped data:
 - Absolute dispersion (Range, Quartile deviation, Mean deviation, Standard Deviation, Variance)

- Relative dispersion (Coefficient of Range, Coefficient of Quartile deviation, Coefficient of Mean deviation, Coefficient of Variance)
- Measures of Shape: Skewness and Kurtosis
- Measures of partition values – Quartile, Decile, Percentile, Percentile Rank for ungrouped and grouped data

UNIT III: Basic Statistical Concepts and tools used in Experimental Research 10 Hours

This unit introduces students to inferential tools and techniques used to explore relationships and trends in data.

- Basics of Probability: Concepts, laws of addition and multiplication
- Normal Distribution: Properties and application
- Correlation:
 - Karl Pearson's Coefficient
 - Spearman's Rank Correlation (Repeated and Non-Repeated)
- Linear regression (SLR)

UNIT IV: Hypothesis Testing and Statistical Analysis Techniques 10 Hours

This unit equips students with inferential statistical methods for decision-making.

- Sampling and Testing Hypotheses:
 - Null and Alternative Hypotheses
 - Level of Significance (α) and Confidence Level (c)
 - One-tailed vs Two-tailed tests
 - Type I and Type II Errors
- Introduction to Parametric and Non-Parametric tests

PRACTICAL (Credit 1; Hours 30)

1. **Introduction to Statistical Software:** Using spreadsheet application such as Excel for statistical analysis by inputting basic data and performing essential functions.
2. **Construction of Frequency Distributions:** Organize raw data into grouped and ungrouped frequency tables using a given dataset.
3. **Diagrammatic Representation of Data:** Visualize data using bar charts, pie charts, line graphs, histograms, and frequency polygons, and interpret the results for a given dataset.
4. **Measures of Central Tendency:** Calculate mean, median, and mode for grouped and ungrouped data in Excel, and compare central tendencies between two datasets.
5. **Measures of Dispersion:** Compute range, variance, and standard deviation in Excel to analyse the spread of two different datasets.
6. **Correlation Analysis:** Measure the strength of relationships between two variables by calculating Pearson's and Spearman's correlation coefficients.

7. **Hypothesis Testing (One-sample and Two-sample t-test):** Test the significance of means for single, independent, and dependent datasets using t-tests.
8. **Chi-Square Test for Independence:** Test the independence between categorical variables by analysing and interpreting a contingency table.

Essential Readings

- Minium, E. W., King, B. M., & Bear, G. (2017). *Statistical Reasoning for Psychology and Education*. New York: Wiley and Sons.
- Gupta, S.P. (2022) *Statistical Methods*, 46th Edn. S. Chand and Sons.
- Agresti, A., Christine Franklin, C. and Klingenberg, B. (2017). *Statistics: The Art and Science of Learning from data*, Pearson, Boston

Suggested Readings

- Schmuller, J. (2016). *Statistical Analysis with Excel for Dummies*, 5th Edition, New York, USA.
- Gupta, S. C. and Kapoor, V. K. (2020). *Fundamentals of Mathematical Statistics*, 12th Edn., S. Chand and Sons.
- Ross, Sheldon M. (2010): *Introductory Statistics*, 3rd Edition, Academic Press.
- Derek Rowntree, (2018). *Statistics Without Tears, An Introduction for Non-Mathematicians*, Penguin Books

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE COURSE – DSE-9-FT: FOOD SAFETY AND QUALITY MANAGEMENT

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Food Safety and Quality Management	4	3	0	1	Class XII Pass	NIL

LEARNING OBJECTIVES:

1. Understand key food quality management systems facilitating food safety.
2. Learn application of standards like ISO, HACCP, and GMP in the food industry.
3. Develop skills to develop and implement food safety plans and audits.
4. Understand the importance of regulatory compliance, food traceability and newer concepts in this area.

LEARNING OUTCOMES:

Students will be able to:

1. Apply food safety and quality management system in food processing operations.
2. Develop food safety plans that meet National & International standards and certifications.
3. Conduct food safety audits.
4. Use new technologies to improve food traceability and manage risks.
5. Manage compliance with food safety regulations and maintain proper documentation.

SYLLABUS OF DSE- 9-FT

THEORY (Credits: 3; Hours: 45)

UNIT I: Introduction to Food Quality Management

(10 Hours)

Unit Description: This unit covers food quality management, focusing on quality concepts, food safety, and the principles of quality control and assurance. It also introduces Good Manufacturing Practices (GMP) and Pre-Requisite Programs (PRPs).

Subtopics:

- Introduction to food quality management – Key terms such as quality, food safety, quality planning, quality assessment. Concept of quality attributes - traditional, modern and consumer concepts of quality
- Concepts of quality management- Objectives, importance and functions of quality control and quality assurance,
- Principles of Good Manufacturing Practices (GMP), Pre-Requisite Program (PRP's)

UNIT II: Total Quality Management Systems

(13 Hours)

Unit Description: This unit covers key quality and safety concepts being applied in the food industry, including principles of TQM, TQMS, HACCP, ISO standards as well as, Sanitary and Phyto-sanitary Measures.

Subtopics:

- Total Quality Management (TQM)
- Total Quality Management System
- Sanitary and Phyto-sanitary Measures (SPS)
- HACCP (Hazard Analysis Critical Control Points)- Definition, Benefits, Principles, Guidelines for applying HACCP principles, HACCP Plan format

UNIT III: Compliance of TQMS

(12 Hours)

Unit Description: This unit covers the key elements of ISO 22000:2005, along with certification systems. It also introduces standardization, accreditation bodies, and the importance of audit procedures and documentation for regulatory compliance.

Subtopics:

- Certification systems in food sector
- Introduction & application of
 - i. ISO 9001:2000,
 - ii. ISO 14001:2004,
 - iii. OHSAS 18001:1999
 - iv. ISO 27001:2005
 - v. ISO 22000:2005
- Introduction to Standardization and accreditation- International Accreditation Forum (IAF), Quality Council of India (QCI), National Accreditation Board for Testing and Calibration Laboratories (NABL)
- Audit procedures and maintaining documentation for regulatory compliance.

UNIT IV: Risk Analysis and Food Traceability

(10 Hours)

Unit Description: This unit covers food safety risk analysis, assessment, management, and communication, along with the role of food traceability systems in recalls. It also explores new technologies in food safety.

Subtopics:

- Concept of food safety risk -analysis, assessment, management, and communication.
- Food traceability systems and their role in food recalls.
- Role of training in effective implementation of total quality management system
- Understanding New technologies in food safety: blockchain, AI, and IoT applications, non-destructive testing solutions, machine vision.

PRACTICALS
(Credit: 1; Hours: 30)

1. Develop an HACCP plan for a small food processing unit or for the preparation of a food product in a canteen.
2. Prepare a process audit checklist for any one operation in a small food business.
3. Case study on food recall.
4. Identify and document common food hazards in a home or restaurant setup.
5. Identify key quality control points during the preparation of a dish.
6. Identify key points of quality assurance during receiving of ingredients by a small food processing unit.
7. Prepare a total quality management system for a bakery specializing in cakes.

ESSENTIAL/ RECOMMENDED READINGS (Theory and Practical):

- International Organization for Standardization. (2022). *ISO 22000:2005 Food safety management systems - Requirements for any organization in the food chain*. International Organization for Standardization.
- Rao, E. S. (2013). *Food quality evaluation*. Variety Books Publishers Distributors.
- Suri, S., & Malhotra, A. (2014). *Food science, nutrition and safety*. Pearson India Ltd.

- Mathur, P. (n.d.). *Food safety and quality control*. Orient Blackswan.
- Alli, I. (2021). *Food quality assurance: Principles and practices*. CRC Press.

SUGGESTED READINGS:

- David, A. H. (2020). *Introduction to food quality management*. Wiley-Blackwell.
- Pieterneel A, Luning. & Willem, J. Marcelis. (2009). *Food Quality Management Technological and Managerial principles and practices*. Wageningen. Chapter 1, pg.19-31, Ch 3 pg. 93-139, Ch 9 pg. 391-395
- Williams, P. M. (2021). *Total quality management in the food industry*. Springer.
- Raj, K. K. N. N., & P. R. K. (2020). *Food safety and quality systems in developing countries*. CRC Press.
- Prewitt, A. A. (2021). *Food traceability: A practical guide*. Wiley.
- R., S. C. (2022). *ISO 9001:2015: A complete guide to quality management systems*. CreateSpace Independent Publishing Platform.
- Motarjemi, Y., & Lelieveld, H. (2020). *Food safety management: A practical guide for the food industry*. Academic Press.
- Sharma, S., Aggarwal, M., & Sharma, D. (Eds.). (2019). *Food frontiers*. New Delhi Publishers. ISBN: 978-93-86453-84-6.

SUGGESTED WEB LINKS:

- [FSSAI Official Website] (<https://www.fssai.gov.in>)
- [Codex Alimentarius] (<https://www.fao.org/fao-who-codexalimentarius/en/>)
- [WHO Food Safety Guidelines] (<https://www.who.int/foodsafety>)

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi.

**DISCIPLINE SPECIFIC ELECTIVE COURSE – DSE-11-FT:
INSTITUTIONAL FOOD ADMINISTRATION**

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Institutional Food Administration	4	3	0	1	Class XII Pass	Nil

LEARNING OBJECTIVES:

- This course equips students with knowledge and skills to plan, organize, and manage food services in institutions like schools, hospitals, and corporate settings.
- It combines principles of nutrition, menu planning, food safety, resource management, and cost control for effective institutional food administration.

LEARNING OUTCOMES:

After completion of the course the students will be able to-

- Understand the essentials of institutional food service management.
- Plan balanced menus for diverse populations.
- Ensure food safety and hygiene in institutional settings.
- Manage human and material resources effectively.
- Control costs and apply sustainable practices in food services.

SYLLABUS OF DSE-11- FT

**THEORY
(Credits: 3; Hours: 45)**

**UNIT I: Introduction to Food Service
Hours)**

(10

Unit Description: This unit covers key factors driving the growth of the food service industry, including lifestyle changes and technology, while exploring various food establishments. It also highlights management tools and essential entrepreneurial skills like creativity, leadership, and financial knowledge for success.

Subtopics:

- Factors contributing to the growth of the food service industry.
- Kinds of food service establishment.
- Tools of management, Planning, Organizing, Staffing, Directing, Coordinating, Reporting, and Budgeting (POSDCORB).

- Requisite skills for a good entrepreneur.

UNIT II: Food Production

(15 Hours)

Unit Description: This unit covers menu planning, food purchasing, storage, recipe standardization, and portion control. It also emphasizes hygiene practices like HACCP and GMP to ensure food safety and cleanliness.

Subtopics:

- Menu Planning - Importance of menu, factor affecting menu planning, menu planning for different kinds of food service units.
- Food purchase, storage and record keeping - methods of purchase, types of storage, various records
- Quantity food production - Standardization of recipes, quantity Food preparation and its various methods of cooking, recipe adjustment, portion control.
- Hygiene and sanitation- HACCP, GMP, GHP

UNIT III: Basics of effective utilization of resources **Hours)**

(10

Unit Description: This unit focuses on budgeting, manpower management, including recruitment, job roles, and motivation, as well as staff scheduling and performance analysis. It also covers facility types, equipment, and how layout design affects operational efficiency.

Subtopics:

- Money & Budget
- Manpower - Organization chart, Job description, Job specification, work schedule, Production schedule, Staff and service analysis, managing manpower (appraisal, motivation), Recruitment criteria.
- Facilities and types of equipment
- Effective Layout designs

UNIT IV: Planning of a Food Service Unit **Hours)**

(10

Unit Description: This unit covers preliminary planning, including market surveys, client identification, menu design, and pricing, along with developing a project plan and budget allocation. It also explores guidelines from regulatory bodies and labor laws essential for compliance in the food service industry.

Subtopics:

- Preliminary planning - market survey, identifying clients, menu card, four P's of planning, operation and delivery.
- Developing project Plan - Identifying resources, developing project Plan, Budget allocation, project proposal making.
- Guidelines of important regulatory bodies, labour laws.

PRACTICAL
(Credits 1: 30 Hours)

1. Conduct a local market survey to understand customer preferences and identify target clients for a new food service business. (Hint: Summarize findings and suggest a suitable menu based on the survey).
2. Evaluate and plan a menu for a school or hospital cafeteria or design a detailed birthday party menu for 20-25 guests.
3. Plan a seven days cyclic menu for girls' hostel in a college.
4. Create a menu for a specific type of food service establishment (like a quick-service restaurant buffet, or café menu or an event like a seminar/ conference) considering food cost, customer preferences, and feasibility.
5. Prepare an organizational chart for a small food service unit, then create a weekly work schedule for the staff based on the business's needs and peak hours.
6. PPT/Simulate the purchase of ingredients for a menu and demonstrate how to properly store perishable and non-perishable items. Discuss the impact of storage methods on food quality and shelf life.
7. Set up a roleplay scenario to demonstrate proper hygiene and sanitation practices in the kitchen. Focus on food handling, cleaning protocols, and safety standards like HACCP and GMP.
8. Create a layout design for a food service unit, such as a café or restaurant. Focus on optimizing space for efficient kitchen workflow, customer seating, and equipment placement.

ESSENTIAL/ RECOMMENDED READINGS (Theory and Practical):

- Sethi Mohini (2005) Institution Food Management. New Age International Publishers.
- West B Bessie & Wood Levelle (1988) Food Service in Institutions 6th Edition Revised By Hargar FV, Shuggart SG, & Palgne Palacio June, Macmillian Publishing Company New York.
- Bill Wentz (2008) Food Service Management: How to Succeed in the High-risk Restaurant Business, Atlantic Publishing Group.
- Douglas R. Brown and Shri Henkel (2007) The Non-Commercial Food Service Manager's Handbook: A Complete Guide for Hospitals, Nursing Homes, Military, Prisons, Schools and Churches. Atlantic Publishing Group Inc.
- Sari Edelstein (2008) Managing Food and Nutrition Services for Culinary, Hospitality, and Nutrition Professions. By Sari Edelstein, editor. Jones and Bartlett Learning, publisher.

SUGGESTED READINGS:

- Kazarian E A (1977) Food Service facilities Planning 3rd Edition Von Nostrand Reinhold New York.
- Kotler Philip. (2001) Marketing management Millennium Edition Prentice Hall of India
- Taneja S and Gupta SL (2001) Entrepreneurship development, Galgotia Publishing.
- Food Service Management: How to Succeed in the High-risk Restaurant Business by Someone Who Did. By Bill Wentz. Atlantic Publishing Group.
- Kotas Richard & Jayawardardene. C (1994) Profitable Food and Beverage Management Hodder & Stoughton Publication
- Dessler Gary (2007) Human Resource Management 11th edition Prentice Hall New Jersey.
- Luthans Fred (2004) Organisational Behaviour 10th Edition McGraw Hill International.

**DISCIPLINE SPECIFIC ELECTIVE COURSE – DSE-13 –FT:
DAIRY TECHNOLOGY**

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Dairy Technology	4	3	1	0	Class XII Pass	NIL

LEARNING OBJECTIVES:

The learning objectives of this course are

- To understand the importance of dairy industry and processing of milk.
- To gain knowledge of compositional and technological aspects of milk and milk products.

LEARNING OUTCOMES:

After completing the course, students will be able to:

- Describe the physico-chemical properties of milk.
- Develop understanding about composition of milk.
- Gain knowledge of milk processing techniques and various types of market milk.
- Develop an understanding of the processing of milk and milk products.

SYLLABUS OF DSE:13-FT

THEORY

(Credits: 3; Hours: 45)

Unit I: Introduction and Physical Properties of Milk

(7 Hours)

Unit Description: This unit covers the historical development of the dairy industry in India and the production and utilization of milk. It also explores the key physical properties of milk that are essential for understanding milk quality and behavior.

Subtopics:

- Historical development of dairy industry in India
- Production and utilization of milk
- Properties of milk (Color, Taste, pH, Refractive index, Viscosity, Surface tension,
- Freezing & boiling point, specific heat and electrical conductivity

Unit II: Composition and Spoilage of Milk

(15 Hours)

Unit Description: This unit covers the composition of milk. It also discusses the factors responsible for milk spoilage, focusing on microbial, enzymatic, and environmental influences on milk quality.

Subtopics:

- Milk carbohydrates
- Milk proteins and enzymes

- Milk fat
- Micronutrients present in milk
- Milk spoilage and factors responsible for spoilage

Unit III: Milk Processing

(8 Hours)

Unit Description: This unit covers the techniques and technologies involved in liquid milk collection and processing. It also explores different types of milk available in the market.

Subtopics:

- Liquid milk collection
- Platform testing
- Various stages of processing; Filtration, Clarification Homogenization, Pasteurization, Packaging
- Types of market milk- toned, full cream, skim, homogenized, standardized, sterilized, recombined, reconstituted/ rehydrated and flavoured milk.

Unit IV: Milk Products **Hours)**

(15

Unit Description: This unit focuses on the processing and storage of fermented milk and other milk products. It covers the definition, manufacturing process of milk cream, paneer, and cheese, including the classification and production methods for various types of cheese and cream.

Subtopics:

- Processing and storage of fermented milk and fermented milk products.
- Milk Cream: definition and manufacturing
- Paneer: definition and manufacturing
- Cheese: definition, classification and manufacture of different types of cheese

Tutorial **Credit: 1; Hours: 30**

1. Formula and calculation for: Saponification value, Iodine value, RM value, Polenske value, peroxide value, Pearson square, casein protein
2. Schematic diagram of pasteurization of milk in dairy industry.
3. Study critical control points in milk processing.
4. Study and prepare schematic diagram of CIP in dairy industry
5. Make an effective layout for the dairy plant or dairy plant visit with the report.

ESSENTIAL/ RECOMMENDED READINGS:

- De, Sukumar. (2007). Outlines of dairy technology. Oxford University Press.
- Webb, B. H., Johnson, A. H., & Alford, J. A. (2005). Fundamentals of Dairy Chemistry. CBS Publisher.
- A. Kanekanian. 2014. Milk and Dairy Products as Functional Foods. John Wiley & Sons, Ltd., UK.
- Singh, S (2014). Dairy Technology: Milk and Milk Processing. New India Publishing Agency.
- [https://fssai.gov.in/upload/uploadfiles/files/2_%20Chapter%202_1%20\(Dairy%20products%20and%20analogues\).pdf](https://fssai.gov.in/upload/uploadfiles/files/2_%20Chapter%202_1%20(Dairy%20products%20and%20analogues).pdf)

SUGGESTED READINGS

- P.F. Fox, T. Uniacke-Lowe and J.A.O' Mahony (2005). Dairy Science and Technology. Taylor & Francis.
- P. Walstra, Jan T.M. Wouters and Tom J. Geurts (2015). Dairy Chemistry and Biochemistry. Springer.
- Y.H. Hui. 1993. Dairy Science and Technology Handbook, Vol. I, II and III. Wiley-VCH, USA.
- Deeth, H. & Kelly, P. (2020). Processing and Technology of Dairy Products. MDPI.
- https://fssai.gov.in/upload/uploadfiles/files/Gazette_Notification_Milk_Products_24_10_2017.pdf

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi.

B.A. (PROG) WITH FOOD TECHNOLOGY (FT)

POOL DSE: EVEN SEMESTER

**DISCIPLINE SPECIFIC ELECTIVE – DSE-2-FT:
POST HARVEST TECHNOLOGY**

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Post Harvest Technology	4	3	0	1	Class XII Pass	NIL

LEARNING OBJECTIVES:

4. To familiarize students with role of post-harvest technology.
5. To impart knowledge regarding the developmental dynamics of agricultural produce.
6. To acquaint students with technological approaches involved in reduction of post-harvest losses.

COURSE OUTCOMES:

Upon successful completion of this course, students will be able to:

1. Explain the principles of post-harvest technology
2. Illustrate the physiological and biochemical changes that occur during various stages of fruits and vegetables development and production
3. Understand the causes of post-harvest losses, and remedial methods to reduce them
4. Indicate the importance and the significance of proper post-harvest handling to maintain the quality of agricultural produce

SYLLABUS OF DSE-2-FT

THEORY
(Credits 3: 45 Hours)

UNIT I: Introduction to Post-Harvest Technology

(9 Hours)

- *Unit Description:* This unit will introduce the students to the relevance and current status of post-harvest technology in global scenario.
- *Subtopics:*
 - Introduction to Post-harvest technology
 - Importance and need.
 - Status of post-harvest: Global scenario
 - Factors affecting quality of horticultural produce.
 - Pre-harvest (customization of produce by moulding method)
 - Harvest

- Post-Harvest

UNIT II: Physiology and Biochemistry of Horticultural Produce (10 Hours)

- *Unit Description:* This unit will focus on various physiological and biochemical changes in horticultural produce after harvest.
- *Subtopics:*
 - Physiology of horticultural produce
 - Respiration rate and associated factors
 - Biochemical and physiological changes during ripening and ethylene biosynthesis
 - Maturity indices in horticultural produce
 - Disorders in horticultural produce

UNIT III: Post-harvest Losses and Treatments for Prevention (17 Hours)

- *Unit Description:* This unit describes the post-harvest losses, associated factors and the treatments involved in reduction of such losses
- *Subtopics:*
 - Introduction and types of post-harvest losses
 - Factors responsible
 - Biological
 - Environmental
 - Post-harvest treatments
 - Pre-cooling
 - Cleaning, washing, dry-cleaning and dressing.
 - Curing, drying, vapor heat treatment and degreening
 - Dys-infection and sprout suppression
 - Wax-coating, astringency reduction and irradiation
 - Regulation of ripening

UNIT IV: Storage and Packaging (9 Hours)

- *Unit Description:* This unit will focus on storage and packaging techniques of horticultural produce.
- *Subtopics:*
 - Principles of storage.
 - Traditional (in situ, sand, coir, pits, clamps, windbreaks, cellars, barns, evaporative cooling, ZECC) and advanced storage methods (Controlled atmosphere Storage, Modified Atmospheric Storage, Cold storage).
 - Packaging of horticultural produce- material, techniques-basic and advanced.

PRACTICAL (Credits 1: 30 Hours)

- Classify any fruit(ex.-banana) based on physical maturity indices
- Determination of firmness in fruits by penetrometer
- Determination of the juice content in different maturity stages of fruit
- Determination of fruit acids by titration and calculation of the sugar/acid ratio
- Determination of the starch content of apples/pears using an iodine solution
- Determination of pesticide residue in fresh farm produce by using chlorine test strips

14. Presentation on post-harvest management of any fruit/vegetable by application of low cost and modern techniques

OR

Visit to a nearby farm.

ESSENTIAL READINGS (Theory and Practical):

- Yahia, E. M., and Carrillo-Lopez, A. (Eds.). (2018). *Postharvest Physiology and Biochemistry of Fruits and Vegetables*. Woodhead Publishing.
- Wills, R., and Golding, J. (2016). *Postharvest: An Introduction to The Physiology and Handling Of Fruit And Vegetables*. UNSW press.
- Siddiq, M., Ahmed, J., Lobo, M. G., and Ozadali, F. (Eds.). (2012). *Tropical and Subtropical Fruits: Postharvest Physiology, Processing and Packaging*. John Wiley & Sons.
- Singh, I.S. (2009). *Post-Harvest Handling and Processing of Fruits and Vegetables*, West vill Publishing House.
- Chakraverty, A., Mujumdar, A. S., and Ramaswamy, H. S. (Eds.). (2003). *Handbook Of Postharvest Technology: Cereals, Fruits, Vegetables, Tea, And Spices* (Vol. 93). CRC press. <http://ecoursesonline.iasri.res.in/course/view.php?id=164>(accessed on 17.3.2023)
- FAO. Post-harvest system and food losses. <https://www.fao.org/3/ac301e/AC301e03.html>(accessed on 17.3.2023)
- FAO. Prevention of post-harvest food losses fruits, vegetables and root crops a training manual. <https://www.fao.org/3/t0073e/t0073e00.html>(accessed on 17.3.2023)

SUGGESTED READINGS:

- Wills, R. B., and Golding, J. (Eds.). (2016). *Advances in Postharvest Fruit and Vegetable Technology*. CRC press.
- Kitinoja, L., and Gorny, J. R. (1999). Postharvest technology for small-scale produce marketers: economic opportunities, quality and food safety. *Postharvest technology for small-scale produce marketers: economic opportunities, quality and food safety*.
- Kadar, A.A. (2002). *Post Harvest Technology of Horticultural Crops*, 2nd Edition, University of California.
- http://postharvest.org/PEF_Training_of_Postharvest_Trainers_Manual_2019_2Ed.pdf
- <https://agmarknet.gov.in/Others/CPBANANA.pdf>(accessed on 17.3.2023)
- <https://www.oecd.org/agriculture/fruit-vegetables/publications/guidelines-on-objective-tests.pdf>(accessed on 17.3.2023)

**DISCIPLINE SPECIFIC ELECTIVE – DSE-4-FT:
FOOD VALUE CHAIN MANAGEMENT**

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Food Value Chain Management	4	3	0	1	Class XII Pass	NIL

LEARNING OBJECTIVES:

1. To understand the basic concepts related to food value chain management.
2. To know the principles, process and components of value chain management with special reference to the food industry.
3. To learn the scope and challenges associated with sustainable food value chain management.

LEARNING OUTCOMES:

After completion of the course, the students will be able to:

1. Appreciate the significance of managing food value chains
2. Develop strategic plan of action which can support the concept of sustainability in food value-addition
3. Manage unit operations/assembly lines in food processing units

SYLLABUS OF DSE-4-FT

**THEORY
(Credits 3: 45 Hours)**

UNIT I: Introduction: Concept and Framework (8 Hours)

- *Unit Description:* This unit will discuss about the concept of food value chain and the basic framework necessary for its application. It will help students understand the difference and association of value chain vis-à-vis food value chain.
- *Subtopics:*
 - Basic Concepts: value chain, food value chain, sustainable food value chain, supply food chain management, sustainable food value chain development.
 - Concept of “value added” in food chains.
 - Sustainable food value chain framework.

UNIT II: Principles and Components of Sustainable Food Value Chain Development (12 Hours)

- *Unit Description:* This unit will discuss about the basic principles and components which

help in the planning and implementation of food value chain.

- *Subtopics:*
 - Principles of sustainable food value chain development: measuring, understanding and improving
 - Components of sustainable food value chain development

UNIT III: Food Supply Chain Management (15 Hours)

- *Unit Description:* Food supply chain is an important for successful food value chain management. This unit will discuss the basic aspects of supply chain management.
- *Subtopics:*
 - Types of food supply chains
 - Management of operations: manufacturing and processing of food
 - Operational Challenges: food logistics in procurement, distribution, transportation and retailing (case study)

Unit IV: Challenges and Potential in Food Value Chain Management (10 Hours)

- *Unit Description:* This chapter will discuss the future challenges and potential or scope of successful and sustainable food value chain management.
- *Subtopics:*
 - Social and economic aspects
 - Food insecurity (Conserving and enhancing nutrients: food fortification)
 - Carbon footprint, water footprint, toxicity and waste, soil health
 - Food losses and food waste
 - Food innovation
 - Green Technological Approaches in food industry
 - Catering sector as a sustainable value chain (case study)

PRACTICAL (Credits 1: 30 Hours)

1. Critical evaluation on the following case studies:
 - Potato value chain management (Link: <https://www.fao.org/3/i3953e/i3953e.pdf>, Pg. 28 of Neven (2014))
 - Dairy value chain management (Link: <https://averdishome.files.wordpress.com/2017/01/sustainable-value-chains-for-sustainable-food-systems.pdf>, Pg. 25 of Maybeck and Redfern (2016).)
 - Coffee value chain management (Link: <https://www.fao.org/3/i3953e/i3953e.pdf>, Pg. 49 of Neven (2014))
 - Pineapple value chain management (Link: http://sfacindia.com/PDFs/SFAC_Value-Chain-Analysis.pdf)
2. Develop a food value chain flow chart or framework for any farm to plate product such as wheat to bread or tomato to tomato puree.
3. Develop a business proposal for supply chain management of milk or any perishable food.
4. SWOT Analysis of a given food value chain management through a case study (Link:

<https://averdishome.files.wordpress.com/2017/01/sustainable-value-chains-for-sustainable-food-systems.pdf>, Pg. 263 of Maybeck and Redfern (2016)).

5. Methodology for determining food waste in college or school canteen.

ESSENTIAL READINGS (Theory and Practical):

- Neven, D. (2014). *Developing Sustainable Food Value Chains: Guiding Principles*. Food and Agricultural Organization (FAO). Link: <https://www.fao.org/3/i3953e/i3953e.pdf>
- Dani, S. (2021). *Food Supply Chain Management and Logistics*. Second Edition. Kogan Page.
- Meybeck, A. and Redfern, S. (2016). *Sustainable value chains for sustainable food systems*. Food and Agricultural Organization (FAO). Link: <https://averdishome.files.wordpress.com/2017/01/sustainable-value-chains-for-sustainable-food-systems.pdf>
- Stead, V. and Hinkson, M. (2022). *Beyond Global Food Supply Chains: Crisis, Disruption and Regeneration*. First Edition. Palgrave Macmillan Press.
- Pullman, M. and Wu, Z. (2021). *Food Supply Chain Management: Building a Sustainable Future*. Second Edition. Routledge Press.
- Ikavou, E., Bochtis, D., Vlachos, D. and Aidonis, D. (2016). *Supply Chain Management: For Sustainable Food Networks*. First Edition. Wiley Publishers.
- Mena, C. and Stevens, G. (2010). *Delivering Performance in Food Supply Chains*. First Edition. CRC Press.
- Small Farmers Agrobusiness Consortium (SFAC). (2022). *Value Chain Analysis of Select Crops in Northeastern States*. SFAC. Link: http://sfacindia.com/PDFs/SFAC_Value-Chain-Analysis.pdf

SUGGESTED READINGS:

- Mor, R.S., Kamble, S.S. and Sangwan, K.S. (2022). *Operations and Supply Chain Management in Food Industry: Farm to Fork*. Springer.
- Lianos, I., Ivanov, A. and Davis, D. (2022). *Global Food Value Chains and Competitive Laws*. First Edition. Cambridge University Press.
- Bourlakis, M.A. and Weightman, P.W.H. (2003). *Food Supply Chain Management*. First Edition. Blackwell Publishing.
- Mukherjee, A., Goyal, T.M., Pal, P. and Deb, S. (2014). *Food Supply Chain in India: Analysing the Situation for International Business*. Academic Foundation.
- Hill, V. (2016). *A Kaizen Approach to Food Safety: Quality Management in the Value Chain from Wheat to Bread*. Springer.

**DISCIPLINE SPECIFIC ELECTIVE – DSE-6-FT:
RESEARCH METHODS IN HOME SCIENCE**

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Research Methods in Home Science	4	3	0	1	Class XII Pass	NIL

LEARNING OBJECTIVES:

3. To provide students understandings about the basic concepts, approaches and methods in conducting Home Science research.
4. To enable learners to appreciate and critique the nuances of designing a research study well.
To sensitize students towards ethical concerns while conducting Home Science research.

COURSE OUTCOMES:

Upon successful completion of this course, students will be able to:

6. Demonstrate knowledge of the scientific method, purpose and approaches to research in Home Science
7. Compare and contrast quantitative and qualitative research approaches
8. Explain different types of research design and their applicability in Home Science research
9. Understand the key elements of a research process
10. Explain ethical principles, issues and procedures

SYLLABUS OF DSE-6-FT

**THEORY
(Credits 3; Hours 45)**

UNIT I: Research Purpose and Design

(10 Hours)

This unit will deal with meaning and importance of research in various areas of Home Science. Exposure to different types of research designs and measurement in Home Science research would also be given.

- Meaning, purpose and significance of research
- Research as a scientific method
- Types of research
- Quantitative, Qualitative and mixed method approaches

- Research Designs –Experimental and Non-Experimental; Descriptive and Observational; Participatory research
- Internal and external validity of research design
- Variables, concepts and measurement in research
- Levels of measurement
- Units of analysis

UNIT II: Sampling and Research tools & techniques (15 Hours)

This unit will introduce the student to the concept of sampling and methods used to draw sample from population using examples from Home Science discipline. Students would also learn about types of data, its collection and reliability and validity concerns.

- Role of sampling in research
- Sampling techniques and their applicability, Sample size and sampling error
- Types of data: Primary and Secondary
- Tools of data collection; types, construction and administration- Interview, Questionnaire, Observation, Focus group discussion and other methods
- Validity and reliability of data collection tools

UNIT III: The Research Process (15 Hours)

This unit will elaborate upon the various steps involved in conducting and reporting researches in Home Science.

- Defining the problem, research questions, objectives, hypotheses
- Review of related literature and originality in writing
- Systematic research: concept and methodology
- Planning the research
- Identifying variables and constructing hypothesis
- Selecting appropriate research methodology and tools
- Data analysis: coding and tabulation
- Writing a research report: styles and formats
- Citation formats: in medical sciences, social sciences

UNIT IV: Values, Social Responsibility and Ethics in Research (5 Hours)

This unit will apprise the students about ethical concerns while conducting and reporting research.

- Ethical principles guiding research: from inception to completion and publication of research
- Plagiarism and Academic integrity in research: plagiarism tools and software
- Ethical issues relating to research participants and the researcher
 - Rights, dignity, privacy and safety of participants
 - Informed consent, confidentiality, anonymity of respondents, voluntary participation, harm avoidance

PRACTICAL (Credits 1; Hours 30)

10. Data visualization
11. Levels of Measurement
12. Types of research designs

- c. Experimental and non-experimental; Descriptive and observational
- d. Qualitative, Quantitative and mixed method
- 13. Sampling techniques and sample size calculation
 - c. Probability sampling method
 - d. Non-Probability sampling methods
- 14. Tools of data collection- Interview schedule, questionnaire and FGD
 - Designing/ Construction
 - Preparation of tools for ethical review
 - Pilot testing/ validity and reliability of the tool\
- 15. Data collection and analysis process: conducting interviews, administering questionnaire
- 16. Coding and tabulation of data for analysis
- 17. Citation formats and Plagiarism
- 18. Reviewing a research paper from a specific area of specialization in Home Science

ESSENTIAL READINGS (Theory and Practical):

- Kerlinger F. N. and Lee, H.B. (2017). *Foundations of Behavioral Research* 4th Ed. Harcourt College Publishers.
- Kothari, C. R. (2019). *Research Methodology: Methods and Techniques*. New Age International Pvt Ltd, New Delhi.
- Kothari, C. R. (2022). *ShodhPadhati* 1st Ed. New Age International Pvt Ltd, New Delhi.
- Kumar, R. (2019) *Research Methodology: A Step-by-Step Guide for Beginners*. 5th Ed. Sage Publications, New Delhi.

SUGGESTED READINGS:

- Bernard, H. R. (2000). *Social research methods: Qualitative and quantitative approaches*. Thousand Oaks, CA.: Sage.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage Publications.
- Davis, A. M., Treadwell, D. (2019). *Introducing Communication Research: Paths of Inquiry*. United Kingdom: SAGE Publications.
- Flynn, J.Z., Foster, I.M. (2009). *Research Methods for the Fashion industry*. Fairchild books, Bloomsbury publishing.
- Indian National Science Academy (INSA) (2019). *Ethics in Science Education, Research and Governance*. ISBN:978-81-939482-1-7. <http://www.insaindia.res.in/pdf/EthicsBook.pdf>
- Jacobsen, K. H. (2020). *Introduction to health research methods: A practical guide*. Jones & Bartlett Publishers.
- UGC (2021) *Academic Integrity and Research Quality*. New Delhi: UGC, Retrieved from https://www.ugc.ac.in/e-book/Academic%20and%20Research%20Book_WEB.pdf

**DISCIPLINE SPECIFIC ELECTIVE COURSE – DSE-8 –FT:
APPLIED FOOD MICROBIOLOGY**

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Applied Food Microbiology	4	3	0	1	Class XII Pass	NIL

LEARNING OBJECTIVES:

- To provide students with a comprehensive understanding of food microbiology, including the applications of various microorganisms in food product development and potential sources of food spoilage.
- To equip students with practical skills in microbiological techniques, such as microbial cultivation, staining, and enumeration.

LEARNING OUTCOMES:

After completion of the course the students will be able to -

- Understand the role of microorganisms in food industry
- Analyse microbial growth and growth factors.
- Understand the microbial spoilage and their contribution to the occurrence of foodborne diseases
- Understand the beneficial role of microorganism along with food product development.

SYLLABUS OF DSE -8 -FT

THEORY
(Credits: 3; Hours: 45)

UNIT I: Microorganisms in Food

10 Hours

Unit Description: This unit provides an overview of applied food microbiology, focusing on the role of microorganisms in food systems. It explores the classification, types, and morphology of microorganisms commonly associated with foods, including bacteria, fungi, and viruses. The unit also examines the various sources from which microorganisms can enter food.

Subtopics:

- Introduction and scope of applied food microbiology.
- Classification and types of microorganisms (bacteria, fungi and viruses) in foods and their morphology.

- Microbial contamination in foods.

UNIT II: Growth and Cultivation of Microorganism

10 Hours

Unit Description: This unit delves into the dynamics of microbial growth in food systems, focusing on the bacterial growth curve and the various factors that influence the growth of microorganisms in foods. It also provides a comprehensive understanding of the techniques used for cultivating and enumerating microorganisms.

Subtopics:

- Bacterial growth curve and factors affecting growth of microorganisms in foods
- Techniques for cultivation of microorganisms
- Enumeration of microorganisms

UNIT III: Role of Microorganisms in Food: Spoilage and Diseases

12 Hours

Unit Description: This unit examines the role of microorganisms in food systems, with a focus on their involvement in food spoilage and their contribution to the occurrence of foodborne diseases.

Subtopics:

- Food microbial spoilage
- Spoilage in different food types (milk, meat, fruits and vegetables)
- Food borne diseases and types, food borne intoxications, infection and food borne toxic infections

UNIT IV: Application of Microorganisms in Food Development and Preservation

13 Hours

Unit Description: This unit offers a comprehensive insight into the beneficial roles of microorganisms in food production and preservation.

Subtopics:

- Type and role of microorganisms in development of: probiotic foods (yoghurt, curd), fermented food (bread, beer, wine, cheese, vinegar)
- Role of microorganism in food preservation (pickling, sauerkraut, kimchi)
- Role of microorganisms in enzyme production

PRACTICAL (Credit: 1; Hours: 30)

9. Introduction to the Basic Microbiology Laboratory Practices and Equipments
10. Functioning and handling of microscope
11. Morphological study of bacteria using permanent slides
12. Morphological study of fungi using permanent slides
13. Simple staining /Gram's staining
14. Cleaning and sterilization of glassware
15. Preparation and sterilization of culture media (nutrient agar/ nutrient broth)
16. Standard Plate Count Method for bacteria

17. Standard Plate Count Method for fungi

ESSENTIAL/ RECOMMENDED READINGS (Theory and Practical):

- Frazier William C and Westhoff, Dennis C. (2004) Food Microbiology, TMH, New Delhi,
- Jay, James M. Modern (2000) Food Microbiology, CBS Publication, New Delhi.
- Pelczar MJ, Chan E.C.S and Krieg, Noel R. (1993) Microbiology, 5th Ed., TMH, New Delhi.
- W. M. Foster. (2020) Food Microbiology. CBS Publishers & Distributors Pvt Ltd.
- Nehra, M., & Nain, V. (2024). Handbook of Industrial Food Microbiology. CRC Press.

SUGGESTED READINGS:

- Bibek Ray and Arun Bhunia. (2014) Fundamentals food microbiology, 5th Ed, CRC Press.
- K.R. Aneja. (2018) Experiments in microbiology, plant pathology, tissue culture and microbial biotechnology, New age international publishers.
- Roger Y. Stanier. (1987) General Microbiology, Macmillan.
- K.R. Aneja. (2018) Modern Food Microbiology, Medtech.
- Kieliszek, M., & Kowalczewski, P. L. (2023). Recent Advances in Applied Microbiology and Food Sciences (p. 218). MDPI-Multidisciplinary Digital Publishing Institute.
- Reddy, S. M., Girisham, S., & Babu, G. N. (2017). Applied Microbiology (agriculture, environmental, food and industrial microbiology). Scientific Publishers.
- Garbutt, John. (1997) Essentials of Food Microbiology, Arnold, London.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi.

**DISCIPLINE SPECIFIC ELECTIVE COURSE – DSE-10 –FT:
SUGAR AND CONFECTIONERY TECHNOLOGY**

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Sugar and Confectionery Technology	4	3	0	1	Class XII Pass	NIL

LEARNING OBJECTIVES:

- To equip the students with scientific base for preparing and conducting quality analysis of different types of confectionary products
- Facilitate student to explore the technologies involved in the production of confectionery products.
- Help student gain insights into the industry's growth, technological advancements and emerging trends that are shaping its future.

LEARNING OUTCOMES:

After completion of the course, the students will be able to:

- Know the current status of sugar and confectionery industry in India.
- Attain knowledge of the standards and regulations.
- Understand the principles of sugar cookery
- Understand the technologies for confectionery product preparations.

SYLLABUS OF DSE:10-FT

THEORY

(Credits: 3; Hours: 45)

UNIT I: Introduction

(6 Hours)

Unit Description: This unit covers the history and current status of sugar processing in India, the economic significance of the confectionery industry, and the classification of confectionery products alongside relevant food safety standards and regulations.

Subtopics:

- History and current status of sugar processing in India
- Economic importance of Confectionery Industry in India.
- Confectionery products - types and their relevant standards and regulations.

**UNIT II: Sugars
Hours)**

(12

Unit Description: This unit explores the chemistry of sugar, its various types and sources and the processing methodologies for different kinds of sugars. It also examines the refining processes and technologies used at each stage.

Subtopics:

- Chemistry of sugar
- Types and sources
- Methodology of processing of different kinds of sugars (raw, khandsari, brown, bura, rock, jaggery)
- Methodology of refining the sugar.

UNIT III: Sugar Cookery

(12

Hours)

Unit Description: This unit focuses on the principles of sugar cookery. It examines the impact of heat, acids and other additives on sugar behaviour. This unit also covers the methodology for preparing liquid sweeteners and syrups, along with an exploration of different types of candies.

Subtopics:

- Principles of sugar cookery (inversion, melting, caramelization, crystallization and hydrolysis)
- Role of heat, acid and other ingredients on sugar behaviour
- Methodology of preparation of liquid sweeteners/ syrup
- Types of candies: crystalline and non-crystalline

UNIT IV: Confectionery Products

(15

Hours)

Unit Description: This unit covers confectionery additives, production processes, quality parameters, and troubleshooting for various confectionery items like candies, toffees, caramels and traditional Indian sweets. It also includes the preparation of cake icings, required ingredients, equipment and corrective measures for common faults.

Subtopics:

- Confectionery additives
- Hard-boiled candies, toffees, jujubes, caramel, fondant, fudge and brittles: ingredients, processes, product quality parameters, faults and corrective measures.
- Indian confectionery items like chenna-murki, shakkarpara etc: ingredients, processes, product quality parameters, faults and corrective measures.
- Cake icing: preparation of different icings, ingredients, equipments required, faults and corrective measures.
- Chocolate: ingredients, processing, fat bloom

PRACTICAL

(Credit: 1; Hours: 30)

1. Estimation of solubility, moisture and ash content of sugar and jaggery.
2. Determine the effect of various thermal temperatures on sugar solution and perform the thread and ball test.
3. To study the process of inversion, melting, caramelization and crystallization in sugar.
 - Preparation and quality evaluation of
 - Shakarpara
 - Chena-murki
 - Fondant
 - Fudge
 - Brittles
 - Hard boiled candy
 - Toffee
 - Fruit candy
 - Caramel syrup and chocolate sauce

- Butter scotch
- 4. Decoration/ frosting of cake with royal icing/ butter cream icing

ESSENTIAL/ RECOMMENDED READINGS (Theory and Practical):

- Manay, S. and Shadaksharaswami, M. (2004). Foods: Facts and Principles. New Age Publishers.
- Marion Bennion, Barbara Scheule. (2016). Introductory foods, 13th edition. Pearson, Kent State University.
- Mohini, Sethi. & Eram, Rao. (2011). Food science- Experiments and applications, 2nd ed., CBS publishers & Distributors Pvt Ltd.
- Raina et.al. (2003). Basic Food Preparation-A complete Manual. 3rd Ed. Orient Longman Pvt. Ltd.
- Minifie, B.W. (1999). *Chocolate, Cocoa and Confectionary*. Aspen Publication.

SUGGESTED READINGS:

- Edwards, William. P. (2000). The Science of Sugar Confectionery, The Royal society of Chemistry
- Lees, R. (2012). *Sugar confectionery and chocolate manufacture*. Springer Science & Business Media.
- Lees, R. & Jackson, EB. (1992). *Sugar Confectionery and Chocolate Manufacture*. Springer.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi.

DISCIPLINE SPECIFIC ELECTIVE COURSE–DSE-12-FT: PUBLIC HEALTH NUTRITION: CURRENT CONCERNS

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Public Health Nutrition: Current Concerns	4	3	1	0	Class XII Pass	NIL

LEARNING OBJECTIVES:

- To understand the varied dimensions of nutritional issues and identify different approaches that can be applied at the community level to improve nutritional well-being.

- To attain knowledge about the policies and intervention programs in India aimed at addressing malnutrition.
- To understand the concept of food and nutrition security and identify its determining factors.

LEARNING OUTCOMES:

After completion of the course, the students will be able to:

- Comprehend the complex and diverse nature of nutritional challenges.
- Gain awareness of the various strategies that can be implemented at the community level to enhance nutritional status.
- Acquire knowledge of the policies and intervention programs in India designed to combat malnutrition.
- Develop an understanding of the concept and key factors influencing food and nutrition security.

SYLLABUS OF DSE: 12-FT

THEORY (Credits:3; Hours 45)

UNIT I: Nutritional Problems at the Community Level (12 Hours)

Unit Description: Students will be explained about the existing nutritional problems in the community in the present scenario.

Subtopics:

- Introduction to Public Nutrition
Etiology, prevalence, clinical features and preventive strategies for-
 - Undernutrition - Protein energy malnutrition, Moderate Acute Malnutrition, Severe Acute Malnutrition, Iron Deficiency Anaemia, Vitamin A Deficiency, Iodine Deficiency Disorders
 - Obesity
 - Coronary heart disease, Diabetes

UNIT II: Approaches to Enhance Community Nutrition and Health (9 Hours)

Unit Description: This unit will deal with the different approaches and strategies that could help alleviate the nutrition and health status of the community.

Subtopics:

- Assessment of Nutritional Status
- Appropriate interventions involving different sectors such as Food, Health, and Education – diet diversification, food fortification, supplementation, genetic modification, improved water and sanitation, immunization, promotion of optimal infant and young child feeding practices, growth monitoring and promotion (GMP)

UNIT III: Nutrition Policy and Programmes

(12Hou

rs)

Unit Description: Students will be introduced to all the major ongoing national level interventions and strategies and goals to combat malnutrition in the nation.

Subtopics:

- National Nutrition Policy
- Ongoing national nutrition programmes – Integrated Child Development Services (ICDS) Scheme, Mid-day Meal Programme (MDMP), Anaemia Mukh Bharat, National programmes for prevention of Vitamin A deficiency, National Programme for Prevention and Control of Cancers, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS), POSHAN Abhiyaan, POSHAN 2.0

UNIT IV: Food and Nutrition Security Hours)

(12

Unit Description: Students will be taught the concept of food and nutrition security and the associated national level intervention and programs

Subtopics:

- Concept, components, determinants
- Overview of the ongoing public sector programmes for improving food and nutrition security

TUTORIAL (Credit 1: Hours 30)

1. Anthropometric assessment (Height, Weight, BMI, MUAC, Waist and Hip circumference)
2. Market survey of Ready to use Therapeutic Food products for combating nutritional deficiencies
3. Development of Educational aid for addressing nutritional problems of community
4. Visit to on-going nutrition programmes

ESSENTIAL/ RECOMMENDED READINGS (Theory and Practical):

- Vir, S. C. (Ed.). (2023). Child, Adolescent and Woman Nutrition in India: Public Policies, Programmes and Progress. Taylor & Francis.
- Bamji, MS, Krishnaswamy, K. & Brahman, G N (Eds.). (2017). Textbook of Human Nutrition (4th ed.). New Delhi, India: Oxford and IBH Publishing Co. Pvt. Ltd.
- Park, K (2017). Park Textbook of Preventive and Social Medicine (24th ed.). Jabalpur, India: Banarasidas Bhanot Publishers.
- Khanna K, Gupta S, Seth R, Passi SJ, Seth R, Mahna R, Puri S (2013). Textbook of Nutrition and Dietetics. 2nd Edn. Phoenix Publishing House Pvt. Ltd.

SUGGESTED READINGS:

- Gibney, M J, Margetts, B M, Kearney, J M & Arab, L (Eds.). (2005). Public Health Nutrition. Oxford, UK: Blackwell Science.
- ICMR (2011) Dietary Guidelines for Indians – A Manual. National Institute of Nutrition, Indian Council of Medical Research, Hyderabad.

- Kishore, J (2016). National Health Programs of India (12th ed.). New Delhi, India: Century Publications.
- Chadha, R and Mathur, P (eds.) (2015). Nutrition A Lifecycle Approach. New Delhi, India: Orient Blackswan Pvt. Ltd.
- Ministry of Women and Child Development (MWCD), Government of India. POSHAN Abhiyaan [online]. Available at: <https://www.mygov.in/campaigns/poshan-abhiyaan-2024/> (Accessed: December 14, 2024).
- Ministry of Women and Child Development (MWCD), Government of India. POSHAN Abhiyaan [online] https://wcd.delhi.gov.in/sites/default/files/WCD/generic_multiple_files/final_saksham_angana_wadi_and_mission.pdf (Accessed: December 14, 2024).
- National Health Mission [online] <https://nhm.gov.in/index1.php?lang=1&level=3&sublinkid=1448&lid=797> (Accessed: December 14, 2024).

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi.

**DISCIPLINE SPECIFIC ELECTIVE – DSE-14-FT:
FUNCTIONAL FOODS AND NUTRACEUTICALS**

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Functional Foods and Nutraceuticals	4	3	1	0	Class XII Pass	NIL

LEARNING OBJECTIVES:

- To develop comprehensive understanding of different functional foods and nutraceuticals.
- To describe the role of nutraceuticals and functional foods in preventing chronic diseases and enhancing overall health.
- To understand the science behind the bioactive compounds in food.
- To understand the regulatory aspects pertaining to marketing and labelling of functional foods and nutraceuticals.

LEARNING OUTCOMES:

After completion of the course, the students will be able to:

- Elucidate the different types of conventional foods, nutraceuticals and functional foods.
- Comprehend the effectiveness of nutraceuticals and functional foods in promotion of human health.
- Understand food sources amalgamated with functional and bioactive compounds.
- Acquire knowledge about the regulatory aspects of functional foods and nutraceuticals.

SYLLABUS OF DSE-14-FT

THEORY (Credits: 3; Hours: 45/)

UNIT I: Introduction to Functional Foods and Nutraceuticals (6 Hours)

Unit Description: This unit provides an overview of the definitions, historical evolution, and distinctions between functional foods and nutraceuticals, along with insights into their current status and market trends in India.

Subtopics:

- Introduction to functional foods and nutraceuticals
- Difference between functional foods and nutraceuticals
- Current status of functional foods and nutraceuticals in India
- Market trends of functional foods and nutraceuticals

UNIT II: Functional Foods in Health Promotion (15 Hours)

Unit Description: This unit will describe the types of functional foods with their potential health benefits.

Subtopics:

- Types of functional foods - Cereal and cereal products, milk and milk products, egg, oils, meat and products, sea foods, nuts and oilseeds, functional fruits and vegetables, herbs and spices, beverages (tea, wine), fermented foods
- Potential health benefits and role in cardiovascular diseases, hypertension and diabetes

UNIT III: Nutraceuticals in Health Promotion (18 Hours)

Unit Description: This unit will describe the types of nutraceuticals with their potential health benefits.

Subtopics:

- Types of nutraceuticals: phytochemicals- isoprenoids, polyphenolics, phytosterols; carbohydrates- (dietary fibers, oligosaccharides and resistant starch); proteins and peptides, lipids- conjugated linoleic Acid, omega-3 fatty acids, fat replacers; vitamins and minerals; microbial- probiotics, prebiotics and synbiotic; sources and stability of nutraceuticals
- Health benefits- cardiovascular diseases, cancer, diabetes, cholesterol management, obesity, joint pain, immune enhancement, age-related macular degeneration, endurance performance and mood disorders – compounds and their mechanisms of action

UNIT IV: Regulatory Aspects

(6 Hours)

Unit Description: This unit addresses the safety, labeling, marketing, and regulation of functional foods and nutraceuticals, alongside consumer acceptance and future trends.

Subtopics:

- Safety, consumer acceptance and health claims
- Labeling, marketing and regulatory aspects
- Future prospects

TUTORIAL (Credit: 1; Hours: 30)

1. Survey of available nutraceuticals in the market.
2. Design a food label for a nutraceutical product.
3. Draft a review paper on any selected functional food or phytochemical with its potential health promotional aspects.
4. Work flow for regulatory approval.

ESSENTIAL READINGS (Theory and Practical):

- Wildman, R. E. and Bruno, R.S. (2021). Handbook of nutraceuticals and functional foods. (3rd edn.). CRC press
- Egbuna, C., & Dable-Tupas, G. (2020). Functional foods and nutraceuticals. Springer Nature Switzerland AG, 1, 1-632.
- Bagchi, D., Preuss, H. G., & Swaroop, A. (Eds.). (2015). Nutraceuticals and functional foods in human health and disease prevention. CRC Press.
- Food safety and Standards Authority of India, Government of India . Food Safety and Standards (Health Supplements, Nutraceuticals, Food for Special Dietary Use, Food for Special Medical Purpose, and Prebiotic and Probiotic Food) Regulations, 2022.
https://www.fssai.gov.in/upload/uploadfiles/files/Direction_New_compressed.pdf.
(Assessed on 14 December 2024)
- Malve, H., & Bhalerao, P. (2023). Past, present, and likely future of Nutraceuticals in India: Evolving role of pharmaceutical physicians. *Journal of Pharmacy and Bioallied Sciences*, 15(2), 68-74. DOI: 10.4103/jpbs.jpbs_96_23 (Assessed on 15 December 2024).

SUGGESTED READINGS:

- Bashir, K., Jan, K., & Ahmad, F. J. (2024). Functional Foods and Nutraceuticals: Chemistry, Health Benefits and the Way Forward. Springer.
- Bulathgama, U., Lakshman, N., & Bulugahapitiya, V. P. (2022). Recent Trends in Functional Foods and Nutraceuticals as Health-Promotive Measures: A Review. *globe*, 7, 9.
- Rani, V., & Yadav, U. C. (Eds.). (2018). Functional food and human health. Springer.
- Mahan, L. K., & Raymond, J. L. (2016). Krause's Food & the nutrition care process, Iranian Edition E-Book. Elsevier Health Sciences.
- Yadav, V., Pandey, P., Mittal, V., Khatkar, A., & Kaushik, D. (2015). Marketing nutraceuticals in India: An overview on current regulatory requirements. *Asian Journal of Pharmaceutical and Health Sciences*, 5(1).
- Noomhorm, A., Ahmad, I., & Anal, A. K. (Eds.). (2014). Functional foods and dietary supplements: processing effects and health benefits. John Wiley & Sons.

- Brar, S. K., Kaur, S. & Dhillon, G. S. (Eds.) (2014). Nutraceuticals Functional Foods- Natural Remedy, Nova Science Publishers, Inc.
- Williams, M., Pehu, E., & Ragasa, C. (2006). Health enhancing foods: opportunities for strengthening the sector in developing countries. The International Bank for Reconstruction and Development/ The World Bank. Washington, DC.
- Fernandes, S. D., Narayana, R. C., & Narayanan, A. V. (2019). The emergence of India as a blossoming market for nutraceutical supplements: An overview. Trends in Food Science & Technology, 86, 579-585. <https://doi.org/10.1016/j.tifs.2019.02.017> (Assessed on 15 December 2024).

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi.

**DISCIPLINESPECIFICC ELECTIVECOURSE–DSE-16-FT:
SPICE AND HERB TECHNOLOGY**

CREDIT DISTRIBUTION, ELIGIBILITYAND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Spice and Herb Technology	4	3	1	0	Class XII Pass	NIL

LEARNING OBJECTIVES:

- Introduce the role of spices and herbs in history, culture, and cuisine.
- Explore the processing, and applications of key spices and herbs.
- Discuss the role of spices and herbs in health, food preservation, and the economy.

LEARNING OUTCOMES:

After completion of the course, the students will be able to:

- Understand the historical and economic importance of herbs and spices.
- Learn about the characteristics of spices and herbs and their culinary uses.
- Gain knowledge about the processing techniques and industrial uses of spices and herbs.
- Understand the nutraceutical properties of spices and herbs.
- Identify and classify key herbs and spices used in culinary and medicinal application.

SYLLABUS OF DSE –16- FT

**THEORY
(Credits 3: Hours 45)**

**UNIT I: Introduction to Spices and Herbs
(Hours)**

(5

Unit Description: This unit will introduce the students to various spices and herbs, exploring their historical significance, and economic value.

Subtopics:

- Definition and Classification: Understanding the difference between spices and herbs.
- Historical Significance: Spice routes, cultural exchange, and colonial trade.
- Economic Importance: Global and Indian spice market trends, exporting countries.

UNIT II: Common Spices and Herbs and their Culinary Uses Hours)

(16

Unit Description: This unit will introduce the students to various spices and herbs, their characteristics and culinary uses.

Subtopics:

- Major spices of India: Pepper, cardamom, ginger, chilies, turmeric.
- Minor spices of India: carom seeds, coriander, cumin, fenugreek, garlic, mustard, mace, nutmeg, onion, saffron, tamarind, cloves, mint, vanilla, asafetida, allspice.
- Popular Herbs: Basil, chervil, chives, coriander, dill, lemon grass, mint, parsley, rosemary, sage, thyme, terragon.
- Regional spice blends.

UNIT III: Processing and Industrial use of Spices and Herbs Hours)

(16

Unit Description: This unit focuses on the various techniques and standards involved in the post-harvest handling and processing of spices and herbs. This unit also introduces the industrial use of spices and herbs.

Subtopics:

- Post-Harvest Handling: Drying, cleaning, and storage techniques.
- Processing Techniques: Grinding, oil extraction, solvent extraction and packaging.
- Shelf life and spoilage of spices and herbs
- Quality Standards: Indian and International quality standards (FSSAI, WHO, AYUSH), adulteration detection.
- Industrial Uses: Cosmetics, essential oils, and food preservation.

UNIT IV: Spices, Herbs, and Health Hours)

(8

Unit Description: This unit explains the health-promoting and nutraceutical properties of spices and herbs.

Subtopics:

- Bioactive compounds in spices and herbs.
- Nutraceutical value.
- Innovation in spice and herb foods
- New product development like herbal tea blends/spice mixes.

TUTORIAL

(Credits 1; hours 15)

1. Group discussion/Question Answer session/Problem solving exercises.
2. Presentation of project/Assignment by students.
3. Any other scholastic work related to application of conceptual understanding of the subject.
4. Preparation of spice mix
5. Evaluation and feedback by the teacher.

ESSENTIAL/ RECOMMENDED READINGS:

- Patil, D. A. (2013). *Spices and condiments: Origin, history and applications*. Daya Publishing House.
- Manay, S. (2001). *Foods: Facts and principles*. New Age International (P) Ltd., Publishers
- Srilakshmi, B. (2018). *Food science*. New Age International Publishers.

SUGGESTED READINGS:

- Achaya, K.T. (2003). *The story of our food*. Universities Press.
- Parry, J.W. (1953). *Spices: Their morphology, histology, and chemistry*. Chemical Publishing Co.
- Peter, K.V. (2012). *Handbook of herbs and spices*. Woodhead Publishing
- Ravindran, P.N. (2000). *Black pepper: Piper nigrum*. Harwood Academic Publishers.
- Pruthi, J.S. (1980). *Spices and condiments*. Academic Press Inc.
- Aggarwal, B.B., Sundaram, C., Malani, N., & Ichikawa, H. (2007). *The molecular targets and therapeutic uses of curcumin in health and disease*. Springer.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi.

UNIVERSITY OF DELHI

Department of Home Science

B.A (Prog.) with Apparel Design & Construction (ADC)

(SEMESTER – VII and VIII)

based on

Undergraduate Curriculum Framework 2022 (UGCF)

(Effective from Academic Year 2022-23)



University of Delhi



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Department of Home Science

B.A (Prog.) with Apparel Design & Construction (ADC)

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Semester VII

B.A (Prog.) with Apparel Design and Construction (ADC) as Major
Category-II

DISCIPLINE SPECIFIC CORE COURSE **DSC-13-ADC: FASHION PRODUCT DEVELOPMENT**

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Fashion Product Development	4	3	1	0	Appeared in Semester 6 with ADC	Nil

LEARNING OBJECTIVES

- Develop an understanding of the profile of Indian Apparel industry and role of product development.
- Impart knowledge of market research techniques used in Fashion product development.
- Acquire knowledge and skills related to Fashion product development processes.
- Create an awareness of the significance of sustainability and ethical considerations in fashion product development.
- Introduce the learners to the role of PLM application, in streamlining product development, supply chain management, and lifecycle assessment.

LEARNING OUTCOMES

After completing this course, the learner will be able to:

- Analyse and interpret the structure and segments of the Indian fashion industry.
- Conduct effective market research, including trend analysis and consumer segmentation, necessary for product development.
- Integrate sustainability and ethical practices into design thinking and product development processes.
- Describe the importance and functions of Product Lifecycle Management applications.
- Contribute effectively to various roles within the fashion industry, including product development, and supply chain management.

SYLLABUS OF DSC-13

THEORY **(Credits 3; Hours 45)**

UNIT 1: Apparel Industry and Fashion Product

10 Hours

This unit provides an understanding of the profile of Indian apparel industry, market segmentation, and the role of fashion product development.

- Profile of Indian Apparel Industry – Domestic and Export
- Apparel Market Segmentation
- Role of Product Development in the Fashion Industry
- Types of Fashion Product Development – Customer specification based, Trend-Based, Product enhancement, Innovative product

UNIT 2 – Market Research for Product development

10 Hours

The Unit focuses on market research for product development, covering consumer research to identify needs and market segments, trend analysis for fashion forecasting, and tools like Opportunity Identification, past-sale and sell-through analysis.

- Consumer Research: Identifying Customer Needs and Consumer Markets
- Trend Analysis: Fashion Season and Trend forecasting
- Opportunity Identification for Product development
- Retail research - Past-Sale Analysis, Sell through Analysis

UNIT 3 - New Product Development

15 Hours

This unit provides an overview of new product development processes, covering design thinking, sustainability and ethical considerations, and the steps in translating concept to product and marketing.

- Design Thinking for New Products
- Sustainability and Ethical Considerations in Fashion Product Development
- New product development – process and challenges
- Taking Concept to Market – Concept and design development, technical design, Costing, sourcing and supply chain management, sample making and testing, Production planning and quality assurance, Distribution Channels and Marketing, Reducing ‘time to market’.

UNIT 4: Introduction to Product lifecycle management (PLM)

10 Hours

This Unit introduces the learners to the use of Product Lifecycle Management (PLM) in fashion. It also discusses the importance of Product Lifecycle Assessment (LCA) and its essential steps.

- Role and Importance of Fashion Product Lifecycle Management (PLM)
- Application and challenges of PLM software in Fashion Business
- Importance and steps of Product Lifecycle Assessment (LCA)

TUTORIALS **(Credits 1; Hours 15)**

Tutorial classes will involve:

- Q&A sessions/ Group discussions/ Problem Solving exercises with the Students
- Presentation of project/ research activity by students
- Any other scholastic work related to application of conceptual understanding of the subject.
- Evaluation and feedback by the teacher

Essential Readings

- Carr, H., & Pomeroy, J. (2009). Fashion Design and Product Development. Wiley India Pvt Ltd.
- Keiser, S., Vandermar, D., & Garner, M. B. (2022). Beyond Design: The Synergy of Apparel Product Development. Fairchild.
- P. Shamayita, K. Gupta Pavan, Sampath V.R. (2024). Fashion, Product Design and Technology—Challenges and Opportunities. Allied Publishers Private Limited (India).
- Stark, J. (Ed.). (2019). Product Lifecycle Management (Volume 4): The Case Studies. Springer Cham.

Suggested Readings

- Evans, N., Jeffrey, M., & Craig, S. (2020). Costing for the Fashion Industry (2nd ed.). Bloomsbury Publishing.
- Grose, V. (2021). A Practical Guide to the Fashion Industry: Concept to Customer. Bloomsbury Publishing.
- Kunz, G., & Glock, R. (2004). Apparel Manufacturing: Sewn Product Analysis (Fashion Series) (4th ed.). Pearson.
- Mbeledogu, E. (2022). Fashion Design Research (2nd Ed.). Laurence King Publishing.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time

Semester VIII

B.A (Prog.) with Apparel Design and Construction (ADC) as Major

Category-II

DISCIPLINE SPECIFIC CORE COURSE DSC-14-ADC: SUSTAINABILITY IN TEXTILE AND FASHION INDUSTRY

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Sustainability in Textile and Fashion Industry	4	3	1	0	Appeared in Semester 6 with ADC	NIL

LEARNING OBJECTIVES

- To understand sustainability in the context of textile and fashion industry.
- To evaluate the environmental and social impact of materials.
- To explore sustainable production practices.
- To examine ethical considerations in textile and fashion.
- To assess consumer behavior and promote sustainable fashion choices.

LEARNING OUTCOMES

After completing this course, the learner will be able to:

- Define and articulate the principles of sustainability within the textile and fashion industry.
- Evaluate and compare the environmental and social impact of different textile materials.
- Apply principles of sustainable production, incorporating circular economy concepts and zero-waste design into textile and fashion manufacturing processes.
- Critically analyse and assess ethical considerations in the fashion supply chain, including fair labour practices, social responsibility, and human rights issues.
- Analyse the consumer behaviour related to sustainability and develop effective strategies for promoting sustainable fashion choices.
- Apply acquired knowledge and skills to propose and develop sustainable practices within a real-world context.

SYLLABUS OF DSC-14

THEORY (Credits 3; Hours 45)

UNIT 1: Introduction to Sustainability in Textile and Fashion

6 Hours

This unit introduces the foundational concepts of sustainability, including its definition, dimensions, and related global goals and terminology.

- Sustainability – definition and importance, Sustainable Development Goals, pillars of sustainability

- Key terms related to sustainability - Circular economy, Life cycle assessment, Life cycle costing, water footprint, carbon footprint, Higg's Index.

UNIT 2: Frameworks, Laws and Organizations Supporting Sustainability 9 Hours

This unit focuses on legal and institutional frameworks that promote sustainable practices, along with key global and national organizations.

- Environmental laws and regulations in India
- Major international environmental agreements
- Organizations and campaigns promoting sustainability:
Greenpeace, Earth Day Network, Ethical Fashion Forum, United Nations, WWF, Fair Trade, ZDHC, SAC, Detox Campaign, Blue Sign, etc.

UNIT 3: Sustainability Challenges in Textile and Fashion Industry

15 Hours

The unit examines environmental challenges in the textile industry, including energy use, water, pollution, waste, fast fashion, overconsumption, and ethical labour practices.

- Environmental impacts in textile and apparel supply chain: Greenhouse gas emissions, water consumption and pollution, effect on ocean ecosystem, micro-fibres in water bodies, waste accumulation (overconsumption, fast fashion), deforestation and soil degradation
- Unethical labour practices in the fashion supply chain – Sweatshops, Lack of fair labour practices (child labour, low wages, discrimination, workers' exploitation, health & safety risk).

UNIT 4: Circular Economy and Sustainability Strategies

15 Hours

The unit provides insights into adopting environmentally conscious practices within the textile and fashion industry.

- Sustainable fibres, fabrics, dyes and auxiliaries in textile supply chain.
- Sustainable design solutions – Zero waste production, multifunctional garments, designing sustainable clothing that enables: low-impact care and extended use.
- Consumer responsibility - Adoption of slow fashion and fashion brands promoting sustainability, Adoption of green laundry practices, upcycling and recycling of textiles, 7 R's of waste management: reduce, reuse, recycle, refuse, repurpose, recover, rethink
- Government sponsored Eco-labelling schemes - Blue Angel, Eco Mark (JPN), Environmental Choice (CND), White Swan (Nordic Countries), EU, Eco-Mark (India), Green Label (Singapore), ISO 14000 Certification and standards.
- Private labelling schemes - eco-tex, Oeko-Tex (textiles and clothing), Global Organic Textile Standards, Green Seal, Bra Miljval, Britta Steilmann Collection, Fair trade labelling etc.
- Fair trade and corporate social responsibility in textile and clothing manufacturing.

TUTORIALS (Credits 1; Hours 15)

Tutorial classes will involve:

- Q&A sessions/ Group discussions/ Problem Solving exercises with the Students
- Presentation of project/ research activity by students
- Any other scholastic work related to application of conceptual understanding of the subject.
- Evaluation and feedback by the teacher

Essential Readings

- Fletcher, K. (2013). *Sustainable fashion and textiles: Design journeys*. Routledge.
- Gupta, N. & Sekhri, S. (2022). *Sustainable Laundry: Challenges and Solutions*. First Edition, Eliva Press. ISBN : 978-1636484808
- Gwilt, A., & Rissanen, T. (2012). *Shaping sustainable fashion: Changing the way we make and use clothes*. Routledge.
- Pratibhan, M. Ed. (2017). *Sustainability in Fashion & Apparels (Challenges & Solutions)*. Woodhead Publishing
- Muthu, S. S., & Gardetti, M. A. (Eds.). (2020). *Sustainability in the Textile and Apparel Industries: Consumerism and Fashion Sustainability*. Springer Nature Switzerland AG. ISBN - 978-3030385316

Suggested Readings

- Asadi, J. (2021). *International Environmental Labelling Vol.3 Fashion: For All People who wish to take care of Climate Change*. Top Ten Award International Network, ISBN – 978-1777335656
- Debnath, S. (2016). *Sustainable Fibres for Fashion Industry: Volume 1* (pp. 89-108). Singapore: Springer.
- Muthu, S. S. (Ed.). (2014). *Roadmap to sustainable textiles and clothing: Eco-friendly raw materials, technologies, and processing methods*. Springer.
- Jacques, P. (2020). *Sustainability: The basics*. Routledge.
- Mahapatra N. N. (2015); *Textiles & Environment*. Woodhead Publishing

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time

Pool of Discipline Specific Elective Courses (DSE) for Odd Semester
B.A (Prog.) with Apparel Design and Construction (ADC)
Category-V

DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE-7-ADC: RESEARCH METHODS IN HOME SCIENCE

Credit Distribution, Eligibility and Pre-requisites of the Course

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Research Methods in Home Science	4	3	0	1	XII Pass	NIL

LEARNING OBJECTIVES:

- To provide students understandings about the basic concepts, approaches and methods in conducting Home Science research.
- To enable learners to appreciate and critique the nuances of designing a research study well.
- To sensitize students towards ethical concerns while conducting Home Science research.

LEARNING OUTCOMES:

After completing this course, the learner will be able to:

- Demonstrate knowledge of the scientific method, purpose and approaches to research in Home Science
- Compare and contrast quantitative and qualitative research approaches
- Explain different types of research design and their applicability in Home Science research
- Understand the key elements of a research process
- Explain ethical principles, issues and procedures

SYLLABUS OF DSE-7-ADC

THEORY
(Credits 3; Hours 45)

UNIT I: Research Purpose and Design

10 Hours

This unit will deal with meaning and importance of research in various areas of Home Science. Exposure to different types of research designs and measurement in Home Science research would also be given.

- Meaning, purpose and significance of research
- Research as a scientific method
- Types of research
- Quantitative, Qualitative and mixed method approaches
- Research Designs –Experimental and Non-Experimental; Descriptive and Observational; Participatory research

- Internal and external validity of research design
- Variables, concepts and measurement in research
- Levels of measurement
- Units of analysis

UNIT II: Sampling and Research tools & techniques

15 Hours

This unit will introduce the student to the concept of sampling and methods used to draw sample from population using examples from Home Science discipline. Students would also learn about types of data, its collection and reliability and validity concerns.

- Role of sampling in research
- Sampling techniques and their applicability, Sample size and sampling error
- Types of data: Primary and Secondary
- Tools of data collection; types, construction and administration- Interview, Questionnaire, Observation, Focus group discussion and other methods
- Validity and reliability of data collection tools

UNIT III: The Research Process

15 Hours

This unit will elaborate upon the various steps involved in conducting and reporting researches in Home Science.

- Defining the problem, research questions, objectives, hypotheses
- Review of related literature and originality in writing
- Systematic research: concept and methodology
- Planning the research
- Identifying variables and constructing hypothesis
- Selecting appropriate research methodology and tools
- Data analysis: coding and tabulation
- Writing a research report: styles and formats
- Citation formats: in medical sciences, social sciences

UNIT IV: Values, Social Responsibility and Ethics in Research

5 Hours

This unit will apprise the students about ethical concerns while conducting and reporting research.

- Ethical principles guiding research: from inception to completion and publication of research
- Plagiarism and Academic integrity in research: plagiarism tools and software
- Ethical issues relating to research participants and the researcher
 - Rights, dignity, privacy and safety of participants
 - Informed consent, confidentiality, anonymity of respondents, voluntary participation, harm avoidance

PRACTICAL (Credits 1; Hours 30)

1. Data visualization
2. Levels of Measurement
3. Types of research designs
 - a. Experimental and non-experimental; Descriptive and observational
 - b. Qualitative, Quantitative and mixed method

4. Sampling techniques and sample size calculation
 - a. Probability sampling method
 - b. Non-Probability sampling methods
5. Tools of data collection- Interview schedule, questionnaire and FGD
 - Designing/ Construction
 - Preparation of tools for ethical review
 - Pilot testing/ validity and reliability of the tool\
6. Data collection and analysis process: conducting interviews, administering questionnaire
7. Coding and tabulation of data for analysis
8. Citation formats and Plagiarism
9. Reviewing a research paper from a specific area of specialization in Home Science

ESSENTIAL READINGS

- Kerlinger F. N. and Lee, H.B. (2017). *Foundations of Behavioral Research* 4th Ed. Harcourt College Publishers.
- Kothari, C. R. (2019). *Research Methodology: Methods and Techniques*. New Age International Pvt Ltd, New Delhi.
- Kothari, C. R. (2022). *Shodh Padhati* 1st Ed. New Age International Pvt Ltd, New Delhi.
- Kumar, R. (2019) *Research Methodology: A Step-by-Step Guide for Beginners*. 5th Ed. Sage Publications, New Delhi.

SUGGESTED READINGS

- Bernard, H. R. (2000). *Social research methods: Qualitative and quantitative approaches*. Thousand Oaks, CA: Sage.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage Publications.
- Davis, A. M., Treadwell, D. (2019). *Introducing Communication Research: Paths of Inquiry*. United Kingdom: SAGE Publications.
- Flynn, J.Z., Foster, I.M. (2009). *Research Methods for the Fashion industry*. Fairchild books, Bloomsbury publishing.
- Indian National Science Academy (INSA) (2019). *Ethics in Science Education, Research and Governance*. ISBN:978-81-939482-1-7. <http://www.insaindia.res.in/pdf/EthicsBook.pdf>
- Jacobsen, K. H. (2020). *Introduction to health research methods: A practical guide*. Jones & Bartlett Publishers.
- UGC (2021) *Academic Integrity and Research Quality*. New Delhi: UGC, Retrieved from https://www.ugc.ac.in/e-book/Academic%20and%20Research%20Book_WEB.pdf

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B.A (Prog.) with Apparel Design and Construction (ADC)

Category-V

DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE-9-ADC: SURFACE ORNAMENTATION FOR APPAREL DESIGN

Credit Distribution, Eligibility and Pre-requisites of the Course

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Surface Ornamentation for Apparel Design	4	2	0	2	Class XII Pass	NIL

LEARNING OBJECTIVES

- To provide an understanding of various techniques of decorating the fabric surface.
- To impart knowledge and skills for incorporating surface ornamentation ideas into design collections.

LEARNING OUTCOMES

After completing this course, the learner will be able to:

- Describe the various methods of fabric surface ornamentation
- Apply surface ornamentation techniques such as embroidery, dyeing and printing, fabric manipulation and embellishments in garment design projects

SYLLABUS OF DSE-9-ADC

THEORY
(Credits 2; Hours 30)

UNIT I: Surface Ornamentation and Motif Development

6 Hours

This unit provides an understanding of the concepts relating to motif development for surface ornamentation

- Value addition through surface ornamentation
- Structure development for apparel: Weaves, knits, Lace
- Methods of applied surface ornamentation –embroidery, dyeing, printing, fabric manipulation, embellishments
- Textile motifs - Classification, motif development, Symmetry, Design repeat, motif enlargement and reduction

Unit II: Surface Design through embroidery

10 Hours

This unit provides basic understanding of the various tools, terms and techniques of embroidery for surface ornamentation.

- Embroidery Terminology – Aari, Adda, Applique, Backing, Couching, Filling stitch, Frame, Fusing, Monogram, Tacking, Tilla, Wrapped stitches
- Tracing Methods
- Tools and Materials – Fabrics, Needles, Threads, Scissors, Other materials
- Hand Embroidery Stitches – Flat and raised
- Machine and Computerised embroidery
- Traditional embroidery: Metal thread embroidery with decorative material – Aari, Mukaish, Gota-Patti, Zardozi; Applique work – Pipli, Phool Patti ka Kaam, Ralli

Unit III: Surface Design through Colouration

8 Hours

This unit introduces the learners to traditional painting techniques. It also imparts knowledge regarding creative application of dyeing and printing.

- Traditional and Crossover Fabric Hand painting – Patta-Chitra, Pichhwai, Madhubani, Mandana, Mandala, Warli, Rogan art, Gond
- Design development through innovative dyeing and printing techniques

Unit IV: Surface Design through Fabric manipulation and embellishments

8 Hours

This unit provides understanding of the various techniques of using fabric manipulation and embellishments.

- Creative Fabric manipulation – Pleats, Gathers, Ruffles, 3D textures, Shirring, Ruching
- Creative embellishments – Trims, buttons, Quilting, Lace, Fraying, Waste fabric, Innovative techniques

PRACTICAL (Credits 2; Hours 60)

- Development of samples using the techniques learnt in the theory component.
- Product development using one or more surface ornamentation techniques.

ESSENTIAL READINGS

- Kimberly Irwin, (2015), *Surface Design for Fabric*, Fairchild Books
- Josephine Steed, Frances Stevenson, (2020), *Sourcing Ideas for Textile Design: Researching Colour, Surface, Structure, Texture and Pattern (Basics Textile Design)*, Bloomsbury Visual Arts
- Juracek, A. Judy, (2000), *Soft Surface*, Themes & Hudson Ltd.
- Naik, Shailaja D., (2006), *Surface Designing of Textile Fabric*, New Age International (P) Ltd., Publishers
- Singer Margo, (2007), *Textile Surface Decoration- Silk & Velvet*, A & B Black Ltd

SUGGESTED READINGS

- Campbell, J. & Bakewell, A., (2006), *The Complete Guide to Embroidery Stitches*, Reader's Digest Association.
- Colette Wolff, (1996), *The Art of Manipulating Fabric*, Interweave
- Milne D'Arcy Jean, (2006), *Fabric Left Overs*, Octopus Publishing Group Ltd.
- Singer, R., (2013), *Fabric Manipulation*, David & Charles Publishers.

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B.A (Prog.) with Apparel Design and Construction (ADC)

Category-V

DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE-11-ADC: DATA ANALYSIS AND STATISTICAL TOOLS

Credit Distribution, Eligibility and Pre-requisites of the Course

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Data Analysis and Statistical Tools	4	3	0	1	Appeared in Semester VI	NIL

LEARNING OBJECTIVES

- To provide an understanding of the basic statistical concepts and methods.
- To enable learners to collect, organize, summarize and present data using tables, graphs, and statistical plots.
- To gain the ability to collate, analyse and interpret the results of datasets using basic statistical tools and techniques.

LEARNING OUTCOMES

After completing this course, the learner will be able to:

- Explain fundamental statistical concepts and tools relevant to basic research.
- Summarize and visualize data effectively using descriptive statistics and statistical plots.
- Apply inferential statistical techniques to draw meaningful conclusions from sample data.
- Interpret and communicate statistical findings in the context of research.

SYLLABUS OF DSE-11-ADC

THEORY
(Credits 3; Hours 45)

UNIT 1: Fundamentals of Statistics

10 Hours

This unit establishes the foundational principles of statistics, focusing on its application in social sciences.

- Role and functions of statistics in social science and market research
- Types of Statistics: Descriptive and Inferential
- Types and Sources of Data
- Measurement Scales: Nominal, Ordinal, Interval, Ratio
- Importance of Reliability and Validity

UNIT II: Data Organization and Summarization

15 Hours

This unit focuses on summarizing and visualizing data for analysis and interpretation.

- Organising data: frequency distribution tables

- Statistical graphs and visual interpretation: Histogram, Pie Chart, Bar Graph, Line Graph, Frequency Polygon, Ogive
- Measures of Central Tendency for ungrouped and grouped data: Mean, Median, Mode
- Measures of Dispersion for ungrouped and grouped data:
 - Absolute dispersion (Range, Quartile deviation, Mean deviation, Standard Deviation, Variance)
 - Relative dispersion (Coefficient of Range, Coefficient of Quartile deviation, Coefficient of Mean deviation, Coefficient of Variance)
- Measures of Shape: Skewness and Kurtosis
- Measures of partition values – Quartile, Decile, Percentile, Percentile Rank for ungrouped and grouped data

UNIT III: Basic Statistical Concepts and tools used in Experimental Research 10 Hours

This unit introduces students to inferential tools and techniques used to explore relationships and trends in data.

- Basics of Probability: Concepts, laws of addition and multiplication
- Normal Distribution: Properties and application
- Correlation:
 - Karl Pearson's Coefficient
 - Spearman's Rank Correlation (Repeated and Non-Repeated)
- Linear regression (SLR)

UNIT IV: Hypothesis Testing and Statistical Analysis Techniques 10 Hours

This unit equips students with inferential statistical methods for decision-making.

- Sampling and Testing Hypotheses:
 - Null and Alternative Hypotheses
 - Level of Significance (α) and Confidence Level (c)
 - One-tailed vs Two-tailed tests
 - Type I and Type II Errors
- Introduction to Parametric and Non-Parametric tests

PRACTICAL (Credit 1; Hours 30)

1. **Introduction to Statistical Software:** Using spreadsheet application such as Excel for statistical analysis by inputting basic data and performing essential functions.
2. **Construction of Frequency Distributions:** Organize raw data into grouped and ungrouped frequency tables using a given dataset.
3. **Diagrammatic Representation of Data:** Visualize data using bar charts, pie charts, line graphs, histograms, and frequency polygons, and interpret the results for a given dataset.
4. **Measures of Central Tendency:** Calculate mean, median, and mode for grouped and ungrouped data in Excel, and compare central tendencies between two datasets.
5. **Measures of Dispersion:** Compute range, variance, and standard deviation in Excel to analyse the spread of two different datasets.

6. **Correlation Analysis:** Measure the strength of relationships between two variables by calculating Pearson's and Spearman's correlation coefficients.
7. **Hypothesis Testing (One-sample and Two-sample t-test):** Test the significance of means for single, independent, and dependent datasets using t-tests.
8. **Chi-Square Test for Independence:** Test the independence between categorical variables by analysing and interpreting a contingency table.

Essential Readings

- Minium, E. W., King, B. M., & Bear, G. (2017). *Statistical Reasoning for Psychology and Education*. New York: Wiley and Sons.
- Gupta, S.P. (2022) *Statistical Methods*, 46th Edn. S. Chand and Sons.
- Agresti, A., Christine Franklin, C. and Klingenberg, B. (2017). *Statistics: The Art and Science of Learning from data*, Pearson, Boston

Suggested Readings

- Schmuller, J. (2016). *Statistical Analysis with Excel for Dummies*, 5th Edition, New York, USA.
- Gupta, S. C. and Kapoor, V. K. (2020). *Fundamentals of Mathematical Statistics*, 12th Edn., S. Chand and Sons.
- Ross, Sheldon M. (2010): *Introductory Statistics*, 3rd Edition, Academic Press.
- Derek Rowntree, (2018). *Statistics Without Tears, An Introduction for Non-Mathematicians*, Penguin Books

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B.A (Prog.) with Apparel Design and Construction (ADC)

Category-V

DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE-13-ADC: FASHION VISUAL MERCHANDISING

Credit Distribution, Eligibility and Pre-requisites of the Course

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Fashion Visual Merchandising	4	3	1	0	Class XII Pass	NIL

LEARNING OBJECTIVES

- To introduce the concept of visual merchandising in apparel stores.
- To create an understanding of basic elements of visual merchandising and display across fashion retail stores.

LEARNING OUTCOMES

After completing this course, the learner will be able to:

- Describe the role and objectives of visual merchandising
- List and explain the various elements of visual merchandising
- Identify the different types of store display used in apparel stores.
- Explain the concept and use of Planogram in store display
- Classify the different types of store layouts
- Compare the apparel merchandise display across various retail formats.

SYLLABUS OF DSE-13-ADC

THEORY
(Credits 3; Hours 45)

UNIT I: Introduction to Visual merchandising

5 Hours

This unit provides an overview of the role and essential features of visual merchandising.

- Importance and objectives of visual merchandising, Role of a visual merchandiser
- Essential features of visual merchandising
- Schedules - Seasons, Promotions, Special sales, Themes

Unit II: Elements of Visual Merchandising

15 Hours

This unit provides basic understanding of the elements of visual merchandising

- Brand imagery
- Store front – Front signage, Entrance, Window display, surrounding space
- Store interior and ambiance
- Store layout – Grid, diagonal, free-flow, Race track /loop layout, Spine layout, Mixed Floor Plan

Unit III: Store Display

15 Hours

This unit aims to provide an overview of elements and techniques of store display.

- Types of Display- Window display, Interior display
- Elements of Display - Merchandise, Mannequins, Forms, Props, Fixtures, Background, Signage, Lighting, Colour
- Concept of Planogram - Macro Space, Micro space
- Merchandise Presentation Techniques: Colour Blocking, Product blocking, vertical/ horizontal blocking, symmetric, price blocking
- Display settings, Essentials of good display, Common problems in display

Unit IV: Visual Merchandising for Apparel Store

10 Hours

This unit explains the use of visual merchandising techniques in apparel stores across various retail formats.

- In-Store Merchandise Presentation for Fashion Apparel – Men's wear, Women's wear, Kids' wear
- Display approach for apparels
- In-store apparel Merchandise presentation in different retail formats – Departmental stores, Speciality stores, Exclusive Brand stores, Hyper-markets

TUTORIALS **(Credits 1; Hours 15)**

Tutorial classes will involve:

- Q&A sessions/ Group discussions/ Problem Solving exercises with the Students
- Presentation of project/ research activity by students
- Any other scholastic work related to application of conceptual understanding of the subject.
- Evaluation and feedback by the teacher

ESSENTIAL READINGS

- Bawa Ramandeep, Sinha A.K., Kant Rita (Dr.), (2022), *Visual Merchandising and Consumer Behaviour in Shopping Malls*, Sultan Chand & Sons
- Bhalla Swati, Anuraag S., (2010), *Visual Merchandising*, Tata McGraw-Hill
- Jonathan Baker, Sarah Bailey, (2021), *Visual Merchandising for Fashion*, Bloomsbury Visual Arts
- Martin M. Pegler, Anne Kong, (2018), *Visual Merchandising and Display* 7th Edition, Bloomsbury

SUGGESTED READINGS

- Claus Ebster, Marion Garaus, (2012), *Store Design and Visual Merchandising Creating Store Space That Encourages Buying*, Business Expert Press
- Tony Morgan, (2016), *Visual Merchandising (3rd Edition)*, Laurence King
- Portas, Mary, (1999), *The Art of Retail Display*, Thames and Hudson Limited

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Pool of Discipline Specific Elective Courses (DSE) for Even Semester

B.A (Prog.) with Apparel Design and Construction (ADC)

Category-V

DISCIPLINE SPECIFIC ELECTIVE COURSE DSE-8-ADC: FASHION ACCESSORIES: DESIGN AND DEVELOPMENT

Credit Distribution, Eligibility and Pre-requisites of the Course

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Fashion Accessories: Design & Development	4	3	0	1	Class XII Pass	NIL

LEARNING OBJECTIVES

- To give the learners an overview of the accessory design and development process
- To develop the skills required for creating and restyling fashion accessories.
- To impart the basic knowledge about styles and production techniques of select fashion accessories.
- To introduce the students to the commercial aspects of fashion accessories.

LEARNING OUTCOMES

After completing this course, the learner will be able to:

- State the importance of fashion accessories.
- Describe the role of an accessory designer
- Describe the Common styles, materials used and production of handbags, footwear, Jewellery, Belts, Hats
- Provide a brief description of the sources of design inspiration and research.
- Describe the various steps in the accessory design development process.
- Use illustration and rendering techniques for designing fashion accessories.
- Adopt restyling techniques creatively for making accessories through recycling
- Create a theme/inspiration based accessory collection.

SYLLABUS OF DSE-8-ADC

THEORY (Credits 3; Hours 45)

UNIT I: Importance of Fashion Accessories

10 Hours

This unit introduces the students to role and importance of accessories and accessory designer.

- Meaning, Importance and types of accessories in the fashion industry, Target market
- Role of an accessory designer
- Leading accessory designers and brands

Unit II: Understanding Fashion Accessories

15 Hours

This unit creates an understanding of the common styles, production methods of common fashion accessories.

- Common styles, materials used and production methods of common accessories: Handbags, Footwear, Jewellery, Belt, Hats
- Ethical production practices, Use of eco-friendly and recycled materials
- Coordinating Accessories with Clothes

Unit III: From Concept to Creation: Key Steps in Accessories Design

10 Hours

This unit provides an overview of steps in the designing of an accessories collection/ range.

- Theme based design conceptualization - Inspiration and Research, Trend forecasting, Design development, Developing a theme-based range, Presentation techniques

UNIT IV: Fashion Accessories – Branding and Marketing

10 Hours

This unit introduces students to commercial aspects of fashion accessories.

- Understanding brand identity, Visual merchandising and packaging for accessories
- Retailing and Promotion Strategies: Online and offline retail trends, Digital marketing

PRACTICAL (Credit 1; 30 Hours)

1. Fashion Illustration of accessories - Handbag, Footwear, Jewellery
2. Restyling project- Restyling of plain accessories using creative techniques
3. Theme based design development of accessory collection
4. Designing and construction of any one fashion accessory

Essential Readings

- Darla-Jane Gilroy, (2023), *Fashion Bags and Accessories: Creative Design and Production*, Laurence King Publishing
- Diamond E. (2007). *Fashion Apparel, Accessories, and Home Furnishings*. New Jersey: Pearson.
- Fringes S. (2007). *Fashion: From Concept to Consumer* (9th Edition). New Jersey: Prentice Hall
- Jarnow J. (1987). *Inside the Fashion Business*. New Jersey: Pearson.
- Romano C. (2002). *Plan your Wardrobe*. UK: New Holland Publication

Suggested Readings

- Gervail O. (2010), *Fashion Accessories*. USA: Firefly Books publisher
- Lau J. (2012). *Basics Fashion Design 09: Designing Accessories: Exploring the design and construction of bags, shoes, hats and jewellery*. New York: A Publishing
- Peacock J. (2000). *Fashion Accessories: The Complete 20th Century Sourcebook.*, London: Thames & Hudson Publisher
- Marshall S., Jackson H., Stanley S. (2011). *Individuality in Clothing Selection and Personal Appearance* (7th Edition). New Jersey: Pearson.
- Vilaseca E. (2008). *Essential Fashion Illustration: Color and Medium*. USA: Rockport Publishers

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B.A (Prog.) with Apparel Design and Construction (ADC)

Category-V

**DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE-10-ADC: TEXTILES FOR HOME**

Credit Distribution, Eligibility and Pre-requisites of the Course

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Textiles for Home	4	3	0	1	Class XII Pass	NIL

LEARNING OBJECTIVES

- To provide an overview of home textiles sector in India.
- To create an understanding of specification and selection criteria applicable to common home Textiles

LEARNING OUTCOMES

After completing this course, the learner will be able to:

- Define and classify Home textiles
- List the popular production centres and brands of Home textiles
- Explain the standard size, fabric characteristics, application and care of common home linen
- Select suitable home linen based on end use and evaluation standards
- Describe the performance requirements of various home linen.

SYLLABUS OF DSE-10-ADC

**THEORY
(Credits 3; Hours 45)**

UNIT I: Introduction to Home Textiles

5 Hours

This unit provides an overview of the Home textiles sector in India.

- Definition, Classification of Home Textiles and made-ups
- Market overview, evolution and emerging trends in Indian Home textile sector, Production centres
- Leading Home textile brands and labels

Unit II: Common Household linen

15 Hours

This unit provides basic understanding of the quality parameters of select household linen

- Fabric characteristics, standard size, application, evaluation standards, care and maintenance of Bedlinen, Table-linen, Bath linen, Kitchen linen
- Upholstery and Drapery - Fabric types and characteristics, trims and accessories, styles, selection criteria, care and maintenance

Unit III: Floor Coverings – Carpets and rugs

15 Hours

This unit aims to provide an understanding of the production methods and categories of floor coverings.

- Categories of floor covering – rugs, durries, carpets
- Production methods – tufting, knotting, weaving, knitting, braiding, needle-punching, Flocking
- Fibres use, standard sizes, selection criteria, care and maintenance

Unit IV: Performance Requirements of Home Textiles

10 Hours

This unit provides an understanding of performance requirements, finishes, quality standards, labelling, and safety regulations in home textiles.

- Performance Requirements
- Finishes used in Home textiles
- Quality Standards and Specifications
- Labelling and Safety regulations for Home textiles

PRACTICAL (Credits 1; 30 Hours)

1. Case study of a Home textile brand
2. Comparative study of various Home Textile brands with respect to labelling and packaging
3. Collection of swatches of different fabrics and materials used for home textiles
4. Designing and construction of any one household linen

ESSENTIAL READINGS

- Gopalakrishnan, D & T Karthik, (2020), *Home Textiles*, Daya Publishing House
- Kapoor Hemant & Aashima Arora (2012), *Home Textiles*, Bio-Green
- V. Ramesh Babu, S. Sundaresan, (2018), *Home Furnishing*, WPI Publishing

SUGGESTED READINGS

- Anon, (2010), *How To Make Draperies, Slip Covers, Cushions And Other Home Furnishings - The Modern Singer Way*, Read Books
- Cheryl Mendelson, (2010), *Laundry: The Home Comforts Book of Caring for Clothes and Linens*, Scribner
- Subrata Das, (2015), *Performance of Home Textiles*, Woodhead Publishing

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B.A (Prog.) with Apparel Design and Construction (ADC)

Category-V

**DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE-12-ADC: DESIGN THINKING**

Credit Distribution, Eligibility and Pre-requisites of the Course

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Design Thinking	4	2	0	2	Class XII Pass	NIL

LEARNING OBJECTIVES

- To understand the basics of design thinking, including its key concepts, and core elements.
- To understand the five stages of the design thinking process: Empathize, Define, Ideate, Prototype, and Test.
- To understand techniques for conducting user research, including empathy mapping, stakeholder interviews, and usability testing.
- To understand strategies for generating and evaluating creative ideas, including brainstorming, mind mapping, and prototyping.
- To understand methods for testing and refining prototypes, including user testing and iteration.

LEARNING OUTCOMES

After completing this course, the learner will be able to:

- Explain the concept and use of the design-thinking process.
- Apply empathy and user centricity to problem identification and solution development.
- Ideation techniques are utilized to generate innovative ideas.
- Develop prototypes and iterate based on user feedback.
- Apply Design Thinking concepts to the creation of products.

SYLLABUS OF DSE-12-ADC

**THEORY
(Credits 2; Hours 30)**

UNIT I: Basics of Design, Creativity and Innovation

5 Hours

This unit will help students to understand the meaning and scope of design, creativity and innovation.

- Design – Definition, concept and scope
- Importance and requirement of good design
- Creative thinking process, developing a creative mind-set, overcoming creative blocks
- Innovation: Concept, significance, types and process

UNIT II: Introduction to Design Thinking

10 Hours

This unit introduces the students to the concepts related to design thinking.

- Introduction to Design Thinking
- Importance of Design Thinking
- Design Thinking Framework
- Application of Design Thinking – Case studies

UNIT III: Understanding Design Thinking Process – Part 1

7 Hours

This unit covers the initial stages of the design thinking process focused on empathy and problem definition.

- Empathise:
 - Observation Plan, Observation Techniques
 - Interview Plan, Interview Techniques
 - Creating User Personas
 - Problem Definition and User-Centricity
- Define: Problem statement with criteria and constraints

UNIT IV: Understanding Design Thinking Process – Part 2

8 Hours

This unit addresses ideation, prototyping, testing, and application through examples.

- Ideate: Conceptualizing using tools for idea generation – brainstorming
- Prototype: Types of prototypes, development of a sample / prototype / service / application
- Test: Feedback and critique methods
- Examples and Case Studies from different domains

PRACTICAL (Credits 2; 60 Hours)

1. Case study of any successful design project in fashion and textiles.
2. Project from research to development - Creating empathy maps, defining problem statement, Ideation and sketching potential solutions, developing prototypes, user testing and feedback.

Essential Readings

- John. R. Karsnitz, Stephen O'Brien, John P. Hutchinson, (2013), *Engineering Design*, Cengage learning
- Karl Aspelund, (2015), *The Design Process*, Fairchild Books
- Lawson Bryan, (2005), *How Designers Think: The Design Process Demystified*, Architectural Press
- Pavan Soni (2020), *Design Your Thinking: The Mindsets, Toolsets, and Skill Sets for Creative Problem-solving*, Penguin Random House India Private Limited

Suggested Readings

- Charles Lambdin, Frishberg, Leo, (2016), *Presumptive Design: Design Provocations for Innovation*, Morgan Kaufmann Publishers

- Michael Lewrick, Patrick Link, Larry Leifer, (2018), *The design thinking playbook: Mindful digital transformation of teams, products, services, businesses and ecosystems*

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B.A (Prog.) with Apparel Design and Construction (ADC)

Category-V

**DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE-14-ADC: DATA ANALYSIS AND STATISTICAL TOOLS**

Credit Distribution, Eligibility and Pre-requisites of the Course

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Data Analysis and Statistical Tools	4	3	0	1	XII Pass	NIL

LEARNING OBJECTIVES

- To provide an understanding of the basic statistical concepts and methods.
- To enable learners to collect, organize, summarize and present data using tables, graphs, and statistical plots.
- To gain the ability to collate, analyse and interpret the results of datasets using basic statistical tools and techniques.

LEARNING OUTCOMES

After completing this course, the learner will be able to:

- Explain fundamental statistical concepts and tools relevant to basic research.
- Summarize and visualize data effectively using descriptive statistics and statistical plots.
- Apply inferential statistical techniques to draw meaningful conclusions from sample data.
- Interpret and communicate statistical findings in the context of research.

SYLLABUS OF DSE-14-ADC

**THEORY
(Credits 3; Hours 45)**

UNIT 1: Fundamentals of Statistics

10 Hours

This unit establishes the foundational principles of statistics, focusing on its application in social sciences.

- Role and functions of statistics in social science and market research
- Types of Statistics: Descriptive and Inferential
- Types and Sources of Data

- Measurement Scales: Nominal, Ordinal, Interval, Ratio
- Importance of Reliability and Validity

UNIT II: Data Organization and Summarization

15 Hours

This unit focuses on summarizing and visualizing data for analysis and interpretation.

- Organising data: frequency distribution tables
- Statistical graphs and visual interpretation: Histogram, Pie Chart, Bar Graph, Line Graph, Frequency Polygon, Ogive
- Measures of Central Tendency for ungrouped and grouped data: Mean, Median, Mode
- Measures of Dispersion for ungrouped and grouped data:
 - Absolute dispersion (Range, Quartile deviation, Mean deviation, Standard Deviation, Variance)
 - Relative dispersion (Coefficient of Range, Coefficient of Quartile deviation, Coefficient of Mean deviation, Coefficient of Variance)
- Measures of Shape: Skewness and Kurtosis
- Measures of partition values – Quartile, Decile, Percentile, Percentile Rank for ungrouped and grouped data

UNIT III: Basic Statistical Concepts and tools used in Experimental Research 10 Hours

This unit introduces students to inferential tools and techniques used to explore relationships and trends in data.

- Basics of Probability: Concepts, laws of addition and multiplication
- Normal Distribution: Properties and application
- Correlation:
 - Karl Pearson's Coefficient
 - Spearman's Rank Correlation (Repeated and Non-Repeated)
- Linear regression (SLR)

UNIT IV: Hypothesis Testing and Statistical Analysis Techniques

10 Hours

This unit equips students with inferential statistical methods for decision-making.

- Sampling and Testing Hypotheses:
 - Null and Alternative Hypotheses
 - Level of Significance (α) and Confidence Level (c)
 - One-tailed vs Two-tailed tests
 - Type I and Type II Errors
- Introduction to Parametric and Non-Parametric tests

PRACTICAL (Credit 1; Hours 30)

1. **Introduction to Statistical Software:** Using spreadsheet application such as Excel for statistical analysis by inputting basic data and performing essential functions.
2. **Construction of Frequency Distributions:** Organize raw data into grouped and ungrouped frequency tables using a given dataset.

3. **Diagrammatic Representation of Data:** Visualize data using bar charts, pie charts, line graphs, histograms, and frequency polygons, and interpret the results for a given dataset.
4. **Measures of Central Tendency:** Calculate mean, median, and mode for grouped and ungrouped data in Excel, and compare central tendencies between two datasets.
5. **Measures of Dispersion:** Compute range, variance, and standard deviation in Excel to analyse the spread of two different datasets.
6. **Correlation Analysis:** Measure the strength of relationships between two variables by calculating Pearson's and Spearman's correlation coefficients.
7. **Hypothesis Testing (One-sample and Two-sample t-test):** Test the significance of means for single, independent, and dependent datasets using t-tests.
8. **Chi-Square Test for Independence:** Test the independence between categorical variables by analysing and interpreting a contingency table.

Essential Readings

- Minium, E. W., King, B. M., & Bear, G. (2017). *Statistical Reasoning for Psychology and Education*. New York: Wiley and Sons.
- Gupta, S.P. (2022) *Statistical Methods*, 46th Edn. S. Chand and Sons.
- Agresti, A., Christine Franklin, C. and Klingenberg, B. (2017). *Statistics: The Art and Science of Learning from data*, Pearson, Boston

Suggested Readings

- Schmuller, J. (2016). *Statistical Analysis with Excel for Dummies*, 5th Edition, New York, USA.
- Gupta, S. C. and Kapoor, V. K. (2020). *Fundamentals of Mathematical Statistics*, 12th Edn., S. Chand and Sons.
- Ross, Sheldon M. (2010): *Introductory Statistics*, 3rd Edition, Academic Press.
- Derek Rowntree, (2018). *Statistics Without Tears, An Introduction for Non-Mathematicians*, Penguin Books

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time



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B.A (Prog.) with Human Development and Family Empowerment
(HDFE)
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Semester – VII

B.A (Prog.) with Human Development and Family Empowerment (HDFE) as Major
Category-II

DISCIPLINE SPECIFIC CORE COURSE–DSC-HDFE-13: EFFECTIVE PARENTING

CREDIT DISTRIBUTION, ELIGIBILITY AND PREREQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
EFFECTIVE PARENTING	4	2	-	2	Appeared in Semester VI with HDFE	NIL

LEARNING OBJECTIVES:

1. To understand the concept and meaning of parenting
2. To become aware of the Indian family system and role of parents
3. To understand Parenting across lifespan

LEARNING OUTCOMES:

1. Develop an understanding on parenting styles and their impact on children.
2. Appreciate diverse child rearing practices and caregivers in Indian context.
3. Understand the process of parenting during lifespan

THEORY:

(30 Hours)

Unit I: Introduction to Parenting

(08 Hours)

Unit Description:

This unit focuses on the basic understanding of parenting in terms of process as well as a system.

Subtopics

- Parenting: Meanings and Concepts
- Parenting Styles
- Indian family system and role of parents

Unit II: Parenting Across Lifespan perspective

(08 Hours)

Unit Description:

This unit focuses on the importance of parenting across various stages of lifespan development.

Subtopics:

- Parenting of a neonate
- Parenting of children
- Parenting of adolescents

Unit III: Parenting children with diverse needs

(08 hours)

Unit Description:

This unit focuses on the importance of parenting of skills with diverse needs.

Subtopics:

- Stages of acceptance and diversity by caregivers
- Parenting style for children with diverse needs

Unit IV: Concept of Effective Parenting

(06 Hours)

Unit Description:

This unit focuses on understanding effective parenting and factors that influence parenting.

Subtopics:

- Effective Parenting: Principles and Guidelines
- Role of Parental Counselling

PRACTICAL:

(60 Hours)

- Interview with a parent of an adolescent to understand their experiences and concerns about parenting.
- Seminar/Webinar/Interactive session on Positive Parenting.
- Case examples /Role Plays/ Group Discussions to understand and evaluate effective parenting styles
- Review of a book/movie/documentary based on parenting of children with diverse needs and family systems.

ESSENTIAL/RECOMMENDED READINGS:

1. Eanes, R. (2016). Positive parenting: An essential guide. New York: Tarcher Perigee (Penguin Random House)
2. रूडोल्फ़. S. (2019). सफल परेंटिंग के 10 नियम. Penguin books India.
3. Chaudhury, D. (2017). Parenting tips for Indian parents: Pre-conception to adulthood. Chennai: Notion Press, Inc.

4. Chaudhary, N. (2004). *Listening to culture: Constructing reality from everyday talk*. New Delhi: Sage.

SUGGESTED READINGS:

1. Aries, P. (1962). *Centuries of childhood: A social history of family life*. New York: Vintage.
2. Deb, S. and Chatterjee, P. (2008). *Styles of parenting adolescents – The Indian scenario*. New Delhi: Akansha Publishing House.
3. Hurlock, B. E. (2007). *Developmental psychology: A life span approach*, (5th Edn.). New Delhi: Tata Mc-Graw Hill Publishing Company Ltd.
4. Sapra, R. (2010). *Child development: Issues and concerns for the well-being of the child*. New Delhi: Vishwabharati.
5. Anandalakshmy, S. (2010). *Through the lens of culture: Centuries of childhood and education in India*. Monographs of BalaMandir Research Foundation. Chennai: BalaMandir Research Foundation.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

Semester – VIII

B.A (Prog.) with Human Development and Family Empowerment (HDFE) as Major

Category-II

DISCIPLINE SPECIFIC CORE COURSE–DSC-HDFE-14: CARE AND WELL-BEING ACROSS LIFESPAN

CREDIT DISTRIBUTION, ELIGIBILITY AND PREREQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
CARE AND WELL-BEING ACROSS LIFESPAN	4	2	-	2	Appeared in Semester VII with HDFE	Nil

LEARNING OBJECTIVES:

1. To understand the need and importance of care and well-being in human development.
2. To understand the relevance of care in the context of lifespan perspective.
3. To explore the factors affecting well-being across different stages of life.

LEARNING OUTCOMES:

After completion of the course, the students will:

1. Understand the concept and relevance of care.
2. Discuss factors and experience that promote well-being.
3. Realize the significance of wellbeing at different life stages.

THEORY: (30 Hours)

Unit I: Care and Human Development (8 Hours)

Unit Description:

This unit helps students conceptualize care in the context of human development.

Subtopics

- Care: Concept and Relevance
- Principles and Components of Care

Unit II: Wellbeing and Human Development (6 Hours)

Unit Description:

This unit focuses on the concept and importance of well-being.

Subtopics:

- Wellbeing: Physical and Psychological
- Factors promoting wellbeing of caregivers

Unit III: Care and Well-being across birth to adolescent (8 Hours)

Unit Description:

This unit focuses on the role of care from birth to adolescent period.

Subtopics:

- Role of caregiver from childhood to adolescent period
- Care and Crises: During growing years

Unit IV: Care and Well-being across early to late adulthood (8 hours)

Unit Description:

This unit focuses on the role of care from early to late adulthood period.

Subtopics:

- Role of caregiver from early to late adulthood period
- Vulnerable periods of life requiring utmost care

PRACTICAL: (60 Hours)

- Interview of a caregiver to understand their issues, challenges and concerns.
- Discussion and documentation of any one episode (from one's own or someone's life) depicting vulnerability and need of care
- Review of any one self-help book/movie.
- Enlist and discuss any 3 well-being initiatives by the Government for improving physical and psychological health of its citizens.

ESSENTIAL/RECOMMENDED READINGS:

1. Santrock, J.W. (2007). *Life Span development* (3 rd ed.). New Delhi: Tata McGraw-hill.

2. Sapra, R. (Ed.). (2010) *Child Development: Issues and concerns for the well-being of the child*. Vishwabharti, New Delhi.
3. Sriram, R. (2004). "Ensuring infant and maternal health in India". In J. Pattnaik (Ed.). *Childhood in south Asia: A critical look at issues, policies and programmes*. Conn.USA: Information Age.

SUGGESTED READINGS:

1. Seligman, M.E.P. (2002). *Authentic happiness: Using the new positive psychology to realize your potential for lasting fulfilment*. New York: Free press.
2. IGNOU. (2011). *Positive psychology-2, MCFT-006 Applied social Psychology*. New Delhi: IGNOU.
3. Singhi, P. (1999). "Child health & well-being: Psychological care within & beyond hospital walls". In T.S. Saraswathi (Ed.). *Culture, socialization and human development*. New Delhi: Sage.
4. WHO. (2018). *Nurturing care for early childhood development: A framework for helping children survive and thrive to transform health and human potential*. (ISBN 978-92-4-151406- Available as E-manual on <https://apps.who.int/iris/bitstream/handle/10665/272603/9789241514064-eng.pdf>

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

Pool of Discipline Specific Elective Courses (DSE) for Odd Semester

ODD SEMESTER

DISCIPLINE SPECIFIC ELECTIVE COURSE–DSE-HDFE-1: CHILDREN IN ESPECIALLY DIFFICULT CIRCUMSTANCES

CREDIT DISTRIBUTION, ELIGIBILITY AND PREREQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Children in Especially Difficult Circumstances	4	2	0	2	Class XII	NIL

LEARNING OBJECTIVES:

1. To learn about various dimensions of vulnerability with regard to children
2. To create awareness about various groups of disadvantaged children
3. To create understanding about the organizations and services available for disadvantaged children

LEARNING OUTCOMES:

After completion of the course, students will be able to:

1. Become aware and acquire knowledge about child rights in India.
2. Be sensitized to the various dimensions of challenges faced by children.
3. Become aware about the organizations, institutions and services for disadvantaged children.

THEORY

(30 Hours)

Unit I: Overview of Children in Especially Difficult Circumstances (CEDC)

(6 Hours)

Unit Description:

This unit provides a basic understanding about all the aspects of CEDC.

Subtopics:

- Definition of CEDC
- Classification of CEDC
- Magnitude and Causes

Unit II: Categories of CEDC: Issues and Challenges

(10 Hours)

Unit Description:

This unit focuses on various categories of disadvantaged children and challenges faced by them.

Subtopics:

- Children in conflict with law
- Street children
- Child labour
- Child trafficking

Unit III: Legal Provisions for child protection in India

(8 Hours)

Unit Description:

This unit focuses on providing information about the various organizations, laws and programs available in India for children in especially difficult circumstances.

Subtopics:

- Concept of child protection: NCPCR, Childline
- Protection of Children from Sexual Offences Act (POCSO, 2012)
- Child Labour (Prohibition and Regulation) Amendment Act, 2016
- Juvenile Justice (Care and Protection of Children) Act, 2015

Unit IV: Organisations working for child protection in India

(6 Hours)

Unit Description:

This unit focuses on providing information about the various organizations working for child protection in India

Subtopics:

- Prayas
- Butterflies
- Bachpan Bachao Andolan

PRACTICAL:

(60 Hours)

- Poster making/ News articles collection on the issue of child abuse
- Film review/Visit to an organization working for child protection
- Case profile of a working child/ Street child

ESSENTIAL READINGS:

1. Bajpai, A. (2006). *Child rights in India: law, policy and practice*. New Delhi: Oxford University Press.

2. Chopra, G. (2015). *Child rights in India: Challenges and social action*. New Delhi: Springer.
3. सेतिया. ए. (2012). बच्चों के कानूनी हक। उत्तराखंड: राज्य बाल अधिकार संरक्षण आयोग
E-book retrieved from <http://wecd.uk.gov.in/files/book.pdf>

SUGGESTED READINGS:

1. Children in Difficult Circumstances. Retrieved from <https://www.planindia.org/wp-content/uploads/2019/09/CIDC-Report-compressed.pdf>
2. NIPCCD (2002). Children in difficult circumstances: Summaries of research. New Delhi: Resource Centre on Children.
3. Sathpathy, C. (2013). Child welfare policies and programme in India. Insights of India, Issues concerning children. <https://www.insightsonindia.com/wp-content/uploads/2013/09/child-welfare-policies-and-programmes-in-india.pdf>
4. भारत में बाल संरक्षण कानूनों का सारांश. SATYARTHI: Kailash Satyarthi Children's Foundation Retrieved from https://satyarthi.org.in/wp-content/uploads/BondedLabor/Hindi/Summary%20of%20Child%20Protection%20Laws_Hindi.pdf

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**B.A (Prog.) with Human Development and Family Empowerment
(HDFE)**

Category-V

**DISCIPLINE SPECIFIC ELECTIVE COURSE–DSE-HDFE-3: Language Development and
Early Literacy**

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITE OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Language Development and Early Literacy	4	2	-	2	Class XII pass	NIL

LEARNING OBJECTIVES:

1. To understand how language development takes place.
2. To understand the role of early stimulation in language development.
3. To understand the role of the family and school in language development of children.

LEARNING OUTCOMES:

After completion of the course, the students will be able to:

1. Understand the process of language development
2. Get awareness regarding the importance of early stimulation
3. Understand the role of family and school in language development

THEORY

(30 hours)

Unit I: Language and Communication

(8 hours)

Unit Description:

This unit focuses on providing basic knowledge about language and its importance.

Subtopics:

- Language and its importance
- Language Acquisition
- Grammar, Phonetics, Semantics

Unit II: Stages of Language Development

(8 hours)

Unit Description:

This unit focuses on various factors and problems related to language development during different life stages

Subtopics:

- Language Development through Infancy, Childhood and Adolescence
- Factors affecting language development
- Early Identification of problems related to language development

Unit III: Role of Family

(08 hours)

Unit Description:

This unit focuses on the importance of stimulation in language development

Subtopics:

- Home Stimulation
- Role of Caregiver in language development

Unit IV: Role of School, media and technology

(06 hours)

Unit Description:

This unit will focus on the role of school in fostering language development among children.

Subtopics:

- School Enrichment Programme
- Role of a Teacher
- Role of media and technology on language development

PRACTICAL

(60 hours)

- Identification and documentation of early literacy programs in the country (Any two)
- Preparation of booklet for reading readiness
- Organizing workshop /webinar/ interactive session on communication skills of children and report writing.
- Identifying the apps for language development

ESSENTIAL / RECOMMENDED READINGS:

1. Hetherington E.M. and Parke R.D. Gauvin M. Locke V.O. (2006). *Child Psychology -A Contemporary view point*. Mc Graw- Hill Education

2. Verma, P., Srivastava, D. N. and Singh, A. (2020). *Bal manovigyan and bal vikas*. (and all further editions) Agra: Agrawal Publication.
3. Singh, V. (2007). *Bal vikas avam bal manovigyan*. Jaipur: Panchsheel Prakashan.
4. Mangal S.K. (2007). *Educating Exceptional Children*. New Delhi: PHI Learning

SUGGESTIVE READINGS:

1. Papilla D.E., Olds S.W. and Feldman R.D. (2004). *Human Development*. New York: Mc Graw-Hill
2. Woolfolk A., Mishra G. Jha, A.K. (2012). *Educational Psychology*. Pearson Education, Inc.
3. Santrock J.W. (2013). *Life Span Approach*. Mc Graw-Hill Education. India
4. IGNOU- BES-008 *Language and Early Literacy Block -3*, Language Acquisition and Language Learning: Preschool and Early Years Unit 6, Classroom Language and Literacy-Hindi/English.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

**B.A (Prog.) with Human Development and Family Empowerment
(HDFE)**

Category-V

**DISCIPLINE SPECIFIC ELECTIVE – DSE-HDFE-5- DEVELOPING EARLY
CHILDHOOD CURRICULUM**

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITE OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Developing Early Childhood Curriculum	4	2	0	2	Class XII pass	NIL

LEARNING OBJECTIVES:

1. To understand the need and significance of the early childhood period.
2. To understand the meaning, scope and significance of curriculum development in ECCE.
3. To develop skills to holistically develop and evaluate the curriculum.

LEARNING OUTCOMES:

After completion of the course, the students will be able to:

1. Get awareness and acquire knowledge about early childhood.
2. Understand curriculum designing and evaluation for early childhood years.
3. Understand pedagogical approaches in early childhood curriculum.

THEORY

(30 hours)

Unit I: Development during early years

(8 hours)

Unit Description:

This unit provides a basic understanding about Early Years

Subtopics:

- Developmental Milestones (birth -8years)
 - Physical-Motor
 - Socio-emotional
 - Language
 - Cognitive

Unit II: Importance of curriculum development

(6 hours)

Unit Description:

This unit provides a basic understanding about Early Childhood Curriculum.

Subtopics:

- Meaning and significance of Curriculum Development

- Qualities of a good curriculum for providing Early Childhood Education (ECE)

Unit III: Content and Pedagogy in Early Childhood Curriculum (8 hours)

Unit Description:

This unit focuses on providing basic knowledge about Pedagogy in Early Childhood Curriculum.

Subtopics:

- Understanding different pedagogical approaches (Activity/theme based, play-way, child centered)
- Selection of activities and learning aids for different age-groups (Infancy, Pre-school and Early School stages)

Unit IV: Curriculum Assessment (8 hours)

Unit Description:

This unit focuses on the holistic evaluation and curriculum assessment

Subtopics:

- Assessment and evaluation: Need and tools
- Holistic evaluation of the curriculum: Child, Staff, Centre, Learning activities

PRACTICAL (60 hours)

- Develop One Week Schedule (Curriculum) for 3-6 and 6-8 years old
- Prepare a checklist for evaluating an ECE Curriculum
- Make assessment of a child (3-6 years) using the 'Child Assessment Card' issued by Ministry of Women & Child Development, GOI.

ESSENTIAL READINGS:

- Aggarwal, J.C. and Gupta, S. (2007). *Early childhood care and education (First Ed.)*. New Delhi: Shipra Publications.
- Gupta, M. S. (2009). *Early childhood care and education*. PHI Learning Pvt. Ltd.
- Mohanty, J., & Mohanty, B. (1994). *Early Childhood Care and Education (ECCE)*. New Delhi: Deep & Deep Publications.
- Swaminathan, M. and Daniel, P. (2000). *Activity-based developmentally appropriate curriculum for young children*. Chennai: Indian Association for Pre-school Education.
- Romila Soni, R. (2015). *Theme Based Early Childhood Care and Education Programme: A Resource Book*. National Council of Educational Research and Training.
- Theory and Practice in Early Childhood Care and Education. Managing Children's Programmes: Some Perspectives. Indira Gandhi National Open University DECE Study Material

SUGGESTED READINGS:

- Kaul, V. and Bhatnagar, R. *Early childhood education: A trainers' handbook*. New Delhi: NCERT.
- Kulshreshtha, A. (2017). *Early Childhood Care and Education*. Kanishka Publisher, distributors.
- Swaminathan, M. (1998). *The first five years: A critical perspective on early childhood care and education in India*. New Delhi: Sage.

- Morrison, G. S. (2003). Fundamentals of early childhood education. Merrill/Prentice Hall: Virginia
- Singh, A. (1995). Playing to Learn: A training manual for Early Childhood Education. M. S. Swaminathan Research Foundation.

**B.A (Prog.) with Human Development and Family Empowerment
(HDFE)**

Category-V

**DISCIPLINE SPECIFIC ELECTIVE COURSE –DSE-HDFE-7: ORGANIZATION AND
MANAGEMENT OF ECCE SERVICES**

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITE OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
ORGANIZATION AND MANAGEMENT OF ECCE SERVICES	4	2	-	2	Class XII pass	NIL

LEARNING OBJECTIVES:

1. To understand the organization and functioning of an ECCE Centre.
2. To understand how to utilize various resources (physical space, material, human) in an ECCE centre.
3. To understand the management of different functionaries and resources for smooth functioning of an ECCE Centre.

LEARNING OUTCOMES:

After completion of the course, the students will be able to:

1. Understand how to set up an ECCE Centre.
2. Understand the ways of using various resources in an ECCE centre
3. Learn about various ECCE services in the country.

THEORY (30 hours)

Unit I: Organizing ECCE Services (8 hours)

Unit Description:

This unit provides an understanding of various kinds of ECCE Services and their organization.

Subtopics:

- ECCE services in India - Types and Rationale
- Organizing services in – Crèche, Nursery School, Anganwadi

Unit II: Managing an ECCE Center: Physical and material resources (6 hours)

Unit Description:

This unit provides an understanding of how to plan an ECCE Centre in terms of physical and material resources.

Subtopics:

- Space: Location, Building and Rooms
- Equipment - Outdoor & Indoor, Furniture
- Accessibility in an ECCE Centre

Unit III: Functioning of an ECCE Centre (8 hours)

Unit Description:

This unit provides an understanding of how an ECCE Centre can be managed with the help of human resources.

Subtopics:

- Relevance of Records and Registers
- Training of an ECCE worker
- Essential features of an ECCE Curriculum

Unit IV: Evaluation of an ECCE programme (8 hours)

Unit Description:

This unit provides an understanding of evaluation of the functioning of an ECCE centre.

Subtopics:

- ECCE programme: Need and method of Evaluation
- Evaluation of ECCE programme- Child, Worker and Centre

PRACTICAL (60 hours)

- Preparation of different records/ registers to be maintained in an ECCE Centre
- Document /report writing of a Crèche/ Nursery school / AWC/ Balwadi/ Mobile Crèche
- Preparation of a checklist for evaluating an ECE Centre

- Case Study of any one National level program on Early Childhood Curriculum (Like National Curriculum Framework for Foundational Stage 2022, Building as Learning Aid 2012, National ECCE Curriculum Framework 2014 etc.)

ESSENTIAL / RECOMMENDED READINGS:

1. Gupta, M. Sen, (2009) Early Childhood Care and Education, PHI Learning Private Limited, Delhi 110092
2. Pankajam G. (2005), Pre- Primary Education: Philosophy and Practice, Concept Publishing Co.
3. Siddiqi. N. et.al (2008), Early Childhood Care and Education in Emerging India: Doaba House
4. Kaul, V. and Bhatnagar, R. (2008), Early childhood education: A trainers' handbook. New Delhi: NCERT <https://ncert.nic.in/dee/pdf/Earlychildhood.pdf>

SUGGESTIVE READINGS:

1. Mohanty, J & Mohanty, B (1994), Early childhood Care and Education (ECCE) New Delhi: Deep and Deep Publications
2. MWCD (2013), National Early Childhood Care and Education (ECCE) Curriculum Framework, Ministry of Women and Child Development
3. Vinyas (2012), Effectively using BaLA (Building as Learning Aid) in Elementary Schools: A Teacher's Manual
https://www.edudel.nic.in//upload_2013_14/145_52_dt_03102013/SecA.pdf
4. IGNOU, Organizing Child Care Services: DECE -1 New Delhi: IGNOU

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

**B.A (Prog.) with Human Development and Family Empowerment
(HDFE)**

Category-V

**DISCIPLINE SPECIFIC ELECTIVE-DSE-HDFE-9: SOFT SKILLS AND SOCIO-EMOTIONAL
WELL-BEING**

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITE OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
SOFT SKILLS AND SOCIO- EMOTIONAL WELL-BEING	4	2	-	2	Class XII pass	NIL

LEARNING OBJECTIVES:

1. To understand the concept of soft skills and its importance.
2. To understand how soft skills promote social and emotional well-being in individuals.
3. To understand the importance of social and emotional well-being in life.

LEARNING OUTCOMES:

After completion of the course, the students will be able to:

1. Understand the concept of soft skills.
2. Develop understanding regarding the ways of promoting social and emotional well-being
3. Learn about the importance of soft skills and social- emotional well-being.

THEORY

(30 hours)

Unit I: Understanding Soft Skills and Socio-Emotional Well-being

(8 hours)

Unit Description:

This unit focuses on giving conceptual understanding of soft skills and their importance

Subtopics:

- Concept of Soft Skills: Definition, Need and linkages to socio emotional well-being
- Categories of Soft Skills -
 - Communication and interpersonal skills,
 - Emotional awareness and empathy,
 - Adaptability and willingness to use new technology

Unit II: Socio-Emotional well-being from birth to adolescence period (8 hours)

Unit Description:

This unit focuses on the importance of Social and Emotional well-being covering birth to adolescence period.

Subtopics:

- Need and Importance of Social and emotional well-being in human life
- Factors impacting Socio-Emotional well-being from birth to adolescence period

Unit III: Socio-Emotional well-being from adulthood to ageing (8 hours)

Unit Description:

This unit focuses on the importance of Social and Emotional well-being covering adulthood to ageing.

Subtopics:

- Socio-Emotional well-being from adulthood to ageing
- Factors impacting Socio-Emotional well-being from adulthood to ageing

Unit IV: Nurturing soft skills to foster social-emotional well-being (6 hours)

Unit Description:

This unit focuses on specific soft skills focusing on promoting social and emotional well-being in individuals.

Subtopics:

- Strategies to promote soft skills in strengthening socio-emotional well-being
- Role of technology in enhancing soft skills

PRACTICAL (60 hours)

- Plan any two activities to improve social and emotional factors impacting Socio-Emotional well-being
- Review of a movie/documentary/book focusing on one/more soft skills
- Workshop/ Seminar/Webinar/Talk on the importance of soft skills

- Prepare/Use a checklist of socio emotional factors impacting Socio-Emotional well-being for adolescents.

ESSENTIAL / RECOMMENDED READINGS:

1. Dorch, P. (2013) What are soft skills? How to master essential skills to achieve workplace success. New York: Execu Dress Publisher.
2. Peter S.J., Francis. (2012). Soft Skills and Professional Communication. New Delhi: Tata McGraw –Hill Education.
3. Jadaun, M. (2022). How to improve soft skills in Hindi
<https://www.zindagiwow.com/2022/04/18/improve-soft-skills-hindi/>
4. Communication skill in Hindi, <https://aatmmnthn.in/communication-skills-development/>

SUGGESTIVE READINGS:

1. Sharma, P (2021). Soft Skills 3rd Edition: Personality Development for Life Success, BPB Publication.
2. Mitra, B. (2016). Personality Development and Soft Skills, Oxford University Press.
3. Murty, K. R. G. (2016). Soft Skills for success, Viva Books Originals.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

**B.A (Prog.) with Human Development and Family Empowerment
(HDFE)**

Category-V

**DISCIPLINE SPECIFIC ELECTIVE COURSE–DSE-HDFE-11: RESEARCH METHODS IN
HOME SCIENCE**

**CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF
THE COURSE**

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
RESEARCH METHODS IN HOME SCIENCE	4	3	0	1	XII Pass	NIL

LEARNING OBJECTIVES:

- To provide students understandings about the basic concepts, approaches and methods in conducting Home Science research.
- To enable learners to appreciate and critique the nuances of designing a research study well.
- To sensitize students towards ethical concerns while conducting Home Science research.

LEARNING OUTCOMES:

After completing this course, the learner will be able to:

- Demonstrate knowledge of the scientific method, purpose and approaches to research in Home Science
- Compare and contrast quantitative and qualitative research approaches
- Explain different types of research design and their applicability in Home Science research
- Understand the key elements of a research process
- Explain ethical principles, issues and procedures

THEORY

(Hours 45)

UNIT I: Research Purpose and Design

(10 Hours)

Unit Description:

This unit will deal with meaning and importance of research in various areas of Home Science. Exposure to different types of research designs and measurement in Home Science research would also be given.

Subtopics:

- Meaning, purpose and significance of research
- Research as a scientific method
- Types of research
- Quantitative, Qualitative and mixed method approaches
- Research Designs –Experimental and Non-Experimental; Descriptive and Observational; Participatory research
- Internal and external validity of research design
- Variables, concepts and measurement in research
- Levels of measurement
- Units of analysis

UNIT II: Sampling and Research tools & techniques

(15 Hours)

Unit Description:

This unit will introduce the student to the concept of sampling and methods used to draw sample from population using examples from Home Science discipline. Students would also learn about types of data, its collection and reliability and validity concerns.

Subtopics:

- Role of sampling in research
- Sampling techniques and their applicability, Sample size and sampling error
- Types of data: Primary and Secondary
- Tools of data collection; types, construction and administration- Interview, Questionnaire, Observation, Focus group discussion and other methods
- Validity and reliability of data collection tools

UNIT III: The Research Process

(15 Hours)

Unit Description:

This unit will elaborate upon the various steps involved in conducting and reporting researches in Home Science.

Subtopics:

- Defining the problem, research questions, objectives, hypotheses
- Review of related literature and originality in writing
- Systematic research: concept and methodology
- Planning the research
- Identifying variables and constructing hypothesis
- Selecting appropriate research methodology and tools
- Data analysis: coding and tabulation

- Writing a research report: styles and formats
- Citation formats: in medical sciences, social sciences

UNIT IV: Values, Social Responsibility and Ethics in Research

(5 Hours)

Unit Description:

This unit will apprise the students about ethical concerns while conducting and reporting research.

Subtopics:

- Ethical principles guiding research: from inception to completion and publication of research
- Plagiarism and Academic integrity in research: plagiarism tools and software
- Ethical issues relating to research participants and the researcher
 - Rights, dignity, privacy and safety of participants
 - Informed consent, confidentiality, anonymity of respondents, voluntary participation, harm avoidance.

PRACTICAL

(30 Hours)

1. Data visualization
2. Levels of Measurement
3. Types of research designs
 - a. Experimental and non-experimental; Descriptive and observational
 - b. Qualitative, Quantitative and mixed method
4. Sampling techniques and sample size calculation
 - a. Probability sampling method
 - b. Non-Probability sampling methods
5. Tools of data collection- Interview schedule, questionnaire and FGD
 - Designing/ Construction
 - Preparation of tools for ethical review
 - Pilot testing/ validity and reliability of the tool
6. Data collection and analysis process: conducting interviews, administering questionnaire
7. Coding and tabulation of data for analysis
8. Citation formats and Plagiarism
9. Reviewing a research paper from a specific area of specialization in Home Science

ESSENTIAL READINGS

1. Kerlinger F. N. and Lee, H.B. (2017). *Foundations of Behavioral Research* 4th Ed. Harcourt College Publishers.
2. Kothari, C. R. (2019). *Research Methodology: Methods and Techniques*. New Age International Pvt Ltd, New Delhi.
3. Kothari, C. R. (2022). *Shodh Padhati* 1st Ed. New Age International Pvt Ltd, New Delhi.
4. Kumar, R. (2019) *Research Methodology: A Step-by-Step Guide for Beginners*. 5th Ed. Sage Publications, New Delhi.

SUGGESTED READINGS

1. Bernard, H. R. (2000). *Social research methods: Qualitative and quantitative approaches*. Thousand Oaks, CA: Sage.
2. Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage Publications.
3. Davis, A. M., Treadwell, D. (2019). *Introducing Communication Research: Paths of Inquiry*. United Kingdom: SAGE Publications.
4. Flynn, J.Z., Foster, I.M. (2009). *Research Methods for the Fashion industry*. Fairchild books, Bloomsbury publishing.
5. Indian National Science Academy (INSA) (2019). *Ethics in Science Education, Research and Governance*. ISBN:978-81-939482-1-7.
<http://www.insaindia.res.in/pdf/EthicsBook.pdf>
6. Jacobsen, K. H. (2020). *Introduction to health research methods: A practical guide*. Jones & Bartlett Publishers.
7. UGC (2021) *Academic Integrity and Research Quality*. New Delhi: UGC, Retrieved from https://www.ugc.ac.in/e-book/Academic%20and%20Research%20Book_WEB.pdf

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

**B.A (Prog.) with Human Development and Family Empowerment
(HDFE)**

Category-V

**DISCIPLINE SPECIFIC ELECTIVE COURSE–DSE- HDFE-13: DATA ANALYSIS AND
STATISTICAL TOOLS**

Credit Distribution, Eligibility and Pre-requisites of the Course

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Data Analysis and Statistical Tools	4	3	0	1	XII Pass	NIL

LEARNING OBJECTIVES

- To provide an understanding of the basic statistical concepts and methods.
- To enable learners to collect, organize, summarize and present data using tables, graphs, and statistical plots.
- To gain the ability to collate, analyse and interpret the results of datasets using basic statistical tools and techniques.

LEARNING OUTCOMES

After completing this course, the learner will be able to:

- Explain fundamental statistical concepts and tools relevant to basic research.
- Summarize and visualize data effectively using descriptive statistics and statistical plots.
- Apply inferential statistical techniques to draw meaningful conclusions from sample data.
- Interpret and communicate statistical findings in the context of research.

THEORY

(45 Hours)

UNIT 1: Fundamentals of Statistics

(10 Hours)

Unit Description:

This unit establishes the foundational principles of statistics, focusing on its application in social sciences.

Subtopics:

- Role and functions of statistics in social science and market research
- Types of Statistics: Descriptive and Inferential
- Types and Sources of Data
- Measurement Scales: Nominal, Ordinal, Interval, Ratio

- Importance of Reliability and Validity

UNIT II: Data Organization and Summarization

(15 Hours)

Unit Description:

This unit focuses on summarizing and visualizing data for analysis and interpretation.

Subtopics:

- Organising data: frequency distribution tables
- Statistical graphs and visual interpretation: Histogram, Pie Chart, Bar Graph, Line Graph, Frequency Polygon, Ogive
- Measures of Central Tendency for ungrouped and grouped data: Mean, Median, Mode
- Measures of Dispersion for ungrouped and grouped data:
 - Absolute dispersion (Range, Quartile deviation, Mean deviation, Standard Deviation, Variance)
 - Relative dispersion (Coefficient of Range, Coefficient of Quartile deviation, Coefficient of Mean deviation, Coefficient of Variance)
- Measures of Shape: Skewness and Kurtosis
- Measures of partition values – Quartile, Decile, Percentile, Percentile Rank for ungrouped and grouped data

UNIT III: Basic Statistical Concepts and tools used in Experimental Research (10 Hours)

Unit Description:

This unit introduces students to inferential tools and techniques used to explore relationships and trends in data.

Subtopics:

- Basics of Probability: Concepts, laws of addition and multiplication
- Normal Distribution: Properties and application
- Correlation:
 - Karl Pearson's Coefficient
 - Spearman's Rank Correlation (Repeated and Non-Repeated)
- Linear regression (SLR)

UNIT IV: Hypothesis Testing and Statistical Analysis Techniques

(10 Hours)

Unit Description:

This unit equips students with inferential statistical methods for decision-making.

Subtopics:

- Sampling and Testing Hypotheses:
 - Null and Alternative Hypotheses
 - Level of Significance (α) and Confidence Level (c)
 - One-tailed vs Two-tailed tests
 - Type I and Type II Errors
- Introduction to Parametric and Non-Parametric tests

PRACTICAL

(Hours 30)

1. Introduction to Statistical Software: Using spreadsheet application such as Excel for statistical analysis by inputting basic data and performing essential functions.
2. Construction of Frequency Distributions: Organize raw data into grouped and ungrouped frequency tables using a given dataset.
3. Diagrammatic Representation of Data: Visualize data using bar charts, pie charts, line graphs, histograms, and frequency polygons, and interpret the results for a given dataset.
4. Measures of Central Tendency: Calculate mean, median, and mode for grouped and ungrouped data in Excel, and compare central tendencies between two datasets.
5. Measures of Dispersion: Compute range, variance, and standard deviation in Excel to analyse the spread of two different datasets.
6. Correlation Analysis: Measure the strength of relationships between two variables by calculating Pearson's and Spearman's correlation coefficients.
7. Hypothesis Testing (One-sample and Two-sample t-test): Test the significance of means for single, independent, and dependent datasets using t-tests.
8. Chi-Square Test for Independence: Test the independence between categorical variables by analyzing and interpreting a contingency table.

ESSENTIAL READINGS

1. Minium, E. W., King, B. M., & Bear, G. (2017). *Statistical Reasoning for Psychology and Education*. New York: Wiley and Sons.
2. Gupta, S.P. (2022) *Statistical Methods*, 46th Edn. S. Chand and Sons.
3. Agresti, A., Christine Franklin, C. and Klingenberg, B. (2017). *Statistics: The Art and Science of Learning from data*, Pearson, Boston

SUGGESTED READINGS

1. Schmuller, J. (2016). *Statistical Analysis with Excel for Dummies*, 5th Edition, New York, USA.
2. Gupta, S. C. and Kapoor, V. K. (2020). *Fundamentals of Mathematical Statistics*, 12th Edn., S. Chand and Sons.
3. Ross, Sheldon M. (2010): *Introductory Statistics*, 3rd Edition, Academic Press.
4. Derek Rowntree, (2018). *Statistics Without Tears, An Introduction for Non-Mathematicians*, Penguin Books

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Pool of Discipline Specific Elective Courses (DSE) for Even Semester

B.A (Prog.) with Human Development and Family Empowerment (HDFE)

Category-V

DISCIPLINE SPECIFIC ELECTIVE COURSE–DSE- 2-HDFE: EDUCATION AND REHABILITATION APPROACHES FOR PERSONS WITH DISABILITIES

CREDIT DISTRIBUTION, ELIGIBILITY AND PREREQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Education and Rehabilitation Approaches for Persons with Disabilities	4	2	0	2	Class XII	NIL

LEARNING OBJECTIVES:

1. To introduce students to educational approaches for Persons with Disabilities
2. To help students gain an understanding of Assistive Technology and ICT for Persons with Disabilities.
3. To make the students understand about Rehabilitation Approaches for Persons with Disabilities

LEARNING OUTCOMES:

After completion of the course, students will be able to:

1. Develop an understanding regarding educational approaches for persons with disabilities.
2. Gain an insight regarding assistive technology and ICT for persons with disabilities.
3. Get awareness about the rehabilitation approaches for persons with disabilities.

THEORY:

(30 Hours)

Unit I: Introduction to educational approaches for Persons with Disabilities **(8 Hours)**

Unit Description:

This unit will introduce the educational approaches for Persons with Disabilities.

Subtopics:

- Paradigm shift in educational approach from Segregation to Inclusion
- Role of significant others in developing self-image and self-esteem of Persons with Disabilities.
- Deno-cascade model of service delivery.

Unit II: Assistive Technology and ICT for Persons with Disabilities

(8 Hours)

Unit Description:

This unit will introduce students to different Assistive Technology and its uses for persons with disabilities.

Subtopics:

- Understanding ICT and its role in Classroom learning
- Assistive devices and their importance for Persons with Disabilities (Braille-books, Hearing Aids, Walking Canes etc.)

Unit III: Rehabilitation Approaches for Persons with Disabilities (Part 1)

(8 Hours)

Unit Description:

This unit will lay emphasis on understanding the concept of Rehabilitation Approaches for Persons with Disabilities.

Subtopics:

- Therapeutic Intervention –
 - Occupational therapy (OT),
 - Physio-Therapy (PT)
 - Speech Therapy (ST)

Unit IV: Rehabilitation Approaches for Persons with Disabilities (Part 2)

(6 Hours)

Unit Description:

This unit will lay emphasis on understanding the concept of Rehabilitation Approaches for Persons with Disabilities.

Subtopics:

- Community Based Rehabilitation (CBR)
- Institution Based Rehabilitation (IBR)

PRACTICAL:

(60 Hours)

- Interview a person with a disability to understand the role of significant others in their life.
- Identify various ICT tools and how they facilitate learning of persons with disabilities
- Prepare a list of assistive devices for persons with disabilities and their use.

ESSENTIAL READINGS:

1. Kozma, R.B. (2003). Technology, Innovation, and Educational Change: A Global Perspective: A Report of the Second Information Technology in Education Study, Module 2. International Society for Technology in Education
2. Abbot, C. (2001). ICT: Changing Education. Routledge Falmer.

3. Florian, L., & Hegarty J. (2004). ICT and Special Educational Needs: A Tool for Inclusion. Open University Press, Maidenhead.
4. Scheme of Assistance to Disabled for Purposes of Fitting of Aids/Appliances (2014). Ministry of Social Welfare, Govt. of India, New Delhi.
5. Ladau E. (2021). Demystifying Disability: What to Know, What to Say, and How to Be an Ally, Ten Speed Press Publisher
6. Nair, R. (2013). Development and Validation of Trivandrum Development Screening Chart for children aged 0-6 years, The Indian Journal of Pediatrics. DOI:[10.1007/s12098-013-1144-2](https://doi.org/10.1007/s12098-013-1144-2)

SUGGESTED READINGS:

1. Scheme of Assistance to Organizations for Disabled Persons, Ministry of Social Welfare, Govt. of India, New Delhi.
2. WHO. (1982). Community Based Rehabilitation — Report of a WHO International Consultation, Colombo, Sri Lanka, 28 June- 3 July. WHO (RHB/IR/82.1)
3. WHO. (1984). "Rehabilitation For All" in World Health Magazine, WHO, Geneva
4. Loveday, M. (2006). The HELP Guide for Community Based Rehabilitation Workers: A Training Manual. Global-HELP Publications, California.
5. McConkey, R. and O' Tool, B (Eds). Innovations in Developing Countries for People with Disabilities, P.H. Brookes, Baltimore.
6. Sarva Siksha Abhiyan. Module on Multiple Disabilities. http://ssa.nic.in/inclusive-education/training-module-for-resource-teachers-for-disable-children/Module%203%20Multiple%20Disability.pdf/at_download/

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**B.A (Prog.) with Human Development and Family Empowerment
(HDFE)**

Category-V

**DISCIPLINE SPECIFIC ELECTIVE – DSE-HDFE-4: SOCIO-EMOTIONAL DEVELOPMENT:
A LIFESPAN PERSPECTIVE**

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITE OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
SOCIO-EMOTIONAL DEVELOPMENT: A LIFESPAN PERSPECTIVE	4	2	0	2	Class XII	NIL

LEARNING OBJECTIVES:

1. To enable students to understand the concept and relevance of social and emotional skills.
2. To provide a lifespan perspective of socio-emotional skills to the students.
3. To enable students in understanding various factors promoting socio-emotional skills in humans.

LEARNING OUTCOMES:

After completion of the course, the students will be able to:

1. Understand the concept and relevance of social and emotional skills.
2. Get a lifespan perspective of socio-emotional skills.
3. Understand various factors promoting socio-emotional skills in humans.

THEORY

(30 hours)

Unit I: Introduction to Socio-Emotional Development

(8 hours)

Unit Description:

This unit focuses on making students understand the concept and importance of socio-emotional development in human beings.

Subtopics:

- Socio-Emotional Development: Concept and importance
- Critical Socio-Emotional Skills: Empathy, Managing Self and Social Relationships, Critical thinking, Conflict Resolution
- Social and Emotional Intelligence: Meaning and relevance

Unit II: Importance of Socio-Emotional Development in Human Lifespan (Part I) (8 hours)

Unit Description:

This unit focuses on providing a life-span perspective in understanding the importance of socio-emotional skills

Subtopics:

- Socio-Emotional Development and Psycho-Social theory of Development:
 - Early Childhood years
 - Middle Childhood Years
 - Adolescence

Unit III: Importance of Socio-Emotional Development in Human Lifespan (Part II) (8 hours)

Unit Description:

This unit focuses on providing a life-span perspective in understanding the importance of socio-emotional skills

Subtopics:

- Socio-Emotional Development and Psycho-Social theory of Development:
 - Early Adulthood
 - Late Adulthood

Unit IV: Factors affecting Socio-Emotional Development (6 hours)

Unit Description:

This unit focuses on important factors like family, school etc. that play an important role in developing socio-emotional skills in humans

Subtopics:

- Role of Family/ Parenting Strategies
- Role of School, Teachers and Peers

PRACTICAL (60 hours)

- Plan and document any two activities to improve socio-emotional skills in children.
- Discuss and analyze any one standardized program for promoting Socio-Emotional Learning. Eg.: Collaborative for Academic, Social and Emotional Learning (CASEL), Promoting Alternative Thinking Strategies (PATHS) etc.
- Review a movie/documentary/video about emotional problems faced by children in school (Eg. bullying, peer pressure) and write learnings from it

ESSENTIAL READINGS:

1. Goleman, D. (2005). *Emotional intelligence: Why it can matter more than IQ*. Bantam Publications
2. Sapra, R. (2020). Resilience as a Significant Factor in Child and Adolescent Health Pp 179-198. In *Handbook on Child and Adolescent Behavior and Health*. Ed Antonio Araujo Goncales, Nova Science Publishers, New York
3. Berk, L. E. (2017). *Development through the lifespan* (7rd edition). US: Pearson Education.

4. Singh, A. (2015). *Foundation of Human development: A lifespan approach*. London: Orient Longman.

SUGGESTED READINGS:

1. Burk, D.I (1996) Understanding Friendship and Social Interaction. *Childhood Education*, 282-85
2. Advancing Social and Emotional Learning. CASEL.org. Retrieved from <https://casel.org/>
3. Sapra, R. (2020). Parenting Children for Emotion Regulation and Resilience: A Review. *International Journal of Science and Research*. Volume9 Issue 5.

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**B.A (Prog.) with Human Development and Family Empowerment
(HDFE)**

Category-V

**DISCIPLINE SPECIFIC ELECTIVE COURSE–DSE- 6-HDFE: RESEARCH METHODS IN
HOME SCIENCE**

**CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF
THE COURSE**

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
RESEARCH METHODS IN HOME SCIENCE	4	3	0	1	XII Class Pass	NIL

LEARNING OBJECTIVES:

- To provide students understandings about the basic concepts, approaches and methods in conducting Home Science research.
- To enable learners to appreciate and critique the nuances of designing a research study well.
- To sensitize students towards ethical concerns while conducting Home Science research.

LEARNING OUTCOMES:

After completing this course, the learner will be able to:

- Demonstrate knowledge of the scientific method, purpose and approaches to research in Home Science
- Compare and contrast quantitative and qualitative research approaches
- Explain different types of research design and their applicability in Home Science research
- Understand the key elements of a research process
- Explain ethical principles, issues and procedures

THEORY

(Hours 45)

UNIT I: Research Purpose and Design

(10 Hours)

Unit Description:

This unit will deal with meaning and importance of research in various areas of Home Science. Exposure to different types of research designs and measurement in Home Science research would also be given.

Subtopics:

- Meaning, purpose and significance of research
- Research as a scientific method
- Types of research
- Quantitative, Qualitative and mixed method approaches
- Research Designs –Experimental and Non-Experimental; Descriptive and Observational; Participatory research
- Internal and external validity of research design
- Variables, concepts and measurement in research
- Levels of measurement
- Units of analysis

UNIT II: Sampling and Research tools & techniques

(15 Hours)

Unit Description:

This unit will introduce the student to the concept of sampling and methods used to draw sample from population using examples from Home Science discipline. Students would also learn about types of data, its collection and reliability and validity concerns.

Subtopics:

- Role of sampling in research
- Sampling techniques and their applicability, Sample size and sampling error
- Types of data: Primary and Secondary
- Tools of data collection; types, construction and administration- Interview, Questionnaire, Observation, Focus group discussion and other methods
- Validity and reliability of data collection tools

UNIT III: The Research Process

(15 Hours)

Unit Description:

This unit will elaborate upon the various steps involved in conducting and reporting researches in Home Science.

Subtopics:

- Defining the problem, research questions, objectives, hypotheses
- Review of related literature and originality in writing
- Systematic research: concept and methodology
- Planning the research
- Identifying variables and constructing hypothesis
- Selecting appropriate research methodology and tools
- Data analysis: coding and tabulation
- Writing a research report: styles and formats
- Citation formats: in medical sciences, social sciences

UNIT IV: Values, Social Responsibility and Ethics in Research

(5 Hours)

Unit Description:

This unit will apprise the students about ethical concerns while conducting and reporting research.

Subtopics:

- Ethical principles guiding research: from inception to completion and publication of research
- Plagiarism and Academic integrity in research: plagiarism tools and software
- Ethical issues relating to research participants and the researcher
 - Rights, dignity, privacy and safety of participants
 - Informed consent, confidentiality, anonymity of respondents, voluntary participation, harm avoidance.

PRACTICAL

(30 Hours)

1. Data visualization
2. Levels of Measurement
3. Types of research designs
 - a. Experimental and non-experimental; Descriptive and observational
 - b. Qualitative, Quantitative and mixed method
4. Sampling techniques and sample size calculation
 - a. Probability sampling method
 - b. Non-Probability sampling methods
5. Tools of data collection- Interview schedule, questionnaire and FGD
 - Designing/ Construction
 - Preparation of tools for ethical review
 - Pilot testing/ validity and reliability of the tool
6. Data collection and analysis process: conducting interviews, administering questionnaire
7. Coding and tabulation of data for analysis
8. Citation formats and Plagiarism
9. Reviewing a research paper from a specific area of specialization in Home Science

ESSENTIAL READINGS

1. Kerlinger F. N. and Lee, H.B. (2017). *Foundations of Behavioral Research* 4th Ed. Harcourt College Publishers.
2. Kothari, C. R. (2019). *Research Methodology: Methods and Techniques*. New Age International Pvt Ltd, New Delhi.

3. Kothari, C. R. (2022). *Shodh Padhati* 1st Ed. New Age International Pvt Ltd, New Delhi.
4. Kumar, R. (2019) *Research Methodology: A Step-by-Step Guide for Beginners*. 5th Ed. Sage Publications, New Delhi.

SUGGESTED READINGS

1. Bernard, H. R. (2000). *Social research methods: Qualitative and quantitative approaches*. Thousand Oaks, CA: Sage.
2. Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage Publications.
3. Davis, A. M., Treadwell, D. (2019). *Introducing Communication Research: Paths of Inquiry*. United Kingdom: SAGE Publications.
4. Flynn, J.Z., Foster, I.M. (2009). *Research Methods for the Fashion industry*. Fairchild books, Bloomsbury publishing.
5. Indian National Science Academy (INSA) (2019). *Ethics in Science Education, Research and Governance*. ISBN:978-81-939482-1-7.
<http://www.insaindia.res.in/pdf/EthicsBook.pdf>
6. Jacobsen, K. H. (2020). *Introduction to health research methods: A practical guide*. Jones & Bartlett Publishers.
7. UGC (2021) *Academic Integrity and Research Quality*. New Delhi: UGC, Retrieved from [https://www.ugc.ac.in/e-book/Academic%20and%20Research%20Book WEB.pdf](https://www.ugc.ac.in/e-book/Academic%20and%20Research%20Book%20WEB.pdf)

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**B.A (Prog.) with Human Development and Family Empowerment
(HDFE)**

Category-V

**DISCIPLINE SPECIFIC ELECTIVE COURSE –DSE-HDFE-8: INCLUSION OF YOUNG
CHILDREN WITH DISABILITY**

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical / Practice		
INCLUSION OF YOUNG CHILDREN WITH DISABILITY	4	2	-	2	Class XII pass	NIL

LEARNING OBJECTIVES:

1. To introduce students to the concept of diversity, vulnerability and exclusion.
2. To help students gain an understanding of issues and challenges in the education of children with disability.
3. To make the students understand about Inclusive education and ways to set up of Inclusive practices.

LEARNING OUTCOMES:

After completion of the course, students will be able to:

1. Develop an understanding regarding concept of diversity, vulnerability and exclusion.
2. Gain an insight regarding Issues and challenges in the education of children with disability.
3. Get awareness about the concept of Inclusive education and its practicality.

THEORY: (30 Hours)

Unit I: Understanding Diversity, Vulnerability and Exclusion (8 Hours)

Unit Description:

This unit will introduce the concepts of diversity, vulnerability and exclusion to students.

Subtopics:

- Understanding diversity among children
- Disability as a source of vulnerability: Exclusion of children with disability.

Unit II: Including Children with disability in an educational setting (8 Hours)

Unit Description:

This unit will introduce students to different educational settings for children with disabilities.

Subtopics:

- Different educational settings for children with disability (Segregated, Integrated and Inclusive)
- Issues and challenges in the education of children with disability

Unit III: Inclusive Education (8 Hours)

Unit Description:

This unit will lay emphasis on understanding the concept of inclusive education and setting up its practice.

Subtopics:

- Concept, policies and principles of Inclusive education
- Setting up of an Inclusive Practice (multi-tiered system of support)

Unit IV: Involvement of Parents and other stakeholders in an inclusive setup (6 Hours)

Unit Description:

This unit will focus on significance of involving parents and other stake holders

Subtopics:

- Parent Advocacy and Empowerment
- Community Participation: Importance and Process of involving community

PRACTICAL: (60 Hours)

- Visit to an educational setting for children with disabilities.
- Workshop/talk/ webinar on Diversity and Inclusion of Children with disability.
- Plan an activity for sensitizing peers towards children with disabilities.
- Plan a day's workshop for involving parents and community in an inclusive education setup

ESSENTIAL/RECOMMENDED READINGS:

1. Mangal, S.K. (2007). Educating exceptional children. New Delhi: PHI Learning
2. National Human Rights Commission (2005). Disability manual. New Delhi: NHRC
3. NCERT (2014). Including children with special needs. New Delhi: NCERT
4. Ramesh, R (2011). Disability Towards Inclusive India, Pentagon Press
5. Werner, D. (1994). Disabled Village Children (2022 Edition), Voluntary Health Association of India

SUGGESTED READINGS:

1. NCERT (2006). Education of children with special needs. New Delhi: NCERT
2. NCERT (2010). Towards inclusive education. New Delhi: NCERT
3. Pal, C. and Viswakarma, V (2011). Vishesh shiksha - shikshan. New Delhi: Kanishka Publishers, Distributors.
4. Sharma, Y.K. (2009). Sharireki roop se viklang balak. New Delhi: Kanishka Publishers, Distributors.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time

**B.A (Prog.) with Human Development and Family Empowerment
(HDFE)**

Category-V

DISCIPLINE SPECIFIC ELECTIVE –DSE- HDFE-10: CHILDHOOD IN INDIA

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITE OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
CHILDHOOD IN INDIA	4	2	-	2	Class XII	NIL

LEARNING OBJECTIVES:

1. To create awareness, knowledge and understanding of multiple contexts about childhood in India.
2. To sensitize students to various dimensions of challenges faced by children in different psycho-social settings.
3. To develop awareness and knowledge about contemporary issues of childhood in India

LEARNING OUTCOMES:

After completion of the course, the students will be able to:

1. Develop an understanding of diverse contexts where children grow in India.
2. Get sensitized to various dimensions of challenges faced by children in different psycho-social settings.
3. Develop awareness and knowledge about contemporary issues of childhood in India.

THEORY

(30 hours)

Unit I: Introduction to Childhood in India

(8 hours)

Unit Description:

This unit focuses on basic understanding, awareness and knowledge about childhood in India.

Subtopics:

- Definition of child in India using various perspectives
- Social construction of childhood and family
- Childhood in different cultures

Unit II: Diverse Contexts of Childhood in India

(8 hours)

Unit Description:

This unit focuses and sensitizes students on various dimensions of challenges faced by children.

Subtopics:

- Children across varied SES Groups
- Children in especially difficult circumstances

Unit III: Situation of Children in India

(8 hours)

Unit Description:

This unit develops awareness and knowledge about situation of children in India and Government's intervention for the same

Subtopics:

- Indian Government's intervention for children: Acts, Policies and Schemes
- Initiatives for disadvantaged groups of children in India: Girl child/ children with disability

Unit IV: Voluntary Action for children in India

(6 Hours)

Unit Description:

This unit will focus on the role of voluntary organization's for providing services for vulnerable children.

Subtopics:

- Voluntary organization's for providing services for vulnerable children (Any 2 organizations)
- Community based Initiatives and Advocacy for children.

PRACTICAL

(60 hours)

- Case profile on a child living in diverse socio-cultural setting
- Movie/documentary review revolving around childhood in India
- Childhood in mythology/stories/folk-lore: Discussion and documentation (3-5 examples)
- Visit any organization working for vulnerable children.

ESSENTIAL / RECOMMENDED READINGS:

1. Behera, D. K. (2007). Childhood in South Asia. New Delhi: Pearson- Longman.
2. Sapra, R. (2010). Child development: issues and concerns for the well-being of the child. New Delhi: Vishwabharati

3. Sharma, D. (2003). Infancy and childhood in India. In D. Sharma (Ed.). Childhood, family and sociocultural changes in India (13-47). New Delhi: Oxford.

SUGGESTIVE READINGS:

1. Aries, P. (1962). Centuries of childhood: A social history of family life. New York: Vintage.
2. Bee, H. L (2011). The developing child. London: Pearson.
3. Deb, S. and Chatterjee, P. (2008). Styles of parenting adolescents – The Indian scenario. New Delhi: Akansha Publishing House.
4. Santrock, J. W. (1996). Child development. New York: Tata McGraw Hill

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

**B.A (Prog.) with Human Development and Family Empowerment
(HDFE)**

Category-V

**DISCIPLINE SPECIFIC ELECTIVE COURSE –DSE-HDFE-12: INTRODUCTION TO GUIDANCE
AND COUNSELLING**

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITE OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
INTRODUCTION TO GUIDANCE AND COUNSELLING	4	2	-	2	Class XII	NIL

LEARNING OBJECTIVES:

- To understand the concept of guidance and counselling
- To get acquainted with process and techniques of counselling
- To analyze the relationship between guidance and counselling

LEARNING OUTCOMES:

- Develop an understanding of meaning, need and principles of guidance and counselling
- Get acquainted with the process and techniques of counselling.
- Understand the relationship between guidance and counselling and explore various types of 'therapies' in counselling

THEORY:

(30 hours)

UNIT I: Introduction to Guidance

(08 hours)

Unit Description:

This unit focuses on developing understanding regarding the need and purpose of guidance.

Subtopics:

- Emergence of guidance as a professional field, need for Guidance, basic principles of guidance
- Purpose of guidance: self-understanding and self-discovery, self-reliance and self-direction, self-actualization
- Caution and directions in dealing with children

UNIT II: Understanding Counseling

(06 hours)

Unit Description:

This unit focuses on developing understanding regarding the meaning and need of counseling.

Subtopics:

- Meaning, Principles and need for counseling
- Counseling process

UNIT III: Types of Counseling

(08 hours)

Unit Description:

This unit focuses on developing understanding regarding the need and purpose of guidance.

Subtopics:

- Individual and Group counseling
- Counseling for children and parents
- Role, qualities and skills of a counselor
- Professional ethics

UNIT IV: Understanding difference therapies

(08 hours)

Unit Description:

This unit focuses on developing understanding regarding the different types of therapies.

Subtopics:

- Difference between counseling, guidance and therapy
- Types of therapy
 - Client centered therapy,
 - Cognitive behavior therapy
 - Psychoanalytic therapy

PRACTICAL

(60 hours)

- Webinar / Workshop on counseling skills
- Field visit to Counseling centers / Role play on Counseling sessions
- Record keeping in Case study presentation

- Interview of a Counsellor (School / College/ Organization)

ESSENTIAL / RECOMMENDED READINGS:

1. Asthana, V. (2014). Paramarsh aur nirdeshan. Agra: Agarwal Publications.
2. Bhatnagar, A. and Gupta, N. (1999). Guidance and counseling: a theoretical perspective, New Delhi: Vikas.
3. Burnard, P. (1999). Counseling skills training. New Delhi: Viva Books Company.

SUGGESTIVE READINGS:

1. Dave, I. (1984). The basic essentials of counselling. New Delhi: Sterling Pvt. Ltd.
2. Guez, W., Allen, J. (2011). Counselling. France: UNESCO
3. Sharma, S. N. and Solanki, M. K. (2014). Nirdeshan avam paramarsh. Agra: Madhav Prakashan.
4. Upadhya, R. (2017). Nirdeshan avam paramarsh. Agra: Agarwal Publications.

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Department of Home Science
BA (Prog) with Nutrition and Health Education (NHE)
For SEMESTER VII & VIII

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B.A (Prog) with Nutrition and Health Education (NHE) as Major

Category-II

DISCIPLINE SPECIFIC CORE COURSE – DSC-13-NHE: PUBLIC HEALTH NUTRITION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical / Practice		
Public Health Nutrition	4	3	NIL	1	Class XII	DSC-NHE- 2

LEARNING OBJECTIVES:

1. To explain the multidisciplinary nature, scope, and current concerns of public health nutrition and the role of nutritionists in healthcare systems.
2. To apprise the relevance of assessing nutritional status and the various tools/techniques for assessment of nutritional status.
3. To familiarize the students with the prevalence, etiology, clinical features, prevention, and management of major nutritional deficiency diseases.
4. To equip students with the practical skills in nutritional assessment, low-cost meal planning, and analyzing food security through case studies.

LEARNING OUTCOMES:

After completion of the course students will be able to:

1. Define public health nutrition and understand its interdisciplinary approach.
2. Assess nutritional status using both direct and indirect methods.
3. Gain knowledge of the common nutritional deficiency diseases and their management.
4. Develop practical skills in conducting dietary assessments and planning nutrition interventions for at-risk populations.

SYLLABUS OF DSC-13

THEORY
(Credits 3: 45 Hours)

UNIT 1: Public Health Nutrition and Health Care Systems

(10 Hours)

- This unit will emphasize the multidisciplinary approach to improving population health through nutrition. It will also explore the role of public health nutritionists, health determinants, dimensions and healthcare delivery systems across various levels.
- *Subtopics:*
 - Definition and multidisciplinary nature of public health nutrition
 - Significance and emerging concerns in public health nutrition
 - Role of public health nutritionist
 - Health – definition, dimensions, determinants and indicators
 - Health care delivery system

UNIT 2: Assessment of nutritional status

(10 Hours)

- This unit will equip the students the various methods of assessing nutritional status, objectives and importance.

- *Subtopics:*
 - Objectives and importance of assessment of nutritional status of individual and population groups
 - Methods of Assessment of Nutritional status of Individual and Population groups
 - Direct methods: Anthropometric assessment, Biochemical and biophysical assessment, Clinical examination, Dietary Assessment
 - Indirect methods: Health and Morbidity Indicators, Vital Statistics, Ecological factors

UNIT 3: Nutritional Deficiency Diseases/Disorders

(15 Hours)

- This unit will introduce the students with the causes, symptoms, management, prevention of the following nutritional deficiency diseases/disorders:
- *Subtopics:*
 - Protein Energy Malnutrition, Moderate Acute Malnutrition, Severe Acute Malnutrition
 - Micronutrient deficiencies (Vitamin A deficiency, Nutritional anaemia, Iodine deficiency disorders, Vitamin D deficiency, Zinc deficiency, Fluorosis)

UNIT 4: Food and Nutrition Security

(10 Hours)

- This unit will explore the aspects of food and nutrition security, focusing on definitions, methods and challenges. It will also examine the National Programmes in this area.
- *Subtopics:*
 - Definitions, indicators, determinants and challenges
 - Methods for attaining food and nutrition security
 - National programmes for ensuring food and nutrition security

PRACTICAL (Credit 1: 30 hours)

1. Assessment of nutritional status:

- Anthropometry (height, weight, BMI, middle upper arm circumference, hip circumference, waist circumference, waist hip ratio)
- Dietary Assessment methods
- Clinical examination

2. Planning and preparation of low cost nutritious snacks for vulnerable groups:

- Protein Energy Malnutrition
- Nutritional Anemia
- Vitamin A deficiency

3. Case Studies

- Analysis of food security in India vs. other countries
- Success stories from nutrition security programmes

ESSENTIAL/RECOMMENDED READINGS:

- Park, K. (2021). *Park's Textbook of Preventive and Social Medicine* (26th ed.). Banarasidas Bhanot Publishers.
- Vir, S. (2023). *Child, adolescent and women nutrition in India: Public Policies, programme and progress*. KW Publishers, Daryaganj, New Delhi, India.
- FAO. (2023). *The state of food security and nutrition in the world 2023: Transforming food systems for affordable healthy diets*. Food and Agriculture Organization of the United Nations. <https://www.fao.org/publications/sofi/en/>

- ICMR NIN. (2024). *Estimated Average Requirements and Recommended Dietary Allowances for Indians*. National Institute of Nutrition.

SUGGESTED READINGS:

- Bamji, M. S., Krishnaswamy, K. & Brahman, G. N. V. (4 Eds.). (2019). *Textbook of Human Nutrition* (4th ed.). New Delhi, India: Oxford and IBH Publishing Co. Pvt. Ltd.
- World Health Organization (WHO). (2023). *Child Growth Standards*. <https://www.who.int/tools/child-growth-standards/standards>. Accessed Dec 2024
- National Health Mission (NHM). (2023). *Participant Manual FBCSA-Malnutrition*. https://www.nhm.gov.in/images/pdf/programmes/child-health/IECmaterials/PARTICIPANT-MANUAL_FBCSA-Malnutrition.pdf. Accessed Dec 2024.
- Smith, M., & Thompson, K. (2022). *Nutrition security: Ensuring healthy diets and sustainable food systems*. Global Nutrition Report. <https://globalnutritionreport.org/>
- International Institute for Population Sciences (IIPS), & ICF. (2020). *National Family Health Survey (NFHS-5), India 2019-20: Volume I: Key Findings*. International Institute for Population Sciences. https://rchiips.org/nfhs/NFHS-5_FCTS/India.pdf

B.A (Prog) with Nutrition and Health Education (NHE) as Major

Category-II

DISCIPLINE SPECIFIC CORE COURSE – DSC-14-NHE: THERAPEUTIC NUTRITION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Therapeutic Nutrition	4	3	NIL	1	Class XII	NIL

LEARNING OBJECTIVES:

- To impart students' basic knowledge on the role of diet in various disease conditions
- To understand principle of diet therapy, modification of normal diet for therapeutic purposes, role of dietician
- To develop skills in planning and preparation of therapeutic diets for various conditions

LEARNING OUTCOMES:

After completion of the course, the students will be able to:

- Describe therapeutic adaptations of normal diet
- Create an understanding regarding etiology, clinical features, dietary and nutritional management of common diseases like febrile conditions, gastrointestinal disorders, food allergy etc.
- Understand the risk factors, complications and dietary management of lifestyle disorders like diabetes, hypertension, atherosclerosis and obesity.
- Conduct market survey of therapeutic items

SYLLABUS OF DSC-NHE-14

THEORY
(Credits: Hours)

UNIT I: Nutrition Care Process

(8 Hours)

- This unit will focus on basics of nutrition care process, role of dietician, modification of normal diet into therapeutic diet and types of diets and special feeding methods.

- *Subtopics:*

- Rationale for Nutrition Support
- Organization of Nutrition Support Services (Role of Dietician)
- Dietary Modifications and types of diet
- Special Feeding Methods enteral, parenteral

UNIT II: Nutrition in Infection

(12 Hours)

- This unit will focus on etiology, clinical features, metabolic changes and dietary management during infections and GI disorders.

- *Subtopics:*

- Fever (Acute and Chronic)
- HIV AIDS
- Upper GIT-GERD, Peptic Ulcers
- Intestinal-Diarrhea, Constipation, Inflammatory Bowel Disease
- Liver-Hepatitis

UNIT III: Lifestyle Related Disorders

(15 Hours)

- This unit will focus on etiology, clinical features, assessment methods, complications and nutritional management of various lifestyle related diseases.

- *Subtopics:*

- Overweight / Obesity
- Diabetes Mellitus
- Hypertension
- Metabolic Syndrome
- Cardiovascular- Atherosclerosis, Hypercholesterolemia
- Cancer

UNIT IV: Inborn Errors of Metabolism / Specialized Diets / Food Allergy

(10 Hours)

- This unit will focus on etiology and dietary modifications in inborn errors of metabolism / food allergy / specialized diets.

- *Subtopics:*

- Lactose Intolerance
- Celiac Disease
- Food Allergy
- Ketogenic Diet
- Purine Restricted Diet

PRACTICAL
(Credits 1: 30 Hours)

1. Market Survey of Therapeutic Foods
2. Planning of Therapeutic Diets
 - Normal Diet
 - Soft Diet
 - Clear Fluid Diet
 - Full Fluid Diet
3. Develop a Questionnaire regarding basic information of patients for dietary management
4. Planning and preparation for the full day's diet for the following conditions: -
 - Fevers – Acute and Chronic
 - Chronic Diarrhea
 - Constipation
 - Obesity
 - Diabetes
5. Planning and preparation of snack/dish for following diseases: -
 - Typhoid/Tuberculosis
 - Diabetes – Sweet and Savory Snack
 - Hypertension
 - Obesity
 - Diarrhea
6. Develop a handout/visual material for any one of the following: -
 - Diarrhea
 - Lactose Intolerance/Celiac Disease
 - Diabetes
 - Hypertension
 - Obesity
 - Metabolic Syndrome

ESSENTIAL/ RECOMMENDED READINGS (Theory and Practical):

- Khanna, K, Gupta, S, Passi, S.J, Seth, R, Mahana, R, Puri, S (2013). Textbook of Nutrition and Dietetics (2nd Edition). Elite Publishing House Pvt. Ltd.
- Srilakshmi, B (2023) (9th Edition). Dietetics. New Age International (P) Ltd Publishers.
- Seth, V and Singh, K (2013). Diet Planning Through the Life Cycle, Part III. 'Diet Therapy' A Practical Manual, 5th Ed. Elite Publishing House Pvt/ Ltd.
- Siddhu, A , Bhatia, N , Singh, K , Gupta, S. Technical Series 6-Compilation of Food Exchange List (2017), Global Books Organization.
- Longvah, T, Anathen, R, Bhaskaracharya, K, Venkaiah, K. Indian Food Composition Tables, National Institute of Nutrition (2017)

SUGGESTED READINGS:

- Shubhargini, A, Joshi, S (2021). Nutrition and Dietetics (5th Edition), McGraw Hill Education (India)

Pvt. Ltd.

- Mudambi , S.R, Rajagopal , M.V. Fundamentals of Foods, Nutrition and Diet Therapy (2012). New Age International (P) Ltd. Publisher.
- Staci, Nix, William's Basic Nutrition and Diet Therapy (2021) South Asia Edition (16th Ed.) Elsevier.
- Raymond, J.L, Morrow, K, Krause and Mahan's Food and the Nutrition Care Process (16th Ed) (2022) Elsevier.
- Sharma, Avantina, Principles of Therapeutic Nutrition and Dietetics (2017), CBJ Publishers & Distributers.

Pool of Discipline Specific Elective Course (DSE) for Odd Semesters(Vth and VIIth)

B.A (Prog.) with Nutrition and Health Education (NHE)

Category-V

**DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE-NHE 1: Basic Physiology of Digestive System**

CREDIT DISTRIBUTION, ELIGIBILITY AND PREREQUISITES OF THE COURSE

Course and Code	Title	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
			Lecture	Tutorial	Practical/ Practice		
Basic Physiology of Digestive System		4	3	1	0	XII Pass	NIL

Learning Objectives

- To impart knowledge about the basic structure of human digestive system.
- To explain the functioning of the human digestive system.
- To provide overview of the various disorders in relation with human digestive system.

Learning Outcomes

After completion of the course, the students will be able to:

- Understand the fundamentals of the human digestive system.
- Develop insight of functioning of the digestive system in the human body.
- Understand overview of the various diseases of human digestive system.

SYLLABUS OF DSE-NHE-1

**THEORY
(Credits 3; Hours 45)**

UNIT I: Fundamentals of Human Digestive System

(10 Hours)

This unit explains the concept of the gross positioning and basic functioning of digestive system. It also imparts understanding about the contribution of different organ systems in relation to the digestive system.

- Overview of the gross structural positioning of digestive system in human body
- Contributions of different systems of human body in relation to the digestive system
- Functions of digestive system: ingestion, propulsion, digestion, absorption, and elimination
- Digestion and absorption of carbohydrates, fats, and proteins

UNIT II: Physiology of Gastrointestinal Tract (GIT) of Human Digestive System 14 Hours

This unit presents an understanding of the gross structure and functions of alimentary canal of digestive system and their correlation with specific disease conditions.

- Gross structure and functions of Gastro Intestinal Tract (GIT): mouth, pharynx, oesophagus, stomach, small intestine, large intestine, rectum and anal canal

UNIT III: Physiology of Accessory Organs of Human Digestive System (12 Hours)

This unit presents an understanding of structure and functions of accessory organs of the digestive system.

- Gross structure and functions of accessory organs of digestive system: teeth, tongue, salivary glands, liver, gallbladder, pancreas.

Unit IV Specific Disease Conditions in Correlation with Human Digestive System (9 Hours)

The unit presents an understanding of specific disease conditions in correlation with human digestive system.

- An overview of the diseases in correlation with alimentary canal/GIT: gastro oesophageal reflux disease (GERD), peptic ulcers, diarrhoea, constipation, irritable bowel syndrome etc.
- An overview of the diseases in correlation with accessory organs of digestive system: hepatitis, Non-alcoholic Fatty Liver Disease (NAFLD), liver cirrhosis, cholelithiasis, pancreatitis, diabetes etc.

TUTORIALS (Credits 1; Hours 15)

Tutorial classes will involve:

1. Q&A sessions/ Group Discussions/ Problem Solving exercises with the Students
2. Presentation of project/ research activity by students
3. Any other scholastic work related to application of conceptual understanding of the subject
4. Evaluation and feedback by the teacher

ESSENTIAL/ RECOMMENDED READINGS

- Jain, A. K. (2019). *Human Physiology for BDS*. (6th edn.). Avichal Publishing Company.
- Singh, H. D. (2010). *Handbook of basic human physiology for paramedical students*. S. Chand Publishing.
- *Manav evan igyan evum yog*, M.Y-104. Uttrakhand Mukta Vishwa Vidyalaya
<https://uou.ac.in/sites/default/files/slm/MY-104.pdf> (Accessed on 10 March 2023).

SUGGESTED READINGS

- Ross., & Wilson. (2018). *Anatomy and Physiology in Health and Illness* (13th edn.). Elsevier.
- Chaudhari, S. K. (2016). *Concise Medical Physiology* (7th edn.). New Central Book Agency (P) Ltd.
- *Manav sharir -rachna aur kriya- vigyan*, paper- 4 of PGDIPP, SIGFA Solutions
<http://assets.vmu.ac.in/PGDIPP04.pdf> (Accessed on 10 March 2023).

B.A (Prog.) with Nutrition and Health Education (NHE)
Category-V

DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE-NHE-3: Recent Advances in Food and Nutrition

CREDIT DISTRIBUTION, ELIGIBILITY AND PREREQUISITES OF THE COURSE

Course Title and Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Recent advances in food and nutrition	4	3	1	0	XII Pass	Nil

Learning Objectives

- To introduce students with the advances in food trends to fulfill developing health requirements.
- To equip them with knowledge of various recent advances in technologies in nutrition and food science.

Learning Outcomes

After completion of the course, the students will be able to:

- Develop understanding of modern approach to types of diet, and advancement in high altitude and space foods.
- Understand the multidisciplinary approaches in enrichment of nutrition.
- Understand and explore technologies involved in preparation and preservation of processed and convenience foods.
- Understand and explore different advanced methods of processing, preservation and packaging materials.

SYLLABUS OF DSE-NHE-3

THEORY
(Credits 3; Hours 45)

UNIT I: Recent Advances in Food for Health

12 Hours

This unit will introduce diets and specified foods in order to attain desired health status by individuals

- Dietary approaches: Intermittent fasting, veganism, mediterranean diet, detox diet, gluten free diet, paleo diet, ketogenic diet, atkins diet, circadian rhythms diet.
- Recent advances with respect to functional foods, organic foods, nutraceuticals, dietary supplements, nutrigenomics, nutrigenetics, prebiotics, probiotics, synbiotics, postbiotics, high altitude and space foods.

UNIT II: Advanced Technologies to Enrich Nutrition

10 Hours

This unit will explain the multidisciplinary approach in enrichment of nutrition.

- Food fortification
- Food biotechnology: role, application and concerns for the following:
 - Genetically modified foods
 - Biofortification
- WHO guidelines for fortified foods
- FSSAI regulations/standards for fortified foods

UNIT III: Technological Advancement in Food Processing

15 Hours

This unit will introduce different technologies involved in preparation and preservation of processed and convenience foods.

- Concept, application, advantages and disadvantages of the following techniques /technologies:
 - Extrusion technology
 - Microencapsulation
 - Nanotechnology
 - Ohmic heating
 - High-power ultrasound (HPU)
 - Electrohydrodynamic drying
 - Pulsed electric field (PEF)
 - Manothermosonication
 - High-pressure processing (HPP)
 - Food printing

UNIT IV: Advances in Food Packaging

8 Hours

This unit will introduce the advancement in different methods of food packaging.

- Sustainable food packaging: edible packaging, bioplastics
- Controlled atmosphere packaging (CAP) and Modified atmosphere packaging (MAP)
- Active, smart and intelligent packaging

TUTORIALS **(Credits 1; Hours 15)**

Tutorial classes will involve:

1. Q&A sessions/ Group Discussions/ Problem Solving exercises with the Students
2. Presentation of project/ research activity by students
3. Any other scholastic work related to application of conceptual understanding of the subject
4. Evaluation and feedback by the teacher

ESSENTIAL/ RECOMMENDED READINGS

- Srilakshmi, B. (2022). *Food Science* (7th edition). New Age International (P) Ltd.
- Fellows, P. J. (2022). *Food processing technology: Principles and Practice* (5th edn.). Woodhead publishing.
- Anjana, A., & Shobha, A. U. (2021). *Textbook of human nutrition* (3rd edn.). Jaypee Brothers medical publishers.
- Rahman, M. S. (Ed.). (2007). *Handbook of Food Preservation*. (2nd edn.). CRC press.

SUGGESTED READINGS

- Suwendu, B. (Ed.). (2015). *Conventional and advanced food processing technologies*. Wiley Publishing.
- Bhesh, B., Fernanda, C. G., Min, Z., Sangeeta, P. (Eds.). (2019). *Fundamentals of 3D food printing and applications*. Academic press.
- Kit L.Y., & Dong S.L. (2012). *Emerging food packaging technologies: Principles and practice*. Woodhead publishing ltd.
- Sharvari, R., Sudiksha, H., Salil, M. & Ramesh, B. (2021). *Advancements in space food processing technologies*. *International Journal of Recent Scientific Research*, 12(06): 42033–42037.
- Food Safety and Standards Authority of India. (2018). *Food Safety and Standards (Fortification of Foods) Regulations*. https://www.fssai.gov.in/upload/uploadfiles/files/Compendium_Food_Fortification_Regulations_30_09_2021.pdf (Accessed on 10 March 2023).
- World Health Organization. (2006). *Guidelines on food fortification with micronutrients*. <https://www.who.int/publications/i/item/9241594012> (Accessed on 10 March 2023).

B.A (Prog.) with Nutrition and Health Education (NHE) Category-V

DISCIPLINE SPECIFIC ELECTIVE COURSE DSE-NHE-5: Health and Nutrition for Women and Children

CREDIT DISTRIBUTION, ELIGIBILITY AND PREREQUISITES OF THE COURSE

Course Title and Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Health and Nutrition for Women and Children	4	3	0	1	XII Pass	NIL

Learning Objectives

- To sensitize students towards the current scenario with respect to health and nutrition indicators for women and children
- To impart holistic knowledge about health and nutrition issues concerning women
- To educate students about various aspects of child health and nutrition including IYCF, immunization as well as problems of malnutrition
- To create awareness regarding Government of India's ongoing programmes for nutrition and health of women and children

Learning Outcomes

After completion of the course, the students will be able to:

- Understand the various dimensions of women's health and nutrition
- Explain every aspect of children's health and nutrition including breast feeding, complementary feeding, immunization and nutrition related problems
- Gain sufficient knowledge to be able to contribute to the efforts made by the government towards promoting health and nutrition of women and children

SYLLABUS OF DSE-NHE-5

THEORY (Credits 3; Hours 45)

UNIT I: Health and Nutrition for Non-pregnant, Non-lactating Women 12 Hours

This unit will familiarize the student with the current scenario and knowledge regarding nutrition and care for non-pregnant, non-lactating women.

- Nutrition situation of women in India
- Vital statistics related to health
- Importance of optimal nutrition for healthy life
- Nutritional concerns

UNIT II: Pregnancy and Lactation 12 Hours

This unit will address issues related to various aspects of health and nutrition of pregnant and lactating mothers.

- Health and nutritional considerations
- Factors affecting pregnancy outcomes and lactation performance
- Immunization/ vaccination during pregnancy
- Nutritional problems and their management

UNIT III: Infancy and Childhood 12 Hours

This unit will introduce all aspects of nutrition as well as other dimensions of child health.

- IYCF guidelines, first 1000 days
- Importance of appropriate nutrition during childhood
- Immunization: Universal Immunization programme, Intensified Mission Indradhanush 4.0
- Growth monitoring
- Malnutrition – Wasting, stunting and micronutrient deficiencies among children
– Childhood obesity
- Diarrhoea

UNIT IV: Women and Child Nutrition Programmes: 9 Hours

This unit will give a complete overview of the government's flagship programme 'Poshan Abhiyan' and other programmes to improve nutritional outcomes for women and children

- Poshan Abhiyan

- Aanganwadi services
- Pradhanmantri Surakshit Matritva Abhiyan
- Anemia mukt bharat
- Janani-Shishu Suraksha Karyakram
- Rashtriya Bal Swasthya Karyakram

PRACTICAL **(Credit 1; 30 Hours)**

1. Development of questionnaire/ presentation on health and nutritional problems in NPWL women
2. Planning and preparing an educational aid on the following suggested topics:
 - adequate care and nutrition during pregnancy/ lactation
 - dietary management of anemia during pregnancy
 - breastfeeding
 - complementary feeding
 - importance and schedule of immunization
3. Plotting and interpreting growth charts
4. Demonstrate age-specific complimentary food preparation
5. Preparation of information card about Poshan Abhiyan activities

ESSENTIAL/ RECOMMENDED READINGS

- Bamji, M. S., Rao, N. P., Reddy, V. (2017). *Textbook of Human Nutrition*. (4th edn.). Oxford and IBH Publishing Co. Pvt Ltd.
- Ministry of health and family welfare, Government of India. (2018). *Journey of the first 1000 days*.
https://nhm.gov.in/images/pdf/programmes/RBSK/Resource_Documents/Journey_of_The_First_1000_Days.pdf (Accessed on 10 March 2023).
- Ministry of health and family welfare, Government of India. *Infant and Young Child Feeding* (2016)
https://www.nhm.gov.in/MAA/One_Day_Sensitization_Module/One_Day_Sensitization_Module_English_lowres.pdf (Accessed on 10 March 2023).
- Ministry of health and family welfare, Government of India. *National Family Health Survey 5 (NFHS-5)* (2021) https://main.mohfw.gov.in/sites/default/files/NFHS-5_Phase-II_0.pdf (Accessed 10 March 2023).
- Ministry of health and family welfare, Government of India. *Intensified Mission Indradhanush* (2018)
https://nhm.gov.in/New_Updates_2018/NHM_Components/Immunization/Guidelines_for_immunization/Mission_Indradhanush_Guidelines.pdf (Accessed 10 March 2023).
- *Poshan Abhiyan: Prime Minister's Over-reaching Scheme for Holistic Nourishment*
<https://www.india.gov.in/spotlight/poshan-abhiyaan-pms-overarching-scheme-holistic-nourishment>. 22 October 2018 (Accessed on 10 March 2023).

SUGGESTED READINGS

- Chadha, R., Mathur, P. (2015). *Nutrition: A life cycle approach*. Orient Blackswan.
- Agarwal, A., & Udipi, S. A. (2022). *Textbook of Human Nutrition* (2nd edn.). Jaypee Brothers (P) Ltd.
- *Poshan Abhiyan: Prime Minister's Over-reaching Scheme for Holistic Nourishment*. PIB press release [doc202112111.pdf \(pib.gov.in\)](#) (Accessed on 10 March 2023).
- UNICEF. *Women's Nutrition*. <https://www.unicef.org/india/what-we-do/womens-nutrition> (Accessed on 10 March 2023).

B.A (Prog) with Nutrition and Health Education (NHE)

Category-V

DISCIPLINE SPECIFIC ELECTIVE COURSE – DSE-NHE-7 : COMMUNICATION FOR HEALTHY FOOD PROMOTION

CREDIT DISTRIBUTION, ELIGIBILITY AND PREREQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Communication for Healthy Food Promotion	4	3	1	-	Class XII	NIL

LEARNING OBJECTIVES:

1. To familiarize students with the concept of communication
2. To impart knowledge regarding the role of IEC in healthy food promotion
3. To build capacity of students for implementation and impact assessment of IEC in community and food industry

LEARNING OUTCOMES:

After completion of the course, the students will be able to:

1. Understand definition, functions, models and channels of communication
2. Explain the role of IEC materials in spreading nutrition awareness
3. Learn efforts made by governments towards promoting healthy food choices.

SYLLABUS OF DSE-NHE-7

THEORY **(Credits 3: 45 Hours)**

UNIT 1: Concept of communication (10 Hours)

- This unit will introduce the meaning of communication and explain its concepts and characteristics in detail.
- *Subtopics:*
 - Concepts of communication
 - a) Definition and functions
 - b) Models and scope
 - c) Communication process
 - d) Communication channels
 - e) Feedback in communication

UNIT 2: Communication methods and IEC based materials (11 Hours)

- This unit will explain the role of Information Education Communication (IEC) and Behaviour Change Communication (BCC) in healthy food promotion.
- *Subtopics:*
 - Introduction to IEC and its importance
 - Introduction to BCC and its importance
 - Communication approaches and audio-visual aids
 - Use of social media and mass media in healthy food promotion

UNIT 3: Changing trends in food choices (12 Hours)

- This unit will help follow the journey of changing patterns in food choices and the current attempts at developing healthy food behaviour
- *Subtopics:*
 - Factors influencing food choices
 - changes in socio-cultural environment
 - changes in food environment
 - Promoting healthy food choices
 - social marketing techniques
 - food labelling in India: health and nutrition claims
 - developing healthy food choices among children
 - Front of pack labelling around the world

UNIT 4: Government initiatives towards healthy food promotion: (12 Hours)

- *Unit Description:* This unit will familiarize students with initiatives taken by Government of India to promote healthful eating
- *Subtopics:*
 - Initiatives under FSSAI
 - Safe and nutritious food at workplace
 - Eat Right Movement
 - Calorie count of restaurant menus
 - Reducing trans fats in partially hydrogenated vegetable oils
 - Social and Behavioural Change Communication (SBCC) campaign under Poshan Abhiyan

TUTORIALS (Credits 1; Hours 15)

Tutorial classes will involve:

1. Q&A sessions/ Group Discussions/ Problem Solving exercises with the students
2. Presentation of project/ research activity by students
3. Any other scholastic work related to application of conceptual understanding of the subject
4. Evaluation and feedback by the teacher

ESSENTIAL/RECOMMENDED READINGS:

- Park, K (2023). *Textbook of Preventive and Social Medicine* (27th ed). Jabalpur, MP: Banarsidas Bhanot Publishers
- Supe SV (2015). *Textbook of Extension Education* (2nd ed). Udaipur, Rajasthan: Agrotech Publishing.
- Subbarao, MG. *Nutrition Communication-Rhetoric & Reality* (2019), Indian J Med Res. Online: <https://pmc.ncbi.nlm.nih.gov/articles/PMC6607813/> (Accessed on 15th December 2024)
- FSSAI (2020). *Eat Right India Handbook* Online: <https://fssai.gov.in/book-details.php?bkid=357> (Accessed on 15th December 2024)
- FSSAI (2018) *Your Guide to Safe and Nutritious Food at the Workplace* Online <https://fssai.gov.in/book-details.php?bkid=149> (Accessed on 15th December 2024)

SUGGESTED READINGS:

- FSSAI (2022) Guidance note on Display of Information in Food Service Establishments https://fssai.gov.in/upload/uploadfiles/files/Guidance_Note_Labelling_23_02_2022.pdf (Accessed on 15th December 2024)
- FSSAI (2021) Another Step Towards India@75: Freedom from Trans Fats by 2022 https://fssai.gov.in/upload/press_release/2021/02/6023b317a99acPress_Release_Trans_Fat_10_02_2021.pdf
- Awareness on Malnutrition: Poshan Abhiyan (17th March 2023) <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1908010> (Accessed on 15th December 2024)
- Parker L, Burns AC, and Sanchez E (eds). (2009). *Local Government Actions to prevent Childhood Obesity*. Washington (DC): National Academies Press (US). <https://www.ncbi.nlm.nih.gov/books/NBK219692/> (Accessed on 15th December 2024)

- Workshop summary (2016). *Food Literacy: How do Communication and Marketing Impact Consumer Knowledge, Skills and Behaviour*. Washington (DC): National Academies Press (US).
<https://www.ncbi.nlm.nih.gov/books/NBK367596/> (Accessed on 15th December 2024)
- Halliday TA (2020). *Use of Information, Education, Communication (IEC)-Based Materials: An Effective Teaching-Learning Strategy in Nutrition Education*. International Journal of Research and Scientific Innovation 7(9), 350-354.
- Saha,S, Vemula SR, Gavaravarapu SR (2021). *Health and Nutrition Claims on Food Labels – Means of Communication That Can Influence Food Choices of Adolescents*. Journal of Content, Community and Nutrition. 13; 113-124
- Fitzgibbon, Marian et al. (2007) *Communicating Healthy Eating: Lessons Learned and Future Directions*. Journal of Nutrition Education and Behavior, 39(2), S63 - S71

B.A (Prog) with Nutrition and Health Education (NHE)

Category-V

DISCIPLINE SPECIFIC ELECTIVE COURSE – DSE-9-NHE: SUSTAINABLE FOOD SYSTEM

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Sustainable Food System	4	3	1	NIL	Class XII	NIL

LEARNING OBJECTIVES:

- To develop understanding regarding various sustainable food systems
- To familiarize students about nutrition and food security issues
- To determine how to adopt / practice sustainability in the food system

LEARNING OUTCOMES:

After completion of the course, the students will be able to:

- Describe concept and importance of sustainable food system
- Determine pillars of sustainable food system

- Comprehend nutrition and food security, its challenges and outcomes
- Analyze and interpret Sustainable Development Goals (SDG)

SYLLABUS OF DSE-NHE-9

THEORY **(Credits: 45 Hours)**

UNIT I: Sustainable Food System: Concept and Framework (14 Hours)

- This unit will focus on basics of sustainable food system, its pillars and concept of nutrition and food security
- *Subtopics:*
 - Introduction to sustainable food system
 - Concepts and Importance of sustainable food system
 - Pillars of sustainable food system and its interrelationship
 - Concept of Nutrition and Food Security

UNIT II: Characteristics of Sustainable Food System (10 Hours)

- This unit will focus on challenges of sustainable food system and progress to achieve nutrition and food security.
- *Subtopics:*
 - Outline of food industry and impact of biodiversity
 - Challenges of sustainable food system
 - Ways to achieve nutrition and food security

UNIT III: Approaches for Sustainability in Food System (12 Hours)

- This unit will focus on benefits of sustainable food system and Government initiatives.
- *Subtopics:*
 - Approaches for sustainable food system
 - Optimize Agricultural Land Use
 - Improve efficiency through supply chain
 - Understand impact of climate change
 - Shift to more sustainable diets
 - Action initiation by government

UNIT IV: Nourishing the Future (9 Hours)

- This unit will focus on SDG 2 for food sustainability and ways to achieve it and promote nutrition and food

security.

- *Subtopics:*
 - SDG 2 for food sustainability
 - Sustainable Food Production and Distribution
 - Future Goals and Ways to incorporate practices effectively
 - Promote Nutrition and Food Security

TUTORIAL **(Credits 1: 15 Hours)**

Tutorial Classes will involve

1. Q & A Session / Group Discussion Exercise with the Students
2. Presentation of the Project / Research Activity by the Student
3. Any other Scholastic Work related to Application of Conceptual Understanding of the Subject
4. Evaluation and Feedback by the Teacher

ESSENTIAL/ RECOMMENDED READINGS:

- A Anjana; U.A. Shobha (2014); Textbook of Human Nutrition; Jaypee Brothers Medical Publishers (P) Ltd.
- M.S. Bamji, K.Kamla, Brahman G.N.V (2017) 4th Edition; Textbook of Human Nutrition; Oxford and IBM Publishing Co Pvt. Ltd.
- D Suryatapa (2020) 4th Edition; Textbook of Community Nutrition; Academic Publishers.
- Nutrition Action Plan on Food Security and Climate Change (2022) , Ministry of Health and Family Welfare.
- J. Shyma, G. Ashok, K. Kriti (2020); Achieving Nutritional Security in India: Vision 2030 NABARD Research Study-9; NABARD and ICRVER.

SUGGESTED READINGS:

- FAO. 2013. The State of Food and Agriculture 2013.
- Food losses and waste in the context of sustainable food systems. (2014)A report by the High-Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security. Rome.
- Ingram, J. 2011. A food systems approach to researching food security and its interactions with global environmental change. Food Security, 3(4): 417–431.
- V Braun, J., Afsana, K., Fresco, L.O. et al. Food system concepts and definitions for science and political action. Nat Food 2, 748–750 (2021). <https://doi.org/10.1038/s43016-021-00361-2>
- Thakur, Monica (2024). 1st Edition Sustainable Food System (Volume I): SFS, Framework, Sustainable Diets, Traditional Food Culture & Food Production (World Sustainability Series). Springer International Publishing AG. ISBN: 978-3031471216.
- M. Van Dijk, G.W. Meijerink (2014) A review of Food & Security scenario and assessment studies: Results, gaps and research priorities. Global Food Security (Accessed on 15.12.24) Elsevier.

- A Nandini, K Apoorve & W Aradhana (2023) A Report: How to Design Scalable and Sustainable Programmes ; Sustainable Food System, New Delhi : Council on Energy, Environment and Water.
- Supporting Zero Hunger SDG 2 – 5 Steps Approach (2023): Tracextech.com/zero hunger-sdg2
- Sporchia, F Antonelli, M; Aguliar-Martinez et al (2024) zero hunger; Future Challenges and the way forward towards the achievement of Sustainable Development Goal 2; Sustain Earth Review 7; (Accessed on 15.12.24) <https://rdcu.be/d3Dq7>

B.A (Prog.) with Nutrition and Health Education (NHE)

Category-V

DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE-NHE-11: RESEARCH METHODS IN HOME SCIENCE
DSE HS 6-1: RESEARCH METHODS IN HOME SCIENCE

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre- requisite of the course (if any)
		Lecture	Tutorial	Practical		
Research Methods in Home Science	4	3	0	1	XII Pass	NIL

Theory

45 Periods; Practical 30 Periods

Learning Objectives

1. To provide students understandings about the basic concepts, approaches and methods in conducting Home Science research.
2. To enable learners to appreciate and critique the nuances of designing a research study well.
3. To sensitize students towards ethical concerns while conducting Home Science research.

Learning Outcomes

1. Demonstrate knowledge of the scientific method, purpose and approaches to research in Home Science
2. Compare and contrast quantitative and qualitative research approaches
3. Explain different types of research design and their applicability in Home Science research
4. Understand the key elements of a research process
5. Explain ethical principles, issues and procedures

SYLLABUS OF DSE HS 6-1

THEORY **(Credits 3; Hours 45)**

UNIT I: Research Purpose and Design

10 Hours

This unit will deal with meaning and importance of research in various areas of Home Science. Exposure to different types of research designs and measurement in Home Science research would also be given.

- Meaning, purpose and significance of research
- Research as a scientific method
- Types of research
- Quantitative, Qualitative and mixed method approaches
- Research Designs –Experimental and Non-Experimental; Descriptive and Observational; Participatory research
- Internal and external validity of research design
- Variables, concepts and measurement in research
- Levels of measurement
- Units of analysis

UNIT II: Sampling and Research tools & techniques

15 Hours

This unit will introduce the student to the concept of sampling and methods used to draw sample from population using examples from Home Science discipline. Students would also learn about types of data, its collection and reliability and validity concerns.

- Role of sampling in research
- Sampling techniques and their applicability, Sample size and sampling error
- Types of data: Primary and Secondary
- Tools of data collection; types, construction and administration- Interview, Questionnaire, Observation, Focus group discussion and other methods
- Validity and reliability of data collection tools

UNIT III: The Research Process

15 Hours

This unit will elaborate upon the various steps involved in conducting and reporting researches in Home Science.

- Defining the problem, research questions, objectives, hypotheses
- Review of related literature and originality in writing
- Systematic research: concept and methodology
- Planning the research
- Identifying variables and constructing hypothesis
- Selecting appropriate research methodology and tools
- Data analysis: coding and tabulation
- Writing a research report: styles and formats
- Citation formats: in medical sciences, social sciences

UNIT IV: Values, Social Responsibility and Ethics in Research

5 Hours

This unit will apprise the students about ethical concerns while conducting and reporting research.

- Ethical principles guiding research: from inception to completion and publication of research
- Plagiarism and Academic integrity in research: plagiarism tools and software
- Ethical issues relating to research participants and the researcher
 - Rights, dignity, privacy and safety of participants
 - Informed consent, confidentiality, anonymity of respondents, voluntary participation, harm avoidance

PRACTICAL (Credits 1; Hours 30)

1. Data visualization
2. Levels of Measurement
3. Types of research designs
 - a. Experimental and non-experimental; Descriptive and observational
 - b. Qualitative, Quantitative and mixed method
4. Sampling techniques and sample size calculation
 - a. Probability sampling method
 - b. Non-Probability sampling methods
5. Tools of data collection- Interview schedule, questionnaire and FGD
 - Designing/ Construction
 - Preparation of tools for ethical review
 - Pilot testing/ validity and reliability of the tool\
6. Data collection and analysis process: conducting interviews, administering questionnaire
7. Coding and tabulation of data for analysis
8. Citation formats and Plagiarism
9. Reviewing a research paper from a specific area of specialization in Home Science

ESSENTIAL READINGS

- Kerlinger F. N. and Lee, H.B. (2017). *Foundations of Behavioral Research* 4th Ed. Harcourt College Publishers.

- Kothari, C. R. (2019). *Research Methodology: Methods and Techniques*. New Age International Pvt Ltd, New Delhi.
- Kothari, C. R. (2022). *Shodh Padhati* 1st Ed. New Age International Pvt Ltd, New Delhi.
- Kumar, R. (2019) *Research Methodology: A Step-by-Step Guide for Beginners*. 5th Ed. Sage Publications, New Delhi.

SUGGESTED READINGS

- Bernard, H. R. (2000). *Social research methods: Qualitative and quantitative approaches*. Thousand Oaks, CA.: Sage.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage Publications.
- Davis, A. M., Treadwell, D. (2019). *Introducing Communication Research: Paths of Inquiry*. United Kingdom: SAGE Publications.
- Flynn, J.Z., Foster, I.M. (2009). *Research Methods for the Fashion industry*. Fairchild books, Bloomsbury publishing.
- Indian National Science Academy (INSA) (2019). *Ethics in Science Education, Research and Governance*. ISBN:978-81-939482-1-7. <http://www.insaindia.res.in/pdf/EthicsBook.pdf>
- Jacobsen, K. H. (2020). *Introduction to health research methods: A practical guide*. Jones & Bartlett Publishers.
- UGC (2021) *Academic Integrity and Research Quality*. New Delhi: UGC, Retrieved from https://www.ugc.ac.in/e-book/Academic%20and%20Research%20Book_WEB.pdf

DISCIPLINE SPECIFIC ELECTIVE COURSE DSE-NHE-13: DATA ANALYSIS AND STATISTICAL TOOLS

Credit Distribution, Eligibility and Pre-requisites of the Course

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Data Analysis and Statistical Tools	4	3	0	1	XII Pass	NIL

LEARNING OBJECTIVES

- To provide an understanding of the basic statistical concepts and methods.
- To enable learners to collect, organize, summarize and present data using tables, graphs, and statistical plots.

- To gain the ability to collate, analyse and interpret the results of datasets using basic statistical tools and techniques.

LEARNING OUTCOMES

After completing this course, the learner will be able to:

- Explain fundamental statistical concepts and tools relevant to basic research.
- Summarize and visualize data effectively using descriptive statistics and statistical plots.
- Apply inferential statistical techniques to draw meaningful conclusions from sample data.
- Interpret and communicate statistical findings in the context of research.

SYLLABUS OF DSE-NHE-13

THEORY (Credits 3; Hours 45)

UNIT 1: Fundamentals of Statistics

10 Hours

This unit establishes the foundational principles of statistics, focusing on its application in social sciences.

- Role and functions of statistics in social science and market research
- Types of Statistics: Descriptive and Inferential
- Types and Sources of Data
- Measurement Scales: Nominal, Ordinal, Interval, Ratio
- Importance of Reliability and Validity

UNIT II: Data Organization and Summarization

15 Hours

This unit focuses on summarizing and visualizing data for analysis and interpretation.

- Organising data: frequency distribution tables
- Statistical graphs and visual interpretation: Histogram, Pie Chart, Bar Graph, Line Graph, Frequency Polygon, Ogive
- Measures of Central Tendency for ungrouped and grouped data: Mean, Median, Mode
- Measures of Dispersion for ungrouped and grouped data:
 - Absolute dispersion (Range, Quartile deviation, Mean deviation, Standard Deviation, Variance)
 - Relative dispersion (Coefficient of Range, Coefficient of Quartile deviation, Coefficient of Mean deviation, Coefficient of Variance)
- Measures of Shape: Skewness and Kurtosis
- Measures of partition values – Quartile, Decile, Percentile, Percentile Rank for ungrouped and grouped data

UNIT III: Basic Statistical Concepts and tools used in Experimental Research

10 Hours

This unit introduces students to inferential tools and techniques used to explore relationships and trends in data.

- Basics of Probability: Concepts, laws of addition and multiplication
- Normal Distribution: Properties and application
- Correlation:
 - Karl Pearson's Coefficient
 - Spearman's Rank Correlation (Repeated and Non-Repeated)
- Linear regression (SLR)

UNIT IV: Hypothesis Testing and Statistical Analysis Techniques

10 Hours

This unit equips students with inferential statistical methods for decision-making.

- Sampling and Testing Hypotheses:
 - Null and Alternative Hypotheses
 - Level of Significance (α) and Confidence Level (c)
 - One-tailed vs Two-tailed tests
 - Type I and Type II Errors
- Introduction to Parametric and Non-Parametric tests

PRACTICAL (Credit 1; Hours 30)

1. **Introduction to Statistical Software:** Using spreadsheet application such as Excel for statistical analysis by inputting basic data and performing essential functions.
2. **Construction of Frequency Distributions:** Organize raw data into grouped and ungrouped frequency tables using a given dataset.
3. **Diagrammatic Representation of Data:** Visualize data using bar charts, pie charts, line graphs, histograms, and frequency polygons, and interpret the results for a given dataset.
4. **Measures of Central Tendency:** Calculate mean, median, and mode for grouped and ungrouped data in Excel, and compare central tendencies between two datasets.
5. **Measures of Dispersion:** Compute range, variance, and standard deviation in Excel to analyse the spread of two different datasets.
6. **Correlation Analysis:** Measure the strength of relationships between two variables by calculating Pearson's and Spearman's correlation coefficients.
7. **Hypothesis Testing (One-sample and Two-sample t-test):** Test the significance of means for single, independent, and dependent datasets using t-tests.
8. **Chi-Square Test for Independence:** Test the independence between categorical variables by analysing and interpreting a contingency table.

Essential Readings

- Minium, E. W., King, B. M., & Bear, G. (2017). *Statistical Reasoning for Psychology and Education*. New York: Wiley and Sons.
- Gupta, S.P. (2022) *Statistical Methods*, 46th Edn. S. Chand and Sons.
- Agresti, A., Christine Franklin, C. and Klingenberg, B. (2017). *Statistics: The Art and Science of Learning from data*, Pearson, Boston

Suggested Readings

- Schmuller, J. (2016). *Statistical Analysis with Excel for Dummies*, 5th Edition, New York, USA.
- Gupta, S. C. and Kapoor, V. K. (2020). *Fundamentals of Mathematical Statistics*, 12th Edn., S. Chand and Sons.
- Ross, Sheldon M. (2010): *Introductory Statistics*, 3rd Edition, Academic Press.
- Derek Rowntree, (2018). *Statistics Without Tears, An Introduction for Non-Mathematicians*, Penguin Books

Pool of Discipline Specific Elective Course (DSE) for Even Semesters (VIth and VIIIth)

B.A (Prog.) with Nutrition and Health Education (NHE)

Category-V

DISCIPLINE SPECIFIC ELECTIVE COURSE – DSE-NHE 2: NUTRITIONAL AND LIFESTYLE COUNSELLING

Credit distribution, Eligibility and Prerequisites of the Course

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Nutritional and Lifestyle Counselling	4	3	-	1	-	NIL

LEARNING OBJECTIVES:

1. To introduce students to the concept of nutrition counselling, nutrition care process and responsibilities of a nutrition counsellor
2. To acquaint the students with the WHO's 5A brief interventions for behaviour change counselling
3. To familiarize the students with nutrition and lifestyle counselling for prevention and management of lifestyle related disorders/diseases

LEARNING OUTCOMES:

After completion of the course, the students will be able to:

1. Prepare and maintain a nutrition and lifestyle counselling case record
2. Incorporate the WHO's 5A brief interventions for behaviour change counselling
3. Gain knowledge for becoming an effective counsellor to lead a healthy lifestyle

SYLLABUS for DSE-NHE-2

THEORY **(Credits 3: 45 Hours)**

UNIT 1: Introduction to Counselling

(8 Hours)

- This unit will introduce the concept of counselling, its stages and will acquaint the students to prepare a counselling case record.
- *Subtopics:*
 - Basics of counselling; difference between education and counselling
 - Counselling skills
 - Stages of counselling
 - Counsellors' role at different levels
 - Counselling case record

UNIT 2: Nutrition Counselling

(17 Hours)

- This unit will help the students to understand the concept of nutrition counselling and its importance in nutrition care process, responsibilities of a nutrition counsellor and theories that influence them.
- *Subtopics:*
 - Concept and objectives
 - Nutrition care process
 - Importance of nutrition counselling in the nutrition care process
 - Responsibilities and role of nutrition counsellor
 - Theories influencing nutrition counsellor

UNIT 3: Lifestyle Counselling and Behaviour Change

(10 Hours)

- This unit introduces students to the foundational concepts and significance of lifestyle counselling. It emphasizes understanding behaviour change models, especially WHO's 5As framework for brief interventions, and their application in promoting healthy lifestyle choices including diet, physical activity, and substance cessation.
- *Subtopics:*
 - **Lifestyle counselling – concept and significance**
 - **Understanding behaviour change**
 - **Counselling for behaviour change using WHO's 5As (Ask, Advise, Assess, Assist, Arrange):**
 - Encouraging healthy diet
 - Promoting physical activity
 - Quitting tobacco
 - Reducing harmful use of alcohol

UNIT 4: Nutrition Counselling for Lifestyle Disorders and Diseases

(10 Hours)

- This unit focuses on applying nutrition and lifestyle counselling in the context of lifestyle-related disorders. It covers disease types, risk factors, prevention, and management strategies, emphasizing the role of a counsellor in promoting diet-based and behavioural interventions.

Subtopics:

- **Lifestyle-related disorders/diseases:**
 - Types
 - Modifiable and non-modifiable risk factors
 - Signs and symptoms
- **Prevention and management of lifestyle diseases/disorders through:**
 - Healthy and unhealthy dietary patterns
 - Link between diet and other risk factors
 - Relationship between diet and lifestyle diseases/disorders
- **Role of counsellor in:**
 - Promoting healthy dietary practices and physical activity
 - Reducing risk from indoor air pollution
 - Supporting individuals experiencing stress and related disorders

PRACTICAL **(Credit 1: 30 Hours)**

1. Prepare a counselling case record for a healthy lifestyle and for any lifestyle related disease/disorder
2. Design information flyer/leaflet for risk factors of lifestyle related diseases/disorders OR do's and don'ts to maintain a healthy lifestyle
3. Create a power-point presentation showcasing signs/symptoms, prevention and management of lifestyle related diseases/disorders
4. Conduct 24-hour dietary recall for college going student of one working day, one non-working day and counsel accordingly for leading a healthy lifestyle
5. Conduct a case study using WHO's 5As (Ask, Advise, Assess, Assist, Arrange) brief interventions on any two – healthy diet, increase in physical activity, quit tobacco and harmful use of alcohol

ESSENTIAL/RECOMMENDED READINGS:

- Snetselaar, L. (2009). *Nutrition Counseling Skills for the Nutrition Care Process* (4th edn.). Jones and Bartlett Publishers.
- National programme for prevention and control of cancer, diabetes, cardiovascular diseases and stroke (NPCDCS) handbook for counsellors - Reducing risk factors for noncommunicable diseases. Directorate General of Health Services Ministry of Health and Family Welfare, Government of India. Developed by National Institute of Mental Health and Neuro Sciences (NIMHANS) in collaboration with World Health Organization India (2017)
- https://main.mohfw.gov.in/sites/default/files/Handbook%20for%20Counsellors%20-%20Reducing%20Risk%20Factors%20for%20NCDs_1.pdf
- *Counselling and educating the patient.*
<https://gyansanchay.csjmu.ac.in/wp-content/uploads/2022/08/COUNSELLING-AND-EDUCATING-THE-PATIENT.pdf>
- WHO (2018). *HEARTS Technical package for cardiovascular disease management in primary health care - Healthy-lifestyle counselling*
<https://apps.who.int/iris/bitstream/handle/10665/260422/WHO-NMH-NVI-18.1-eng.pdf>
https://samples.jblearning.com/0763729604/snetselaar_4e_ch1.pdf
- Raymond, J.L, Morrow, K. (2020). *Krause and Mahan's Food and the Nutrition Care Process*. (15th edn.). Elsevier Publications.

SUGGESTED READINGS:

- Mudambi, S.R., Rajagopal, M.V. (2007). *Fundamentals of Foods, Nutrition and Diet Therapy*. New Age International Publishers, Delhi.
- Oikarinen, A., Engblom, J., Paukkonen, L., Kääriäinen, M., Kaakinen, P., & Kähkönen, O. (2023). Effects of a lifestyle counselling intervention on adherence to lifestyle changes 7 years after stroke - A quasi-experimental study. *Scandinavian Journal of Caring Sciences*, 37(1), 163–172.
- Lonnberg, L. (2022). Digital Comprehensive Summaries of Uppsala Dissertations from the Faculty of Medicine 1849. *Acta Universitatis Upsaliensis Uppsala*. <https://uu.diva-portal.org/smash/get/diva2:1657438/FULLTEXT01.pdf>.

B.A (Prog.) with Nutrition and Health Education (NHE)*Category-V***DISCIPLINE SPECIFIC ELECTIVE COURSE – DSE-NHE 4: INDIGENOUS INDIAN FOODS****CREDIT DISTRIBUTION, ELIGIBILITY AND PREREQUISITES OF THE COURSE**

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Indigenous Indian Foods	4	3	1	-	-	NIL

LEARNING OBJECTIVES:

1. To impart knowledge about history of indigenous Indian foods
2. To provide overview of the traditional foods evolved from indigenous foods
3. To equip students with knowledge of traditional Indian functional foods
4. To familiarize students with utilization of indigenous and traditional food as medicines

LEARNING OUTCOMES:

After completion of the course, the students will be able to:

1. Understand the history of indigenous Indian foods.
2. Explain concept of traditional food evolving from indigenous foods.
3. Learn about the health benefits of traditional foods as functional food.
3. Understand the concept of utilization of indigenous and traditional food as medicines.

SYLLABUS for DSE-NHE-4**THEORY**

(Credits 3: 45 Hours)

UNIT I: Indian Food Culture, Indigenous Foods and Traditional Foods (8 Hours)

The unit presents students with an introduction about Indian cookery, indigenous Indian foods, traditional Indian foods and history of evolution of food culture in India.

Subtopics:

- History of Indian cookery.
- Overview of evolution of Indian food culture from ancient era to present time.
- Introduction to concept of indigenous Indian foods and traditional Indian foods.

UNIT II Indigenous foods of India (7 Hours)

The unit will focus on different indigenous foods of indigenous Indian communities and also help the students to learn through case studies of select indigenous communities.

Subtopics:

- Ancestral legacies (pre-ancient history, Indus valley and Harrapan spreads)
- Indigenous foods of indigenous communities
- Case study of select indigenous communities

UNIT III Traditional Functional Foods of India (15 Hours)

The unit acquaints the students with an understanding about traditional Indian functional foods.

Subtopics:

- Evolution of traditional functional foods
- Traditional Indian functional foods based on:
 - Whole grains
 - Legumes and legume adjuncts (*wadi, papad* etc.)
 - Milk and its products (*dahi, ghee* etc.)
 - Spices, salt, and condiments
 - Oils and oilseeds
 - Fruits and vegetables
 - Betel leaf
 - Herbs
 - Traditional Indian food as provider of abundant fibre
 - Traditional Indian food as provider of abundant polyphenols

UNIT IV Traditional Food as Medicine (15 Hours)

The unit will focus on various aspects of ayurveda and traditional foods which can be utilized as medicine.

Subtopics:

- Introduction to vedic nutrition (ayurvedic nutrition) concept incorporating indigenous and traditional foods as medicine.
- Ayurvedic triad (*sushruta, charaka, aryabhatta*)
- Tridosha (*vata, pitta, kapha*)
- Rasas (sweet, salty, sour, bitter, pungent, astringent)
- Hot and cold foods
- Kacha and pucca food
- Gunas of food (*rajsik, tamsik, satvik*)
- Incompatible foods (*virudh ahaar*): *pathya, apathya, viprit*
- Ayurvedic rules of food consumption

ESSENTIAL/RECOMMENDED READINGS:

- Achaya, K. T. (1994). *Indian Food: A Historical Companion*. Oxford University Press
- Srinivasan, K. (2010). Traditional Indian functional foods. In *Functional foods of the east* (pp. 51–84). <https://doi.org/10.1201/b10264-4>.
- Wickramasinghe, P. (2007). *The Food of India*. Om Books Service.
- Rastogi, S. (Ed.). (2014). *Ayurvedic science of Food and Nutrition*. Springer Nature.
- Sen, C. T. (2016). *Feast and Fasts: A History of Food in India*. Reaktion Books Ltd.
- FAO and Alliance of Bioversity International and CIAT. (2021). *Indigenous Peoples' food systems: Insights on sustainability and resilience in the front line of climate change*. <https://www.fao.org/3/cb5131en/cb5131en.pdf>
- Ghosh-Jerath, S., Kapoor, R., Barman, S., Singh, G., Singh, A., Downs, S., & Fanzo, J. (2021). Traditional Food Environment and Factors Affecting Indigenous Food Consumption in Munda Tribal Community of Jharkhand, India. *Frontiers in nutrition*, 7, Article 600470. <https://doi.org/10.3389/fnut.2020.600470>

SUGGESTED READINGS:

- Gosh-Jerath, S., Kapoor, R., & Sabharwal, M. (2022). Indigenous Foods of India: A Comprehensive Narrative Review of Nutritive Values, Antinutrient Content and Mineral Bioavailability of Traditional Foods Consumed by Indigenous Communities of India. *Frontiers in sustainable food systems*, 6, <https://www.frontiersin.org/articles/10.3389/fsufs.2022.696228/full>
- BHM 401T, *Introduction to Indian Cooking*, Uttarakhand Open University India (2005). <https://www.uou.ac.in/sites/default/files/slm/BHM-401T.pdf>
- Rai, R., & Nath, V. (2003). *The role of ethnic and indigenous people of india and their culture in the conservation of biodiversity*. ICFRE India. <https://www.fao.org/3/xii/0186-a1.htm>
- Negi, V. S., Pathak, R., Thakur, S., Joshi, R. K., Bhatt, I. D., & Rawal, R. S. (2021). Scoping the Need of Mainstreaming Indigenous Knowledge for Sustainable Use of Bioresources in the Indian Himalayan Region. *Environmental Management*. <https://doi.org/10.1007/s00267-021-01510-w>
- FAO. The role of ethnic and indigenous people of India and their culture in the conservation of biodiversity. <https://www.fao.org/3/xii/0186-a1.htm>.

Category-V

DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE-NHE-6/11: RESEARCH METHODS IN HOME SCIENCE
DSE HS 6-1: RESEARCH METHODS IN HOME SCIENCE

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical		
Research Methods in Home Science	4	3	0	1	XII Pass	NIL

Theory

45 Periods; Practical 30 Periods

Learning Objectives

4. To provide students understandings about the basic concepts, approaches and methods in conducting Home Science research.
5. To enable learners to appreciate and critique the nuances of designing a research study well.
6. To sensitize students towards ethical concerns while conducting Home Science research.

Learning Outcomes

6. Demonstrate knowledge of the scientific method, purpose and approaches to research in Home Science
7. Compare and contrast quantitative and qualitative research approaches
8. Explain different types of research design and their applicability in Home Science research
9. Understand the key elements of a research process

10. Explain ethical principles, issues and procedures

SYLLABUS OF DSE HS 6-1

THEORY **(Credits 3; Hours 45)**

UNIT I: Research Purpose and Design

10 Hours

This unit will deal with meaning and importance of research in various areas of Home Science. Exposure to different types of research designs and measurement in Home Science research would also be given.

- Meaning, purpose and significance of research
- Research as a scientific method
- Types of research
- Quantitative, Qualitative and mixed method approaches
- Research Designs –Experimental and Non-Experimental; Descriptive and Observational; Participatory research
- Internal and external validity of research design
- Variables, concepts and measurement in research
- Levels of measurement
- Units of analysis

UNIT II: Sampling and Research tools & techniques

15 Hours

This unit will introduce the student to the concept of sampling and methods used to draw sample from population using examples from Home Science discipline. Students would also learn about types of data, its collection and reliability and validity concerns.

- Role of sampling in research
- Sampling techniques and their applicability, Sample size and sampling error
- Types of data: Primary and Secondary
- Tools of data collection; types, construction and administration- Interview, Questionnaire, Observation, Focus group discussion and other methods
- Validity and reliability of data collection tools

UNIT III: The Research Process

15 Hours

This unit will elaborate upon the various steps involved in conducting and reporting researches in Home Science.

- Defining the problem, research questions, objectives, hypotheses
- Review of related literature and originality in writing
- Systematic research: concept and methodology
- Planning the research
- Identifying variables and constructing hypothesis
- Selecting appropriate research methodology and tools

- Data analysis: coding and tabulation
- Writing a research report: styles and formats
- Citation formats: in medical sciences, social sciences

UNIT IV: Values, Social Responsibility and Ethics in Research

5 Hours

This unit will apprise the students about ethical concerns while conducting and reporting research.

- Ethical principles guiding research: from inception to completion and publication of research
- Plagiarism and Academic integrity in research: plagiarism tools and software
- Ethical issues relating to research participants and the researcher
 - Rights, dignity, privacy and safety of participants
 - Informed consent, confidentiality, anonymity of respondents, voluntary participation, harm avoidance

PRACTICAL (Credits 1; Hours 30)

1. Data visualization
2. Levels of Measurement
3. Types of research designs
 - Experimental and non-experimental; Descriptive and observational
 - Qualitative, Quantitative and mixed method
4. Sampling techniques and sample size calculation
 - Probability sampling method
 - Non-Probability sampling methods
5. Tools of data collection- Interview schedule, questionnaire and FGD
 - Designing/ Construction
 - Preparation of tools for ethical review
 - Pilot testing/ validity and reliability of the tool\
6. Data collection and analysis process: conducting interviews, administering questionnaire
7. Coding and tabulation of data for analysis
8. Citation formats and Plagiarism
9. Reviewing a research paper from a specific area of specialization in Home Science

ESSENTIAL READINGS

- Kerlinger F. N. and Lee, H.B. (2017). *Foundations of Behavioral Research* 4th Ed. Harcourt College Publishers.
- Kothari, C. R. (2019). *Research Methodology: Methods and Techniques*. New Age International Pvt Ltd, New Delhi.
- Kothari, C. R. (2022). *Shodh Padhati* 1st Ed. New Age International Pvt Ltd, New Delhi.
- Kumar, R. (2019) *Research Methodology: A Step-by-Step Guide for Beginners*. 5th Ed. Sage Publications, New Delhi.

SUGGESTED READINGS

- Bernard, H. R. (2000). *Social research methods: Qualitative and quantitative approaches*. Thousand Oaks, CA.: Sage.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*. Thousand Oaks, CA: Sage Publications.
- Davis, A. M., Treadwell, D. (2019). *Introducing Communication Research: Paths of Inquiry*. United Kingdom: SAGE Publications.
- Flynn, J.Z., Foster, I.M. (2009). *Research Methods for the Fashion industry*. Fairchild books, Bloomsbury publishing.
- Indian National Science Academy (INSA) (2019). *Ethics in Science Education, Research and Governance*. ISBN:978-81-939482-1-7. <http://www.insaindia.res.in/pdf/EthicsBook.pdf>
- Jacobsen, K. H. (2020). *Introduction to health research methods: A practical guide*. Jones & Bartlett Publishers.
- UGC (2021) *Academic Integrity and Research Quality*. New Delhi: UGC, Retrieved from https://www.ugc.ac.in/e-book/Academic%20and%20Research%20Book_WEB.pdf

B.A (Prog.) with Nutrition and Health Education (NHE)

Category-V

DISCIPLINE SPECIFIC ELECTIVE COURSE – DSE-NHE-8 : NUTRITIONAL ASSESSMENT FOR HEALTH

CREDIT DISTRIBUTION, ELIGIBILITY AND PREREQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Nutritional Assessment for Health	4	3	-	1	Class XII	NIL

LEARNING OBJECTIVES:

1. To familiarize students with importance of nutritional assessment for health
2. To equip students with knowledge of tools and techniques of anthropometric assessments
3. To make students aware of biochemical, clinical and dietary assessment

LEARNING OUTCOMES:

After completion of the course, the students will be able to:

1. Understand various nutritional assessment methods

2. Determine nutritional status by anthropometric measurements
3. Analyze and interpret clinical examination and dietary survey data

SYLLABUS OF DSE-NHE-8

THEORY (Credits 3: 45 Hours)

UNIT 1: Introduction to nutritional status assessment methods (6 Hours)

- This unit will introduce the importance and methods of nutritional status assessment.
- *Subtopics:*
 - Importance and objectives of nutritional status assessment
 - Overview of nutritional status assessment methods
- Indirect methods
 - i) Vital statistics
 - ii) Ecological factors assessment
- Direct methods (ABCD analysis)
 - i) Anthropometry
 - ii) Biochemical and laboratory estimation
 - iii) Clinical examination
 - iv) Dietary survey

UNIT 2: Nutritional anthropometry (14 Hours)

- *Unit description:* This unit will familiarize the students with tools and techniques used for common anthropometric measurements and interpretation of anthropometric data for nutritional assessment.
- *Subtopics:*
 - Application of nutritional anthropometry
 - Tools and techniques for common anthropometric measurements
 - Weight
 - Height
 - Mid upper arm circumference (MUAC)
 - Head and chest circumference in children
 - Skinfold thickness
- Determination of nutritional status by using anthropometric parameters

- Assessment of children: standard deviation (SD score) or Z-score classification, Gomez classification, Indian Academy of Pediatrics (IAP) classification, interpretation of MUAC, growth chart and its importance
- Assessment of adults: Body Mass Index (BMI), waist circumference (WC) for obesity
- o Limitations of anthropometry

UNIT 3: Biochemical and clinical assessment

(12 Hours)

This unit will introduce students to uses and limitations of biochemical and clinical assessments.

- *Subtopics:*
 - o Biochemical assessment
 - Uses and limitations
 - Biochemical tests for nutritional deficiencies-an overview
 - o Clinical assessment
 - Advantages and limitations
 - Nutritional deficiency disorders and their diagnostic signs

UNIT 4: Dietary assessment

(13 Hours)

- This unit will introduce students to importance, methods, analysis, interpretation and problems of dietary surveys.
- *Subtopics:*
 - o Importance and types of dietary surveys
 - o Methods of diet surveys
 - o Analysis and interpretation
 - o Problems in diet surveys

PRACTICAL **(Credit 1: 30 Hours)**

UNIT 1: Anthropometry

(15 hours)

- o Anthropometry- weight, height and MUAC measurements.
- o Calculation of BMI; interpretation of BMI and WC in adults using case studies
- o Plotting and interpretation of growth charts for children below 5 years.

UNIT 2: Clinical and dietary assessment

(15 hours)

- o Identification of clinical signs of common nutritional disorders.
- o Dietary assessment- Food Frequency Questionnaire (FFQ) and 24-hour diet recall.

ESSENTIAL/RECOMMENDED READINGS:

- Bamji MS, Rao NP, Reddy V. (2017). *Textbook of human nutrition*. (4th ed). Delhi: Oxford and IBH Publishing co. (P) Ltd.
- Park K. (2023). *Textbook of preventive and social medicine*. (27th ed). Jabalpur, MP: Banarsidas Bhanot Publishers.
- Sharma S & Wadhwa A. (2003). *Nutrition in the community- a textbook*. Delhi: Elite Publishing House (P) Ltd.
- IGNOU (2017). MFN006, Public Nutrition, Delhi.

SUGGESTED READINGS:

- Agarwal A & Udupi SA. (2014). *Textbook of human nutrition*. Delhi: Jaypee Brothers (P) Ltd.
- Gibney et al. (2004). *Public health nutrition*. Hoboken, NJ: Blackwell Publishing

B.A(Prog) with Nutrition and Health Education (NHE)

Category-V

DISCIPLINE SPECIFIC ELECTIVE–DSE- NHE-10 : Nutrition Programme Planning

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Nutrition Programme Planning	4	3	-	1	Class XII	NIL

Learning objectives:

- 1.To develop nutrition and health programmes for vulnerable groups and planning nutritious recipes for micronutrient deficiencies.
- 2.Field visit to ongoing nutrition and health programmes.
- 3.To plan and implement Nutrition education programmes.

Learning Outcomes:

After the completion of the course the students will be able to-

1. Serve as programme planners and managers in the field of Public health nutrition.

2. Develop nutrition education programmes for vulnerable groups and plan nutritious recipe for micronutrient deficiencies.

SYLLABUS OF DSE-NHE-10

THEORY **(Credits 3: 45 Hours)**

UNIT 1: Programme planning in public health nutrition. (15 Hours)

- This unit will introduce the student to Nutrition Programme Planning.
- Subtopics-
 - Basic principles and models of Programme planning.
 - Planning process – Community need assessment, setting goals and objectives, selecting indicators, selecting interventions, planning for programme implementation and resources, planning for programme monitoring and evaluation.
 - Planning for programme termination, stakeholder participation in programme.
 - Planning at micro and macro level.

UNIT 2: Programme monitoring and evaluation. (15 Hours)

- This unit will introduce the student with programme monitoring and evaluation.
- Subtopics-
 - Significance and purpose of monitoring Food/Nutrition programmes.
 - Identification and selection of indicators for monitoring.
 - Significance and purpose of evaluation of Nutrition programmes.
 - Identification and selection of indicators for evaluation.
 - Strategies for data collection- Qualitative and quantitative.

UNIT 3: Nutritional Surveillance. (5 Hours)

- This unit will introduce the student with Nutritional Surveillance.
- Subtopics-
 - Objectives, initial assessment indicators for use in nutrition surveillance.
 - Nutritional surveillance for programme planning: Triple-A- Approach.

UNIT 4: Process of Nutrition education. (10 Hours)

- This unit will deal with the process of nutrition education.
- Subtopics-
 - Need, scope and importance of nutrition education.
 - Potential challenges and constraints of nutrition education.
 - Theories of nutrition education.
 - Process of nutrition education communication.

PRACTICAL
(Credit 1 :30 hours)

1. Development of a plan for conducting nutrition education programmes in the community.
2. Preparation of Nutrition education communication aids for different groups.
3. Development of low cost recipes for infants, preschoolers, pregnant and lactating mothers.
4. Field visit to ongoing National Nutritional and health programmes.

Essential/recommended readings :

- <https://www.egyankosh.ac.in/PDF> last accessed 15 dec 2024.
- Vir, S.C (Ed). 2023. Child, Adolescent and woman Nutrition in India. Public policies, programmes and progress. K.W Publishers.
- Wadhwa, A and Sharma, S. 2013. A textbook of nutrition in the community. Jain book agency.
- Indira Gandhi national open university, 2006 MFN 006 Public nutrition. Ed Sharma, S, Kapur, D.

Suggested readings:

- Vir, S.C (Ed) 2011. Public Health Nutrition in Developing Countries Part 1 and part 2 Woodhead Publishing India.
- Gibney M.J., Margetts, B.M., Kearney, J.M., Arab, L. Eds (2004) Public Health Nutrition, NS. Blackwell Publishing.

B.A(Prog) with Nutrition and Health Education (NHE)

Category-V

DISCIPLINE SPECIFIC ELECTIVE–DSE- 12 NHE: Nutrition Policies, Programmes and Strategies

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course & Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
Nutrition Policies, Programmes and Strategies	4	3	1	-	Class XII	NIL

Learning objectives:

1. To familiarize the students with the government policies and programmes based on various approaches for improving nutritional and health status of the community .
2. The students will acquire knowledge about the various approaches for improving nutritional and health status.
3. Acquire knowledge about the concept of food security and the various programmes for improving food and nutrition security.

Learning outcomes:

After completion of the course students will be able to-

1. Develop understanding about nutrition in disease management and its prevention through various government programmes and policies.
2. Improve understanding and develop skills for planning , management and monitoring of Public health and nutrition programmes implemented by the government .
3. Work as program planners and managers in the field of Public health and Nutrition.

SYLLABUS OF DSE-NHE-12**THEORY**

(Credits 3: 45 Hours)

UNIT 1: National policies for promotion of Nutrition and health status of the population.(10 Hours)

- This unit will introduce the student to various Nutrition and other programmes.
- Subtopics-
 - National Nutrition Mission (Poshan Abhiyan).
 - Ayushman Bharat and Pradhan Mantri Jan Arogya Yojana (PM-JAY)
 - National Diarrhoeal Diseases control programme
 - National health mission.
 - National food security act.
 - Universal immunisation programme.(Mission Indradhanush)

UNIT 2: Nutrition sensitive and nutrition specific programmes.

(10 Hours)

- This unit will deal with various Nutrition programmes.
- Subtopics-
 - ICDS/Poshan 2.0 and Saksham Anganwadi.

- Nutrient deficiency control programmes-National Prophylaxis programme for prevention of blindness due to Vitamin A deficiency, Anaemia Mukht Bharat.(AMB),National iodine deficiency disorders control programme.
- National programme for Prevention and control of Non communicable diseases.
- Pradhan mantri Poshan shakti Nirman-(P.M POSHAN)
- Scheme for Adolescent girls.

UNIT 3: Food security programmes.

(10Hours)

- This unit will introduce the student with various Food security programmes.
- Subtopics-
 - Concept and definition of food and nutrition security at National,household and individual levels.
 - Public distribution system (PDS) .
 - Antyodaya Anna Yojana (AAY)
 - Annapurna scheme.
 - Mahatma Gandhi National Rural Employment Gurantee Act (MGNREGA)

UNIT 4: Strategies for improving Nutrition.

(15Hours)

- This unit will deal with the strategies for improving Nutrition.
- Subtopics-
 - Health based interventions including immunization, provision of safe drinking water/sanitation,prevention and management of diarrhoeal diseases and National Policies to address sanitation.
 - Food based interventions including Food fortification,dietary diversification, supplementary feeding and Biochemical approaches.
 - Education based interventions including growth monitoring and promotion (GMP),health/nutrition related behaviour change communication.

Essential/recommended readings :

- <https://poshanabhiyan.gov.in> Last accessed 17 Dec 2024.
- Indira Gandhi national open university,2006 MFN 006 Public nutrition. Ed Sharma.S ,Kapur.D .
- Radhakrishna R,Reddy, .K.V..Food security and nutrition:Vision 2020.planningcommission.nic.in/reports/genrep/bkpap2020/16_bg2020
- <https://www.niti.gov.in/policy-viewer?id=PNC540Q000045>
- <https://egyankosh.ac.in/PDF>

Suggested readings:

- A.Agarwal,S.A.Udipi(2014)*Text book of Human Nutrition*.Delhi.Jaypee brothers medical publisher (P) Ltd.

- Vir, S.C (Ed) 2011 Public Health Nutrition in Developing Countries Part 1 and part 2 Woodhead Publishing India.

**[Appendix-43
Resolution No. 14-1 (14-1-6)]**

दिल्ली विश्वविद्यालय

UNIVERSITY OF DELHI

Bachelor of Science (Honours) Home Science Semester VII



Date:

Under UGCF-2022 based on NEP-2020 (*Effective from*

***Academic Year 2022-23*) Syllabus as approved by**

Academic Council Executive Council

Department of Home Science

B.Sc. (Honours) Home Science Semester VII

Paper No	Paper Title	Credits		
		Theory	Practical	Tutorial
DSC HH 719	Statistics and Computer Application in Home Science Research	3	1	-
DSE HH 7A1	Theories of Human Development	3	-	1
DSE HH 7A2	Assessment, Evaluation and Approaches to Research in Human Development	2	2	-
DSE HH 7A3	Child Rights and Social Action	2	2	-
DSE HH 7A4	Education for Human Development	2	2	-
DSE HH 7B1	Dietetics and Public health Nutrition II	2	2	-
DSE HH 7B2	Institutional Food Management	2	2	-
DSE HH 7B3	Nutrition for Fitness and Sports	2	2	-
DSE HH 7B4	Advanced Nutrition	3	-	1
DSE HH 7C1	Social and Behaviour Change Communication	2	2	-
DSE HH 7C2	Advertising & Digital Marketing	2	2	-
DSE HH 7C3	NGO Management, CSR and Fundraising	2	2	-
DSE HH 7C4	Information & Communication Technologies for Development	3	-	1
DSE HH 7D1	Historic Costumes	3	-	1
DSE HH 7D2	Dyeing, Printing and Finishing	2	2	-
DSE HH 7D3	Fashion Marketing and Merchandising	2	2	-
DSE HH 7D4	Garment Manufacturing	2	2	-
DSE HH 7E1	Human Factors and Ergonomics	2	2	-
DSE HH 7E2	Advanced Interior Design	2	2	-
DSE HH 7E3	Resources and Sustainable Development	2	2	-
DSE HH 7E4	Marketing Management and Consumer Behaviour	3	-	1

DISCIPLINE SPECIFIC CORE COURSE

DSC HH 719: STATISTICS AND COMPUTER APPLICATIONS IN HOME SCIENCE RESEARCH

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code		Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical		
Statistics and Computer Applications in Home Science Research DSC HH 719	4	3	0	1	Class XII	Nil

Learning Objectives

- Introduce students to basic statistical concepts and methods.
- Develop skills to organize, analyze and interpret data.
- Provide the foundation for applying statistical methods in real-world scenarios.
- Equip students with tools for making inferences from data using probability and hypothesis testing.

Learning Outcomes

The students will be able to

- Understand and apply basic statistical concepts.
- Organize and summarize data using descriptive statistics.
- Understand probability theory and apply it to various problems.
- Conduct hypothesis testing and interpret the results.

SYLLABUS OF DSC HH 719

THEORY (Credits 3; Hours 45)

UNIT I: Introduction to Statistics, Data types, Organization and Summarization 13 Hours

In this unit, the students will be able to classify data into appropriate types and levels of measurement. They will understand the distinction between descriptive and inferential statistics. They will learn how to collect data effectively and will be able to construct and interpret various data representations.

- Definition of Statistics
- Types of statistics: Descriptive vs Inferential
- Types of data: Qualitative (Nominal, Ordinal) vs Quantitative (Discrete, Continuous)
- Scales of measurement: Nominal, Ordinal, Interval, Ratio
- Organizing data: Frequency distributions, Tables and Graphs
- Types of graphs: Histograms, Pie charts, Bar graphs, Line graphs, Frequency polygons
- Percentile and Percentile Ranks

UNIT II: Measures of Central Tendency and Dispersion

8 Hours

In this unit students will understand the concept of central tendency and dispersion for different datasets

- Mean, Median, Mode: Properties, Application, appropriateness for data sets
- Range, Interquartile Range, Variance, Standard deviation
- Coefficient of variation
- Interpretation of variability in data

UNIT III: Probability Theory and Basics of Hypothesis Testing

8 Hours

In this unit the students will understand the fundamentals of probability and the structure of hypothesis testing. They will be able to state hypotheses and interpret the results of hypothesis tests.

- Introduction to Probability
- Null and Alternative Hypothesis
- Type I and Type II Errors
- One-tailed vs Two-tailed tests
- Significance level (α) and confidence intervals

UNIT IV: Hypothesis Testing using Statistical Tests

16 Hours

In this unit students will perform hypothesis tests for population means and proportions using appropriate tests.

- Concept of parametric and non-parametric tests
- Z-test for single means
- One-sample and two-sample t-tests for means
- One-way ANOVA
- Correlation and Regression
- Chi-square test
- Non-Parametric tests- Spearman's correlation, Sign test and Mann Whitney test
- Application of statistical procedures in Home Science
 - Tests and procedures suitable for research in the areas of home science
- Introduction to use of computers for statistical analysis - Excel, SPSS, Atlas Ti

PRACTICAL
(Credit 1; Hours 30)

- 1. Introduction to Statistical Software** **2 Hours**
 - To familiarize students with tools like Excel for statistical analysis.
 - Activity: Input basic data and perform basic excel functions on it.
- 2. Construction of Frequency Distributions** **4 Hours**
 - Organisation of raw data into frequency tables.
 - Activity: Use a given dataset to create grouped and ungrouped frequency tables.
- 3. Diagrammatic Representation of Data** **6 Hours**
 - To visualize data using bar charts, pie charts, line graphs, histograms and frequency polygons.
 - Activity: Plot diagrams for a dataset and interpret the results.
- 4. Measures of Central Tendency** **4 Hours**
 - Calculation of mean, median, and mode for grouped and ungrouped data using Excel.
 - Activity: Compare central tendencies of two datasets.
- 5. Measures of Dispersion** **4 Hours**
 - Computation of range, variance, and standard deviation using Excel.
 - Activity: Analyze the spread of two different datasets.
- 6. Area under the curve** **2 Hours**
 - Calculation of the area under the curve using standard scores.
- 7. Correlation Analysis** **2 Hours**
 - Measurement of the strength of relationships between two variables.
 - Activity: Calculate Pearson's and Spearman's correlation coefficients.
- 8. Hypothesis Testing (One-sample and two sample t-test)** **2 Hours**
 - To perform a one-sample and two sample t-test and test the significance.
 - Activity: Test a hypothesis about the mean of a single dataset, independent and dependent groups.
- 9. Chi-Square Test for Independence** **2 Hours**
 - To test the independence between categorical variables.
 - Activity: Analyze a contingency table and interpret the test result.
- 10. Interpretation and Presentation of results** **2 Hours**
 - Compilation of results from statistical analysis into a report/file including visualizations and interpretations.

Essential Readings

- Minium, E. W., King, B. M., (2003). Statistical Reasoning for Psychology and Education. 4th Edition, John Wiley and Sons, New York
- Rastogi Veer Bala, (2009). Fundamentals of Biostatistics, 2nd Edition. Ane Books Pvt. Ltd. New Delhi
- Gupta, S.P. (2021) Statistical Methods, 46th Edition. Sultan Chand and Sons. New Delhi.
- Agresti, A., Christine Franklin, C. and Klingenberg, B. (2017). Statistics: The Art and Science of Learning from Data, Pearson, Boston

Suggested Readings

- Schmuller, J. (2016). Statistical Analysis with Excel for Dummies, 5th Edition, New York, USA.
- Gupta, S. C. and Kapoor, V. K. (2020). Fundamentals of Mathematical Statistics, 12th Edition., Sultan Chand and Sons. New Delhi.
- Ross, Sheldon M. (2010). Introductory Statistics, 3rd Edition, Academic Press.
- Derek Rowntree, (2018). Statistics Without Tears- An Introduction for Non-Mathematicians, Penguin, UK.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time

DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HH7A1: THEORIES OF HUMAN DEVELOPMENT

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code		Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical		
Theories Of Human Development DSE HH7A1	4	3	1	0	Class XII	Nil

Learning Objectives

- Understand the major theories of human development and their historical contexts.
- Critically analyse and compare developmental theories.
- Apply theoretical frameworks to practical situations.
- Explore the role of culture, environment, and genetics in shaping human development.

Learning Outcomes

The students will be able to:

- Identify and explain the major theories of human development.
- Analyse developmental stages from different theoretical perspectives.
- Apply developmental theories to practical situations.
- Use theoretical approaches to understand complex developmental phenomena

SYLLABUS OF DSC HH 7A1

THEORY
(Credits 3; Periods 45)

UNIT I: Foundations and Applications of Theories in Human Development

8 Hours

This unit introduces the nature and role of theory in understanding human development across domains.

- Theory in Human Development- What is a theory? Theoretical frameworks and their purpose in explaining human growth and adaptation
- Overview of major perspectives in human development: biological, social, cognitive, and emotional
- Critiques and limitations of traditional theories

UNIT II: Classical and Contemporary Theoretical Foundations

15 Hours

This unit covers foundational classical and evolving contemporary theories in human development.

- Classical theories of human development: Psychoanalytic, Learning, and Cognitive Development Theories

- Contemporary developmental theories: Humanistic and Ecological Theories, Sociocultural theories, and Theories of Attachment

UNIT III: Lifespan and Culturally Responsive Perspectives

10 Hours

This unit explores theories addressing development across the lifespan and within cultural contexts.

- Lifespan developmental theories: Theories of continuity and change
- Protection motivation theories/frameworks
- Resilience theories
- Cross-cultural perspectives on developmental theories

UNIT IV: Real-World Applications of Developmental Theories

12 Hours

This unit focuses on the application of developmental theories in real-world contexts and current innovations.

- Emerging developmental theories related to equity and diversity
- Research and innovation trends in Human Development
- Applying theories in parenting, education, counselling, and social policy
- Cross-cultural critiques and adaptations of human development theories

TUTORIAL (Credit 1; Periods: 15)

1. Reflect on your own developmental experiences by exploring how biological, social, cognitive, emotional, and cultural factors have shaped your development and growth
2. Watch documentaries on the works of theorists, their lives and times.
3. Discuss portrayals of identity of Indian adolescents in fiction, blogs, vlogs and/or popular and new Indian cinema

Essential Readings

- Crain, W. (2024). *Theories of development: Concepts and applications*. Routledge: New York.
- Lerner, R. M. (2018). *Concepts and Theories of Human Development*.
- Lightfoot, C., Cole, M., & Cole, S. R. (2018). *The Development of Children*.
- Miller, P. H. (2002). *Theories of developmental psychology*. Macmillan.
- Newman, B. M., & Newman, P. R. (2022). *Theories of human development*. Routledge.

Suggested Readings

- Erikson, E. (1959). Theory of identity development. *E. Erikson, Identity and the life cycle*. Nueva York: International Universities Press. Obtenido de <http://childdevpsychology.yolasite.com/resources/theory%20of%20identity%20erikson.pdf>.
- Marikyan, D., & Papagiannidis, S. (2023). Protection motivation theory: A review. *TheoryHub Book: This handbook is based on the online theory resource: TheoryHub*, 78-93.
- Sobel, D. (1999). *Galileo's Daughter: A Historic Memoir of Science, Faith and Love*. New York: Walker & Co.
- Spivak, G. C. (2004). *Death of a Discipline*. Calcutta: Seagull.

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<p align="center">DISCIPLINE SPECIFIC ELECTIVE COURSE DSE HH 7A2: ASSESSMENT, EVALUATION AND APPROACHES TO RESEARCH IN HUMAN DEVELOPMENT</p>

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code		Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical		
Assessment, Evaluation and Approaches to Research in Human Development DSE HH7A2	4	2	0	2	Class XII	Nil

Learning Objectives

- To understand the meaning and purpose of various assessment methods in the context of Human Development and Childhood Studies
- To study concept of developmental assessment and develop an awareness of the critical role of assessment and evaluation
- To acquire a range of skills necessary for effectively working with children and adults across different settings

Learning Outcomes

The students will be able to:

- Develop skill to use techniques and methods suited for different person situations and contexts
- Be familiar with standardised tests/protocols for the study including assessment of
- individuals, families/settings
- Develop skills in recording fieldwork

SYLLABUS OF DSC HH 7A2

THEORY
(Credits 2; Periods 30)

UNIT I: Methods for Studying Children and Their Contexts

10 Hours

This unit introduces diverse methods to understand children in their natural settings.

- Observing children in natural settings using ethnographic methods
- Using Interview method with children and relevant adults
- Focus group discussions
- Participatory Learning and Action (PLA) techniques
- Theatre-based techniques and activities

UNIT II: Understanding Developmental Norms and Assessment**8 Hours**

This unit covers the principles and tools used in assessing children's development.

- Concept of developmental assessment
- Principles of screening, assessment, and evaluation
- Study psychological tests, Developmental norms and assessment protocols
- Study tests of cognition, language, social development, aptitude, and projective techniques

UNIT III: Evaluation Design and Application in Early Childhood**8 Hours**

This unit focuses on evaluation practices in early childhood education settings.

- Principles of evaluation and learning in a pre-school (for one subject/thematic area)
- Evaluating foundational literacy and numeracy
- Introduction to designing programme evaluations for small projects/programmes

UNIT IV: Applying Methods and Assessments to Child Development Practice**4 Hours**

This unit links assessment and evaluation methods with practical domains such as career guidance and intervention planning.

- Using assessment data to inform practice
- Principles of designing child-centered interventions
- Career guidance in developmental contexts

PRACTICAL
(Credit 2; Periods:60)

1. Conduct an observational study of children in various settings and record observations using the narrative method/ ethnographic account
2. Study tests, assessment protocols and developmental norms (any three)- Ages & Stages Questionnaire, DASII, DAT, WISC, WPPSI, PORTAGE, DSS, Ravens Progressive Matrices, Seguin form board any other
3. Social emotional assessment
Self concept inventory, Vineland Social Maturity Scale, DAS scale, CAT, TAT, HOME inventory, any other
4. Develop and execute a theatre-based activity (e.g., role-plays, improvisations) aimed at exploring children's thoughts, emotions, and behavioral patterns
5. Short placements within organizations and industry interactions with functionaries at different organizations
6. Conduct a thematic evaluation of principles of learning and assessment in a preschool setting, focusing on areas such as foundational literacy and numeracy or classroom practices.
7. Learn to use ECQAS scale for evaluating ECE programmes developed by Ambedkar University
8. Undertake a detailed evaluation of a National-level initiative such as ICDS, Pratham, or Mobile Creches. Review the programme's goals, implementation strategies, and outcomes, and provide recommendations for improvement based on secondary data or reports

Essential Readings

- Anandalakshmy, S., Chaudhary, N. & Sharma, N. (Eds.). (2008). *Researching Families and Children: Culturally Appropriate Methods*. New Delhi: Sage
- Beaty, J. J. (2013). *Observing development of the young child* (8th ed.). Pearson.
- Epstein, A. S. (2014). *The intentional teacher: Choosing the best strategies for young children's learning* (Revised ed.). National Association for the Education of Young Children (NAEYC).
- Fivush, R., & Haden, C.A. (2003) (Eds.). *Autobiographical Memory and the Construction of the Narrative Self*. Mahwah, N.J.: Lawrence Erlbaum.
- Wortham, S. C., & Hardin, B. (2015). *Assessment in early childhood education* (6th ed.). Pearson

Suggested Readings

- Adharshila and Navchetna: <https://www.nipccd.nic.in/publications-Early#gsc.tab=0>
- ASER reports <https://asercentre.org/>
- Ethnographic Practice in Classrooms. *Qualitative Research*, 5.
- Gordon, T., Holland, J. Lahelma, E. and Tolonen, T. (2005). *Gazing with Intent*:
- Hart, C. (1998). *Doing a Literature Review: Releasing the Social Science Research Imagination*. London: Sage.
- Mishler E. (1991) *Research Interviewing: Context and Narrative*. Harvard University Press, Cambridge, MA.
- Paul Kline (2000) *The Hand book of Psychological testing*, 2nd edition, Routledge Taylor and Francis Group

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HH 7A3: CHILD RIGHTS AND SOCIAL ACTION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code		Credit distribution of the course			Eligibility criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical/ Practice		
Child Rights and Social Action DSE HH7A3	4	2	0	2	Class XII	Nil

Learning Objectives

- To understand the meaning of child rights and rights-based approach to providing services and programmes for children
- To sketch a demographic profile of the child in India and to identify groups
- To acquire knowledge of constitutional and legal provisions in India for care and protection of the children

Learning Outcomes

The students will be able to:

- Understand rights-based approach for providing protection and care to the child.
- Know about the vulnerable groups of children in India.
- Learn about constitutional and legal provisions provided by the state for the child in India.

SYLLABUS OF DSE HH 7A3

THEORY
(Credits 2; Hours 30)

UNIT I: Introduction to Child Rights and Contexts

8 Hours

This unit introduces the conceptual and contextual foundations of child rights.

- Definitions of child and child rights
- Key philosophical concepts in the discourse on child rights
- Situational analysis of the child in India
- Understanding child rights from an Indian perspective

UNIT II: Vulnerable Groups: Causes and Consequences

10 Hours

This unit examines the various vulnerable groups of children and the underlying causes of their marginalization.

- Street and working children, destitute, abandoned, and institutionalized children
- Victims of child-trafficking and child abuse
- Children with chronic illness, migrant children, minorities, those in conflict zones and disaster-affected
- Factors of exclusion: Socio-economic, geo-political, and cultural

UNIT III: Children in Adverse Circumstances and Legal Systems

6 Hours

This unit focuses on children in particularly adverse legal and social contexts.

- Children in conflict with law
- Overview of child protection mechanisms
- Constitutional provisions in India and National Policy for Children (2013)
- Global declaration – UNCRC

UNIT IV: Frameworks and Mechanisms for Social Action and Child Protection

6 Hours

This unit provides a detailed understanding of legal instruments and stakeholders in protecting child rights.

- Child protection laws: CLPRA, POCSO, HAMA, GAWA, JJ Acts
- Role of NCPCR
- Services for children – Institutional and non-institutional
- Role of family, community, the state, and the child in protecting rights

PRACTICAL (Credit 2; Hours: 60)

1. Visits to institutions working for vulnerable children.
2. Exploring and analysis of child rights issues through audio-visual sources and workshops.
3. Preparing awareness generation media on Child Rights and Protection
4. Interaction with children in difficult circumstances.
5. Case profile of a child in difficult circumstances.
6. Surveys and awareness generation activities.
7. Programme planning.

Essential Readings

- Bajpai, A. (2006). *Child Rights in India: Law, policy and practice*. New Delhi: Oxford University Press.
- Chopra, G. (2015). *Child Rights in India: Challenges and Social Action*. New Delhi: Springer
- Chopra, G. (2021). *Child Protection in India: From Silos to System*. S. Puri, 2021 (ed.) *Children in India: Opportunities and challenges*. Nova Science Publishers, Inc.
- Ministry of Women and Child Development, (2013). *National Policy for Children, 2013*. Gazette of India, Part 1, Section 1. Govt of India.

Suggested Readings

- Bhargava, V. (2005). Adoption in India: Policies and experiences. New Delhi: Sage.
- Indian Journal of Social Work
- Virani, P. (2000). Bitter chocolate: Child Sexual abuse in India. New Delhi: Penguin
- Weiner, M., Burra, N., Bajpai, A. (2007). Born unfree: Child labour, Education, and the state in India. New Delhi: Oxford University Press.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HH 7A4: EDUCATION FOR HUMAN DEVELOPMENT

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code		Credit distribution of the course			Eligibility criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical/ Practice		
Education for Human Development DSE HH 7A4	4	2	0	2	Class XII	Nil

Learning Objective

- To develop a holistic understanding of the educational ecosystem.
- To become aware of the critical issues that need to be addressed for quality education for all.
- To learn about implementation strategies in the context of ground realities.

Learning Outcomes

Students will be able to

- Explain effective teaching and learning in the classroom with reference to various practices, processes and materials.
- Understand critical issues in development and implementation of curriculum, textbooks and teaching materials.
- Review historical and contemporary issues related to quality in schooling, teacher development and system effectiveness with reference to human development.
- Identify major concerns in Indian education and compare with global perspectives

SYLLABUS OF DSE HH 7A4

THEORY
(Credits 2; Hours 30)

UNIT I: Effective Classroom and Learning

8 Hours

This unit introduces foundational ideas about learning and the classroom as a space for meaningful interaction and engagement.

- Child-oriented pedagogy, active learning, and the significance of relationships
- Enabling learning through the use of teaching-learning material
- Management of learning through planning, classroom organization, and assessment
- Effect of technology on learning

UNIT II: Curriculum, Human Development, and Inclusive Practice**8 Hours**

This unit explores the foundations of curriculum and its interrelationship with human development and diversity.

- Curriculum basics and underpinnings
- Human Development as source as well as objective of curriculum
- Diversity, equity, and curriculum
- Critical issues affecting curriculum development and effectiveness

UNIT III: From Curriculum to Practice: Resources and Approaches**6 Hours**

This unit focuses on translating curriculum frameworks into practical tools and materials in classroom settings.

- From curriculum to practice: Role of textbooks, materials and other means
- Integration of developmentally appropriate materials
- Application of inclusive pedagogy in diverse classrooms

UNIT IV: Effective School and Education System**8 Hours**

This unit examines the school as an institution, policy frameworks, and innovative educational practices.

- Historical perspective on the Indian education system
- Policies, plans, and programmes
- School as an organization and characteristics of a child-friendly school
- Teacher development
- Status of today's schools and system effectiveness
- Case studies of innovative schools and programmes
- Global perspectives

PRACTICAL
(Credit 2; Hours: 60)

1. Observe and evaluate the planning, organization, and assessment methods in a real or virtual class.
2. Create a lesson plan that combines traditional methods and digital tools.
3. Analyze a curriculum that focuses on holistic human development. Write a report on how human development is integrated as a source and objective.
4. Design a curriculum module for a specific age group that addresses key aspects of human development, such as social-emotional learning, critical thinking, or physical well-being.
5. Reflect on how human development theories (e.g., Piaget, Vygotsky) influence curriculum design and objectives.
6. Create supplementary materials (e.g., worksheets, visual aids) to enhance textbook-based learning.
7. Identify and document community resources that can enrich the curriculum and promote equity.
8. Design a model for a child-friendly school, considering infrastructure, pedagogy, and student needs.
9. Visit schools in your area and evaluate their effectiveness based on infrastructure, teacher-student ratio, resources, and outcomes.
10. Select an innovative school or educational program (e.g., Rishi Valley School, Barefoot College, Teach for India) and document its practices and outcomes.

Essential Readings

- Anand, K., & Lall, M. (2022). *Delhi's Education Revolution: Teachers, agency and inclusion* (p. 211). UCL Press.
- Bhattacharjee, N., & GS, S. B. (2025). Teaching, Learning and Thinking in Contemporary Times: A Conversation with Avijit Pathak. In *Cultures of Learning* (pp. 27-52). Routledge India.
- Mukhopadhyay, R., & Sarangapani, P. M. (2018). Introduction: education in India between the state and market—concepts framing the new discourse: quality, efficiency, accountability. In *School education in India* (pp. 1-27). Routledge India.
- Nambissan, G. B. (2020). Low-cost education for the poor in India: Contemporary concerns. *JMC Review*, 4, 109-128.
- Thapan, M. (2023). The State, Education and Inequality in Contemporary India: An Intersectional Exploration. *Sociological Bulletin*, 72(4), 375-392.

Suggested Readings

- Jha, M, M. School without walls. (2002). India: Oxford
- Kumar, K.(2004). What is worth teaching (3rd ed.). New Delhi: Orient Longman
- Kumar, R. (2006) (Ed.). (2006). The crisis of elementary education in India. New Delhi: Sage.
- Ramachandran, V. (Ed.). (2003). Getting children back to school: Case studies in primary education. New Delhi: Sage.
- Kuroyanagi, T. (1996). *Totto-chan: The little girl at the window*. Kodansha International.
- Sarangapani, P. M. (2020). A cultural view of teachers, pedagogy, and teacher education. *Handbook of education systems in South Asia*, 1-24.

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DISCIPLINE SPECIFIC ELECTIVE COURSE

DSE HH 7B1: DIETETICS AND PUBLIC HEALTH NUTRITION II

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code		Credit distribution of the course			Eligibility criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical/ Practice		
Dietetics and Public Health Nutrition II DSE HH 7B1	4	2	0	2	Class XII	Studied Dietetics and Public Health Nutrition I DSC HH 514

Learning Objectives

- To familiarize with the concept of food and nutrition security among the population in India.
- To apprise the concept of nutrition and health education and behaviour change.
- To develop an understanding about the principles of dietary counselling and use of computers in the management of patients in hospital settings.
- To understand the pathophysiology, metabolic changes, clinical symptoms, treatment and management of some disease conditions.

Learning Outcomes

The students will be able to:

- Gain knowledge about the concept of food and nutrition security.
- Apprise the concept of nutrition communication for health promotion at community level.
- In depth understanding of the principles of dietary counselling and use of computers in management of patients in hospital settings.
- Become able to modify the diet as per the pathophysiology, metabolic changes and clinical symptoms of some disease conditions.

SYLLABUS OF DSE HH 7B1

THEORY

(Credits 2; Hours 30)

UNIT I: Food and Nutrition Security

8 Hours

This unit deals with concept of food and nutrition security, and sustainable food systems. It also includes the important initiatives undertaken for ensuring food and nutrition security among the population in India.

- Concepts and definitions of food and nutrition security and sustainable food systems
- Initiatives for ensuring food and nutrition security - National Food Security Mission, Public Distribution System/Targeted Public Distribution System,

UNIT II: Nutrition communication for health promotion

4 Hours

In this unit, the students will understand the principles and scope of nutrition and health education and also concept of behaviour change communication and its process.

- Objectives, principles and scope of nutrition and health education.
- Behaviour Change Communication: concept and process.

UNIT III: Diet counselling and nutritional support

4 hours

In this unit, the students will understand the concept of diet counselling and its importance in nutrition care process. They will be introduced to different methods of feeding during disease conditions.

- Importance of dietary counselling and use of computers in nutrition care process
- Introduction to methods of feeding to give nutritional support

UNIT IV: Etiology, pathophysiology, metabolic changes, dietary management of conditions

14 Hours

In this unit, the students will understand the pathophysiology, metabolic & clinical aberrations, diagnosis, complications, treatment, medical nutrition therapy (MNT), and recent advances in different diseases/disorders.

- Dyslipidemia, Atherosclerosis, Hypertension
- Gastrointestinal disorders- GERD, Peptic ulcer, IBS
- Liver disease-Infective hepatitis
- PCOD
- Overview of Thyroid disorders

PRACTICAL

(Credits 2; Hours 60)

I. Assessment of Diet Quality using an appropriate indicator/methods:

- The Healthy Eating Index (HEI)
- The Minimum Acceptable Diet (MAD)
- The Minimum Dietary Diversity for Women (MDD-W)etc.

II. Formulation of messages for creating nutritional awareness among vulnerable sections of the society

III. Orientation to diet counselling apps

- Critique of various diet counselling apps
- Hospital visit for observing a diet counselling session
- Planning a diet counselling session for CVD/GI Tract disorder

IV. Planning and preparation of diets/dishes for individuals suffering from

- Dyslipidemia/ Atherosclerosis/ Hypertension
- GI Tract disorders- GERD, peptic ulcer

- Liver-Infective hepatitis
- PCOD

Essential Readings:

- Boyl, M.A. (2016). Community Nutrition in Action: An entrepreneurial Approach. 7th Edition. Brooks Cole.
- Raymond, J.L. and Morrow, K. (2020) Krause and Mahan's Food & the Nutrition Care Process. 15th ed. Saunders-Elsevier
- Seth, V. and Singh, K. (eds.) (2021) Principles of Medical Nutrition Therapy for Positive Clinical Outcomes, 1st Edition. Elite Publishing House Pvt. Ltd.
- Snetselaar, L. (2009). Nutrition Counselling Skills for the Nutrition Care Process. Fourth Ed. Sudbury, Massachusetts: Jones Bartlett Publishers.
- Vir, S.C. (Ed.). (2011). Public Health Nutrition in Developing Countries. Part 1 and 2. Woodhead Publishing India.
- Vir, S. (2021). Public Health Nutrition in Developing Countries (Vol 1 & 2). New Delhi, India: Woodhead Publishing India.
- Wadhwa, A and Sharma, S (2003). Nutrition in the Community- A Textbook. Elite Publishing House Pvt. Ltd. New Delhi.

Suggested Readings:

- Gibney, M.J., Elia, M., Ljungqvist & Dowsett J. (2005) Clinical Nutrition. The Nutrition Society Textbook Series. Blackwell Publishing Company
- Guyton, A.C. and Hall, J.E. (2000) Textbook of Medical Physiology. 10th ed. India: Harcourt Asia.
- Joshi, Y. K. (2008) Basics of Clinical Nutrition 2nd ed. Jaypee Brothers Medical Publishers
- National Family Health Survey - 5 [NFHS-5], (2021). Ministry of Health and Family Welfare, Government of India.
- Park, K. (2021). Park's Textbook of Preventive and Social Medicine (26th ed.). Jabalpur, India: Banarasidas Bhanot Publishers.
- Shils, M.E., Shike, M, Ross, A.C., Caballero B and Cousins RJ (2005) Modern Nutrition in Health and Disease. 10th ed. Lipincott, William and Wilkins.
- Vir, S. (2023). Child, adolescent and women nutrition in India: Public Policies, programme and progress. KW Publishers, Daryaganj, New Delhi, India.
- Williams, S.R. (2001) Basic Nutrition and Diet Therapy. 11th ed. Times Mirror Mosby College Publishing

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DISCIPLINE SPECIFIC ELECTIVES COURSE

DSE HH 7B2: INSTITUTIONAL FOOD MANAGEMENT

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical		
Institutional Food Management DSE HH 7B2	4	2	0	2	Class XII	Nil

Learning Objectives

- To understand the basic concepts of Institutional Food Management
- To develop skills in menu planning and quantity food production for various food service organizations within specific budgets.

Learning Outcomes

The students will be able to:

- Acquire fundamental knowledge of menu planning and resource management in a food service establishment.
- Develop understanding of recipe standardization and quantity food production.
- Develop insight for maintaining hygiene and food safety at institutional kitchens.

SYLLABUS OF DSE HH 7B2

THEORY (Credits 2; Hours 30)

UNIT I: Introduction to Food Management

4 Hours

In this unit, the students will be able to understand the basics of management and food service for a food establishment.

- Principles of Management
- Functions of Management
- Types of food service systems

UNIT II: Food Production Process

12 Hours

In this unit, the students will learn the components of food production cycle to run a food service unit.

- Menu Planning: Importance of menu, Factors affecting menu planning, Types of menu
- Food purchase and receiving
- Storage
- Quantity food production: Standardization of recipes, Recipe adjustment and portion control, Techniques of quantity food production
- Food service
- Food safety in the food production process

UNIT III: Institutional Resource Management

11 Hours

In this unit, students will understand the fundamentals of space, personnel and financial management.

- Layout planning and Equipment: Types of kitchen areas, Flow of work, Factors affecting selection of equipment
- Personnel Management: Functions of a personnel manager, Components of staffing system: Recruitment, Selection, Orientation, Appraisal, Absenteeism, Motivation theories and application
- Financial Management: Importance, Budgets and budgeting process, Cost concepts

UNIT IV: Setting up a Food service unit

3 Hours

In this unit, the students will understand how to establish a food service unit.

- Identifying resources, Developing project plan, Determining investments
- Regulations to set up a food service business

PRACTICAL (Credit 2; Hours 60)

1. Introduction to Food Management

4 Hours

- Market survey for food items available in retail, wholesale and online markets

2. Quantity Food Production

32 Hours

- Standardization of 2 healthy recipes suitable for canteens
- Scaling up to larger amounts
- Setting up a food stall

3. Planning Cyclic Menus

20 Hours

- Planning cyclic menus for nursery school
- Planning cyclic menus for college canteens/ hostel
- Planning nutritious freshly cooked lunch for MNC employees

4. Promoting Good Hygiene and Sanitation Practices

4 Hours

- Developing tools to promote good hygiene practices at food service units

Essential Readings

- Desai, V. (2011) The Dynamics of Entrepreneurial Development and Management, Himalya Publishing House Pvt. Ltd., Mumbai. Chapter 45-48, pg 612-685
- Payne- Palacio, J. and Theis, M. (2011) Food service Management: Principles and Practices. 12th ed. Pearson Education., Chapter 11, pg 308-334
- Sethi, M. (2005) Institutional Food Management, New Age International Publishers, chapter 6, pg 153-165
- West, B. and Wood, L. (1988) Food Service in Institutions 6th Edition, Chapter 9, Pg 311-367.

Suggested Readings

- Knight, J. B. and Kotschevar, L.H. (2000) Quantity Food Production Planning & Management 3rd edition, John Wiley & Sons.
- Kotas, R. and Jayawardardene, C. (1994) Profitable Food and Beverage Management, Hodder & Stoughton Publications.
- Roday, S. (2003) Food Hygiene and Sanitation, Tata McGraw Hill Publication Ltd.
- Taneja, S. and Gupta, S.L. (2001) Entrepreneurship Development. Galgotia Publishing
- Dessler, G. (2007) Human Resource Management 11th edition Prentice Hall New Jersey
- Basic Food Safety Training Manual Catering ([http://www.fssai.gov.in/home/capacity building/e-library/training-manual.html](http://www.fssai.gov.in/home/capacity_building/e-library/training-manual.html))
- Street Food Vendor Training on Food Safety and Hygiene ([http://www.fssai.gov.in/home/capacity building/e-library/training-manual.html](http://www.fssai.gov.in/home/capacity_building/e-library/training-manual.html))

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DISCIPLINE SPECIFIC ELECTIVE COURSE

DSE HH 7B3: NUTRITION FOR FITNESS AND SPORTS

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code		Credit distribution of the course			Eligibility criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical/ Practice		
Nutrition For Fitness and Sports DSE HH 7B3	4	2	0	2	Class XII	Nil

Learning Objectives

- To develop the concepts of fitness, components, assessment methods and approaches for improving fitness.
- To gain knowledge of Sports Nutrition and other important aspects for recreational and competitive athletes.
- To facilitate understanding and application of the energy systems, macro- and micro-nutrients, supplements and fluid recommendations for improving sports performance.
- To develop analytical skills of athletes' nutritional needs with respect to phases of training and competition.
- To gain knowledge with respect to nutritional care of special groups of athletes.

Learning Outcomes

The students will be able to:

- Understand concepts of fitness, its assessment and different approaches to improve fitness with special focus on skill related fitness.
- Exhibit knowledge of the metabolism and energy systems of exercise.
- Effectively plan and implement sport-specific diets for athletes through all age groups for recreational and competitive athletes in different phases of training and competition.
- Chalk out diet plans, nutrition education and counselling for special group of athletes.

SYLLABUS OF DSE HH 7B3

THEORY (Credits 2; Hours 30)

UNIT I: Understanding Fitness and its Components

4 Hours

This unit introduces physical fitness and aspects related with its assessment and enhancement

- Physical fitness components and their assessment methods.
- Approaches and guidelines to achieve fitness.
- Principles of weight management and Fad diets.
- Importance of yoga in daily life.

UNIT II: Fundamentals of Sports Nutrition

8 Hours

In this unit students will learn the basic aspects of Sports Nutrition and energy metabolism.

- Sports nutrition and integrated approach to care for athlete
- Energy systems and fuel utilization for different sports.
- Dietary recommendations for Sports persons.
- Fluid requirements and rehydration strategies for athletic performance
- Body composition in different physiological conditions and factors affecting body composition
- Methods of assessing body composition.
- Energy concept and factors affecting energy; methods of measuring energy intake and expenditure and concept of energy balance and Energy availability

UNIT III: Nutrition and Athletic Performance

12 Hours

This unit deals with nutrients, fluids and supplements for performance enhancement in exercise and sports.

- Macro- and Micro-nutrients; Nutritional guidelines; and Dietary recommendations for different categories of high performance sports
- Nutritional strategies for the Pre-exercise, Intra-exercise, post-exercise recovery and special considerations for different sports (endurance, strength, team sports, etc).
- Pre- Competition and post competition recovery phase
- Fluid requirements and rehydration strategies for athletic performance
- Supplements in Sport: performance enhancing substances, drugs, ergogenic aids and herbs in sports performance: Efficacy, Safety, regulations, and ethics
- Emerging Trends and Research in Sports Nutrition, ethics and Professional Practice: Advances in sports nutrition research ; Professional responsibilities of a sports nutritionist- Ethical considerations in sports nutrition counselling; Working with a multidisciplinary team (coaches, trainers, sport-sciences and medical staff).

UNIT IV: Nutrition for special conditions in sports

6 Hours

This unit deals with the nutritional management of athletes with special needs

- Women athletes, adolescent athletes, athletes with diabetes, vegetarian athletes, paralympics and special Olympics.
- Specific nutrition for weight category sports and sports requiring aesthetics: Addressing eating disorders and disordered eating in athletes.

PRACTICAL **(Credits 2; Hours 60)**

- PARQ assessment and interpretation **4 Hours**
- Assessment of physical fitness of athletes **8 Hours**
- Planning a day's diet for a fitness trainee who works out regularly at a gymnasium **4 Hours**
- Planning a training day's diet for an individual high performance athlete (all 5 sports groups) and a counselling module for the training phase **20 Hours**
- Assessing target weight and Planning/monitoring a weight loss diet during the training phase, for a high performance athlete **4 Hours**
- Planning a diet for 1 week of carbohydrate loading for an ultra-endurance athlete **8 Hours**
- Planning a pre-, and post-competition meal for ultra-endurance, endurance, strength events, team events and sports-drinks during and after an event **8 Hours**
- Survey of sports supplements **4 Hours**

Essential Readings:

- Burke, L.M., Minehan, M. and Deakin, V. (2021) Clinical Sports Nutrition, 6th edition, Publishers McGraw Hill.
- Hickson, J.F. and Wolinsky I. (1997) Nutrition for Exercise and Sport. 2nd edition, CRC Press.
- ILSI, NIN & SAI (2017) Nutritional recommendations for high performance athletes 2nd edition.
- Lal, P.R. (2009) Handbook of Sports Nutrition. Friend's Publication, Delhi, India.
- Mahan, L.K. and Escott Stump, S. (2016) Krause's Food & Nutrition Therapy. 15th edition, Saunders-Elsevier.

Suggested Readings:

- Austin, K. G. and Seebhar B. (2021) Performance Nutrition for Athletes. Human Kinetics.
- Bushman, B. (2017) ACSM's Complete Guide to Fitness & Health 2nd Edition, ACSM.
- Dan Benardot (2011) Advanced Sports Nutrition-2nd Edition.
- Fink, H. H. and Mikesky A. E. (2017) Practical Applications in Sports Nutrition 5th Edition.
- Heather, H.F. and Alan, E. Mikesky (2015) Practical Application in Sports and Nutrition. Fourth Edition. Jones & Bartlett Learning, Burlington, M.A.
- Ryan, M. (2020) Sports Nutrition for Endurance Athletes (3rd Edition). VeloPress.
- McArdle, W.D., Katch F. I. and Katch V. L. (2020) Sports and Exercise Nutrition (5th Edition). Wolters Kluwer.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time

DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HH 7B4: ADVANCED NUTRITION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITE OF THE COURSE

Course title & code		Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Theory	Tutorial	Practical/ Practice		
Advanced Nutrition DSE HH 7B4	4	3	1	0	Class XII	Nil

Learning Objectives

- To understand the functions of macro and micro-nutrients in a human body.
- To study the methods used for assessing nutrient requirements.
- To comprehend why and how the requirements change under special conditions.

Learning Outcomes

The students will be able to:

- Explain the importance of macro and micro-nutrients in a human body.
- Describe methods used for assessing nutrient requirements.
- Explain the reasons why the requirements change under special conditions.

SYLLABUS OF DSE HH 7B4

THEORY
(Credits 3; Hours 45)

UNIT I: Concept of Nutritional Requirements

4 Hours

This unit describes the terms used in defining human nutritional requirements.

- Historical perspective of nutrient requirements, terms used - EAR, RDA, AI, TUL
- Methods of assessment of nutrient needs – a critical review

UNIT II: Macronutrient requirements

15 Hours

This unit describes the biological role and sensitive methods for estimating the requirements of different macro nutrients.

- Biological role, sensitive methods of assessment, bioavailability, and other factors affecting requirements of nutrients
 - Energy
 - Carbohydrates and dietary fibre
 - Proteins and amino acids
 - Lipids and fatty acids
 - Water

UNIT III: Micronutrient requirements

20 Hours

This unit describes the biological role and sensitive methods for estimating the requirements of different macro nutrients.

- Biological role, sensitive methods of assessment, bioavailability, and other factors affecting requirements of nutrients
 - Fat soluble vitamins
 - Water soluble vitamins
 - Minerals

UNIT IV: Nutrition under special conditions

6 Hours

This unit describes how nutrient requirements change in special conditions in response to physiological changes.

- Extreme temperatures - Hot and cold
- High altitude
- Space nutrition
- Nutrition in emergencies - war, earthquakes and floods

TUTORIAL (Credits 1; Hours 15)

1. Methods of assessment of protein quality - Chemical score, NDpCal%
2. Measuring energy expenditure - Minute to minute activity record, GPAQ
3. Understanding fatty acid profile of commonly eaten foods
4. Understanding the dietary fibre (soluble and insoluble) profile of commonly eaten foods
5. Assessment of molar ratios of iron and vitamin C in given diets
6. Understanding the clinical signs of nutrient deficiency and excess

Essential Readings

- Chadha R., Mathur P. Eds. (2015) Nutrition: A Lifecycle Approach. New Delhi: Orient Blackswan.
- NIN-ICMR (2020) Nutrient Requirements Estimated Average Requirements and Recommended Dietary Allowances.

Suggested Readings

- FAO/WHO. (2004) Vitamin and Mineral Requirements in Human Nutrition. Report of a Joint Expert Consultation.
- FAO/WHO/UNU (2004) Human Energy Requirements. Report of a Joint Expert Consultation. Rome.
- FAO/WHO/UNU (2007) Protein and Amino acid Requirements in Human Nutrition. Report of a joint WHO/FAO/UNU expert consultation WHO Technical Report Series 935. Geneva: WHO.

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DISCIPLINE SPECIFIC ELECTIVE COURSE**DSE HH 7C1: SOCIAL & BEHAVIOUR CHANGE COMMUNICATION****CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE**

	Credits	Credit Distribution of the Course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Social & Behaviour Change Communication DSE HH 7C1	4	2	0	2	Class XII	Nil

Learning Objectives

- To understand the concept of Social and Behaviour Change Communication (SBCC) and comprehend its principles, methodologies, and theories.
- To explore the application of SBCC concepts to specific areas such as health and environmental issues
- To design effective strategies for social and behavior change communication that address a variety of social issues and challenges.

Learning Outcomes

The students would be able to:

- Gain an understanding of the connections between communication strategies and behavior change and learn the principles, methodologies, and theories of Social and Behavior Change Communication (SBCC)
- Develop knowledge and functional skills to apply SBCC concepts to various domains such as Health and environmental communication
- Critique and innovate current strategies for social and behavior change communication that will address a variety of social challenges

SYLLABUS OF DSE HH 7C1**THEORY**
(Credits 2; Hours 30)**UNIT I: Foundations of Social and Behavior Change Communication****7 hours**

The unit provides an overview of the concept and relevance of Social & Behaviour Change Communication (SBCC). This unit covers the core concepts, principles, and approaches of BCC. It deeply explores the role of communication in influencing behaviour, focusing on Participatory and inclusive communication.

- SBCC: Introduction, Definition and scope, Significance of communication strategies for behavior change, Paradigm shifts in SBCC
- Key Concepts and Approaches of SBCC: Behavior change vs. social change Principles and Approaches, Role of Culture, Norms and values for behavior change
- Participatory and inclusive communication, Role of Mass media, interpersonal communication, social media in behavior change, Community-based communication approaches.

UNIT II: Theories of SBCC

10 hours

This unit focuses on the important SBCC theories and models, the application of the Theory of Change in understanding and implementing SBCC

- Theories of Behavior Change: Socio-Ecological Model, Stages of Change, Health Belief Model, Social Cognitive Theory, Theory of Planned Behavior, Diffusion of Innovations, Social Network theory and others.
- Understanding the concept and application of Theory of Change in SBCC

UNIT III: Tools and Techniques for SBCC

7 hours

This unit focuses on the need for structured SBCC strategies. It also reviews national SBCC campaigns to highlight best practices and challenges

- Need and Relevance of SBCC Strategies, Role of SBCC in achieving sustainable development goals (SDGs), Steps in SBCC Strategy Development
- SBCC Strategy Design and Implementation, Human Centered Design, Design Thinking and Principles of effective SBCC strategy implementation.
- Analysis of Barriers and enablers in the design and implementation of strategies. Role of partnerships, policy advocacy, and community mobilization in campaigns.
- Flagship campaigns (e.g., India's Pulse Polio Campaign, Swachh Bharat Abhiyan, or HIV/AIDS awareness initiatives)- Analysis of Strategies & Approaches

UNIT IV: Application of SBCC to Social Issues

6 hours

This unit examines the application of SBCC in addressing health, environmental, and social justice issues. It emphasizes campaign design, implementation, and the importance of monitoring and evaluation to ensure program success.

- SBCC for Health & Nutrition: Addressing issues of health, nutrition & well-being. Campaigns on vaccination, nutrition, maternal health, HIV/AIDS, and mental health, combating stigma and misinformation in health communication
- SBCC for Environment & Sustainable Development: promoting climate action and sustainability, engaging communities in waste management and conservation efforts, role of media in promoting environmental communication
- Gender & Social Justice: Addressing gender equality and empowerment, Using SBCC to combat discrimination and promote inclusion
- Monitoring and Evaluation (M&E): Importance of M&E in SBCC programs, Key indicators for assessing impact, Tools and techniques for tracking progress and refining strategies.

PRACTICAL
(Credits 2; Hours 60)

1. Review of national and international SBCC campaigns
2. Critical analysis of SBCC campaigns from a socio-ecological perspective
3. Evaluation of IEC material of various SBCC campaigns on health & environment
4. Analysis and interpretation of Health and environment-related indicators as a result of SBCC campaigns
5. Designing SBCC campaign for social and developmental issues
6. Review of policy initiatives in Health & Environment

Essential Readings

- Atkin, C.K. & Rice, R.E. (2012) Theory and Principles of Public Campaigns. In C. Atkins & R. Rice (EDS) Public Communication Campaigns. Newbury Park, CA: Sage
- Cox, R. (2006) Environmental Communications and the Public Sphere. Thousand Oaks, CA: Sage.
- McKee, N., Manoncourt, E., Chin, S. Y., & Carnegie, R. (2000). *Involving people, evolving behavior*. Penang: Southbound.
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Free Press.
- Subedi, N R, (2008). Advocacy Strategies and Approaches: A Training of Trainers Manual. International

Suggested Readings

- Ashford, J. B., LeCroy, C. W., & Lortie, K.L. (2010). *Human Behavior in the Social Environment: A Multidimensional Perspective* (4th ed.). Belmont CA: Wadsworth/Thomson Learning.
- Glanz, K., Rimer, B. K., & Viswanath, K. (Eds.). (2015). *Health behavior: Theory, research, and practice* (5th ed.). Jossey-Bass.
- Kotler, P. & Lee, N. (2011). *Social Marketing: Influencing Behaviors for Good*, 4th Ed. Thousand Oaks, CA: Sage Publications. (K&L)
- Schiavo, R. (2013). *Health communication: From theory to practice* (2nd ed.). Jossey-Bass.
- Servaes, J. (Ed.). (2020). *Sustainable development and communication in global change*. Springer.
- UNICEF. (2016). Communication for Social and Behaviour Change Module 2: Theories of Communication for Development and Social Change. SBC Warehouse. Accessible at <https://iec.unicef.in/document/communication-for-social-and-behaviour-change-module-2-theories-of-communication-for-development-and-social-change>
- UNICEF. (2016). Communication for Social and Behaviour Change Module 6: Strategy Design: Planning Models, Processes and Levels of Intervention. SBC Warehouse. Accessible at <https://iec.unicef.in/document/communication-for-social-and-behaviour-change-module-6-strategy-design-planning-models-processes-and-levels-of-intervention>

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HH 7C2: ADVERTISING AND DIGITAL MARKETING

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code		Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Advertising and Digital Marketing DSE HH 7C2	4	2	0	2	Class XII	Nil

Learning Objectives

- To introduce the fundamentals of advertising and digital marketing
- To develop critical understanding of the creative and strategic processes behind advertising campaigns.
- To equip students with practical skills in digital marketing tools and platforms.
- To analyze the ethical considerations and emerging trends in the digital advertising landscape.

Learning Outcomes

Students will be able to:

- Comprehend the fundamentals of advertising and digital marketing
- Develop critical understanding of the creative and strategic processes behind advertising campaigns.
- Equip themselves with practical skills in digital marketing tools and platforms.
- Analyze the ethical considerations and emerging trends in the digital advertising landscape.

SYLLABUS OF DSE HH 7C2

THEORY
(Credits 2; Hours 30)

UNIT I: Concepts of Advertising and Digital Marketing

8 Hours

This unit provides an in-depth understanding of the fundamental concepts, historical evolution, and practical applications of advertising and digital marketing. It highlights their role in shaping businesses and influencing consumer behavior in a digital-first world.

- Definition, Scope, and Importance of Advertising and Digital Marketing
- Historical Evolution and Key Milestones in Advertising

- Types of Advertising: Print, Broadcast, Outdoor, and Digital
- Elements of an Advertisement: Headline, Visuals, Copy, Logo, and Tagline
- Ethical Considerations in Advertising Practices
- Introduction to Digital Marketing: Definition, Scope, and Relevance
- Digital Marketing Channels: Search Engines, Social Media, Email, and Websites
- Search Engine Optimization (SEO) and Marketing (SEM)

UNIT II: Social Media Marketing and Online Advertising

7 Hours

This unit explores the growing role of social media platforms and digital tools in modern advertising strategies. It covers the fundamentals of social media marketing (SMM), including platform-specific approaches, ad formats, and audience targeting techniques.

- Social Media Marketing (SMM): Platforms, Content Creation, and Audience Engagement
- Consumers marketing psychology behind their decision making.
- Power of digital communities and social influence.
- Paid Advertising Models: Pay-Per-Click (PPC), Display Ads, and Affiliate Marketing

UNIT III: Consumer Behavior and Data Analytics

7 Hours

This unit focuses on understanding the target audience and analyzing data to improve marketing effectiveness.

- Understanding consumer behavior and decision-making processes
- Understand the opportunities and challenges presented by online communities.
- Data analytics and tracking tools: Google Analytics, Facebook Insights
- Key performance indicators (KPIs) in digital marketing campaigns
- Role of Artificial Intelligence (AI) and machine learning in digital marketing

UNIT IV: Campaign Development and Trends

8 Hours

This unit explains concept of advertising and digital marketing strategies

- Practical insights into creating and executing advertising and digital marketing campaigns.
- Steps in creating an advertising campaign: research, strategy, design, and evaluation
- Integrated Marketing Communication (IMC)
- Emerging trends: influencer marketing, programmatic advertising, AR/VR in campaigns
- Case studies of successful advertising and digital marketing campaigns

PRACTICAL (Credit 2; Hours 60)

- Ad Campaign Design
- SEO and Content Creation
- Social Media Marketing
- Data Analytics
- Case Study Analysis
- Portfolio Development
- Measuring Results to Enhance Business Success

Essential Readings

- Belch, G. & Belch, M. (2017). *Advertising and Promotion: An Integrated Marketing Communications Perspective*. McGraw Hill Education.
- Chaffey, D. & Ellis-Chadwick, F. (2022). *Digital Marketing: Strategy, Implementation, and Practice*. Pearson Education.
- Kotler, P. & Keller, K. (2022). *Marketing Management*. Pearson Education.
- Ryan, D. (2020). *Understanding Digital Marketing*. Kogan Page.

Suggested Readings

- Moran, M. & Hunt, B. (2020). *Search Engine Marketing*, Inc. IBM Press.
- YouTube and LinkedIn Learning Tutorials on Digital Marketing (as accessed in 2023).
- Case studies and industry reports from Google, Facebook, and HubSpot.
- Kamath K. (2024). *Social Media Marketing Essentials You Always Wanted To Know*. Vibrant Publishers.
- Vibrant Publishers. (2020). *Digital marketing essentials you always wanted to know*.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HH 7C3: NGO MANAGEMENT, CORPORATE SOCIAL RESPONSIBILITY & FUNDRAISING

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits				Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical / Practice		
NGO Management, Corporate Social Responsibility & Fundraising DSE HH 7C3	4	2	0	2	Class XII	Nil

Learning Objectives

- To foster a foundational understanding of NGO structures, operations, and strategies for successful networking and fundraising.
- To build essential management skills and analytical abilities for effective NGO management.
- To cultivate an understanding of the concept of Corporate Social Responsibility (CSR) and its significance in developing economies and raise awareness about CSR initiatives undertaken in India.
- To create understanding about the processes and strategies for fundraising.

Learning Outcomes

The students will be able to:

- Demonstrate key management competencies and analytical skills required to address challenges in NGO operations.
- Explain the organizational structures and operational frameworks of NGOs and design effective strategies for networking and resource mobilization.
- Understand the concept of Corporate Social Responsibility (CSR) and its relevance and implementation in the Indian context.
- Develop practical knowledge of diverse fundraising strategies and apply these concepts to create effective fundraising plans for NGOs.

SYLLABUS OF DSE HH 7C3

THEORY
(Credits 2; Hours 30)

UNIT I: Development Organizations and Civil Society

8 Hours

This unit explores the foundational concepts and evolution of development organizations, including NGOs and civil society groups, and their role in social transformation.

- Development Organizations: Types, genesis, vision, mission, values
- Ideological and legal frameworks guiding development organizations
- NGOs and Civil Society groups: Historical and contemporary perspectives
- Role of civil society in development

UNIT II: Corporate Social Responsibility and Development

8 hours

This unit introduces CSR concepts and historical evolution, while emphasizing its linkages to development organizations and the broader development context.

- CSR: Definition, concept, and linkages to development
- Growth of CSR: Historical and contemporary perspectives (national & international)
- CSR activities – nature, types, and impact on development
- CSR and development organizations: Relationships and organizational impact
- Government initiatives to promote CSR

UNIT III: Strategic Perspectives on CSR and Fundraising

7 Hours

This unit covers deeper strategic and ideological aspects influencing CSR and introduces fundraising as a complementary strategy for organizational sustainability.

- Factors influencing CSR growth: Ideological, socio-economic, legal, and environmental
- Strategic role of CSR in organizational sustainability
- Fundraising: Importance, nature, and sources
- Principles and theories of fundraising
- Types of funding agencies and nature of support
- Inter-sectoral partnerships and synergies

UNIT IV: Fundraising Ethics, Donor Behaviour, and Sustainability

7 hours

This unit focuses on ethical fundraising practices, donor motivations, and how fundraising efforts impact the sustainability of development organizations.

- Financial and non-financial funding: Sources and mobilization strategies
- Donor behaviour: Economic, psychological, and sociological drivers
- Brand marketing and philanthropy
- Fundraising ethics, ethical decision-making, and code of fundraising
- Impact of fundraising on development initiatives and organizational sustainability
- Credibility, accountability, and sustainability of development actions

PRACTICAL (Credits 2; Hours 60)

- Case study of a national and an international NGO
- Case Study of CSR initiatives
- Visits to CSR projects
- Understanding CSR Strategies-objectives, approaches, roles and tasks of a corporate managers
- Fundamentals of Fundraising Planning, designing a plan for your own fundraising activity- with objectives, writing objectives, segmentation, positioning, branding and making the case for support.
- Designing Communication strategies to appeal to donors for fundraising.
- Audit communications to enhance their effectiveness in both monetary terms, compelling case for

support

- Understanding project proposals for grants and developing fund raising plans and strategies.

Essential Readings

- Chatterji, M. (2014). Corporate Social Responsibility. New Delhi : Oxford University
- Communication, Governance. UK: Cambridge University Press.R. Kumar, S. L. Goel. (2005). Administration and Management of NGOs: Text and Case Studies Paperback. Deep Publications, India. ISBN 8176296015.
- Mandal, B.N (2012). Corporate Social Responsibility in India. Global Vision Publishing House: Delhi.
- Narang R.K. (2009). Corporate Social Responsibility-Replicable Models on Sustainable Development. New Delhi: The Energy & Resources Institute. Press.
- S. Chandra (2003). Guidelines for NGO Management in India. Kanishka Distributors, New Delhi. ISBN 978-8173916038.

Suggested Readings

- Abraham, A. (2003). Formation and Management of NGOs. Third Edition, Universal Law Publishing Co. Pvt Ltd., New Delhi. ISBN 9350350122.
- Agarwal, S.K. (2008). Corporate Social Responsibility in India, Sage publication Pvt. Ltd. <https://doi.org/10.4135/9788132100027>.
- D. Lewis (2001). Management of Non-Governmental Development Organization. Second Edition, Routledge, New York. ISBN 9780203002162.
- Grayson D., Hodges A. (2004). Corporate Social Responsibility- Seven Steps to Make Corporate Social Responsibility Work For Your Business. UK: Greenleaf Publishing Limited.
- Lewis. D. (2014). Non-governmental Organizations: Management and Development. 3rd Edition. Routledge. ISBN 9781138294097.
- Rasche, A; Morsing, M; Moon, J. (2017). Corporate Social Responsibility: Strategy,
- Subedi, N R, (2008). Advocacy Strategies and Approaches: A Training of Trainers Manual. International Centre for Integrated Mountain Development (ICIMOD). ISBN : 9291150830
- Sundar, P. (2013). Business and Community: The Story of Corporate Social Responsibility in India. New Delhi, Sage Publication. ISBN 978-81-321-0955-6.
- Til, J.V. (1988). Mapping the Third Sector: Voluntarism in a Changing Social Economy. Foundation Centre, New York. ISBN 0879542403.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HH 7C4: INFORMATION AND COMMUNICATION TECHNOLOGIES
FOR DEVELOPMENT

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Information and Communication Technologies for Development DSE HH 7C4	4	3	1	0	Class XII	Nil

Learning Objectives

- To examine the role of Information and Communication Technologies (ICTs) in fostering economic, social, political, and environmental development
- To enhance awareness about ICT initiatives across various sectors
- To provide an understanding of the relationship between ICTs and Alternate Media
- To familiarize learners with the strategies for creating innovative and effective ICT-based tools and assess their efficacy

Learning Objectives

The students will be able to:

- Examine the relationship between ICTs and Development.
- Acquire knowledge about the effective usage of ICTs for social change and development.
- Address the national and global development concerns by using ICTs effectively.
- Understand the impact of ICT on different areas of development, such as poverty alleviation, education, healthcare, governance, and environmental sustainability.
- Know the convergence between ICTs and Alternate Media for development

SYLLABUS OF DSE HH 7C4

THEORY
(Credits 3; Hours 45)

UNIT I: Introduction to ICTs

7 Hours

This unit elaborates upon the concept and evolution of ICTs. It highlights the issue of Digital divide and gender divide. The unit also highlights development of ICTs and their role in global development.

- Understanding ICTs: Meaning, Definition
- Overview of ICTs: Internet, mobile technology, social media, digital platforms, etc.
- Evolution and Growth of ICTs: National and International platforms
- Second Communication Revolution, Digitalization, Cultural globalization and ICTs
- Classification of ICTs: Traditional and modern ICTs and their relevance to development
- Disparities and Divides: Digital Divide, Global and National Scenario, Gender and regional differences
- Limitations and challenges of ICTs: Challenges and opportunities for ICT both in urban and rural areas.
- Government policies & Programs for use of ICT Development and Digital literacy

UNIT II: Theoretical Foundations of ICTs

7 Hours

This unit explores the learning theories and their implications for using ICTs and highlights the various indices related to ICTs.

- Perspectives and theories: Technology as Amplifier, Transfer and Diffusion of Technology
- ICT related development Indices
- Design Thinking & ICTs: Use of Principles of Design Thinking and Human Centered Design approach for developing ICT tools and strategies to use them

UNIT III: ICT's in Addressing National and Global Development Concerns

15 Hours

This unit focuses on various media such as radio, television, mobile applications and new media as tools for development. It highlights the role of ICTs as catalyst for development. The unit also covers the various initiatives of national and international level to address the global development challenges and the strategies to combat them.

- Radio, Television, New Media and Mobile as a tool for ICT
- Stakeholders in ICT projects, funding patterns and management
- Creating networks, partnerships and collaborations for use of ICTs
- Concept and characteristics of Networked Societies
- Role of ICTs in Livelihood development and Poverty Reduction, Governance, Education, sustainable agriculture; Environment protection & Climate change, Disaster Risk reduction and Empowerment of women
- National and international ICT policies for development
- Study, Analysis and design of ICT tools for development focusing on diversity and inclusion
- Cyber security and Data Privacy: Challenges and solutions in ensuring the security of digital platforms for development.
- National Cyber Crime Reporting Portal and Incident Reporting

UNIT IV: ICTs and Alternative Media

15 Hours

This unit explains the concept of alternative media and its role in society. It also explores the interconnection of ICTs with alternative media. The unit analyzes the impact of ICTs on development and dissemination of alternative media.

- Concepts and characteristics of Community media
- Community media policy: Growth, National and international perspectives ICTs
- Traditional media as Community media
- Social networking sites and Multimedia platforms
- Participatory content creation and building engaging user experiences around ICTs
- Alternative print media- Characteristics, Strengths and Weakness
- Metaphors of Community Media- Alternative media, Citizens Media and People's media
- Digital Media for Development: Social media platforms, digital storytelling, community radio, podcasts, and their role in creating social change
- Artificial Intelligence and Development
- Computer mediated communication & development- Types, importance and Significance

TUTORIAL (Credits 1; Hours 15)

- Analysis of case studies of successful ICT4D (Information and Communication Technologies for Development) projects/programmes in India and worldwide.
- Review of various internet-based platforms and applications for development.

Essential Readings

- Heeks, R. (2018) . *Information and Communication Technology for Development (ICT4D)*. Routledge Publications, UK: ISBN-978-1138101814
- Mishra, RC. (2010). *Cyber Crime Impact in the New Millenium*, Author Press
- Pannu, P., & Tomar, Y. A. (2010). *ICT4D Information Communication Technology for Development*. IK International Pvt Ltd.
- Tongia, R., Subrahmanian, E. & Arunachalam, V. (2005). *Information and Communications Technology for Sustainable Development*. Bangalore: Allied Publishers
- Unwin, T. (Ed.) (2009). *ICT4D: Information and Communication Technology for Development*. Cambridge: Cambridge University Press.

Suggested Readings

- Buckingham, D. (2008). *Youth, Identity, and Digital Media*. The John D. and Catherine T. MacArthur Foundation Series on Digital Media and Learning. Cambridge, MA: The MIT Press.
- GoM. (2020). *Cyber Security Awareness Booklet for Citizens. Volume 1*. Office of Special Inspector General of Police Maharashtra Cyber, Home Department. Government of Maharashtra
<https://cybercrime.gov.in/pdf/Cyber%20Security%20Awareness%20Booklet%20for%20Citizens.pdf>
- Hassan, R. & Thomas, J. (2006). *The New Media Theory*. Open University Press.
- Kihirwadkar A, Pushpanadan, (2006), *Information and Communication Technology in Education*, Sarup and Sons, Delhi. Chapter- 1,2,3
- Kukkonen, H.O. & Kukkonen, H.O. (2015). *Humanizing the Web: Change and Social Innovation (Technology, Work and Globalization)*. New Delhi: Palgrave Macmillan.
- Marshall, P. D. (2004). *New Media Cultures, Information and Communication Technology for Development*. Hodder Stoughton Educational
- MoHA. (2021). *Cyber Hygiene for Cyber Space - Dos and Don'ts Basics*. Ministry of Home Affairs.
https://cybercrime.gov.in/pdf/Final_English_Manual_Basic.pdf
- Preston, P. (2001). *Reshaping Communication: Technology, Information and Social Change*.

London, California, New Delhi: Sage Publications. DOI:
<http://dx.doi.org/10.4135/9781446222164>

- Vanaja, M. & Rajasekar, S. (2016). Information & Communication Technology (ICT) In Education. New Delhi: Neelkamal Publications.
- Warschauer, M. (2004). Technology and Social Inclusion: Rethinking the Digital Divide. MIT Press (MA).
- Weigel, G. & Waldburger, D. (Eds.) (2004). *ICT4D – Connecting People For A Better World. Lessons, Innovations and Perspectives of Information and Communication Technologies in Development*. Berne: Swiss Agency for Development and Cooperation (SDC) and the Global Knowledge Partnership (GKP)

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DISCIPLINE SPECIFIC ELECTIVE COURSE

DSE HH 7D1- HISTORIC COSTUMES

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code		Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical/ Practice		
Historic Costumes DSE HH 7D1	4	3	1	0	Class XII	Nil

Learning Objectives

- To study the development of costume from ancient times to the 19th century, considering socio-cultural and technological changes.
- To create awareness and understanding of the styles and special features in costume through the ages.

Learning Outcomes

The students will be able to:

- Understand the evolution of western costume.
- Gain awareness of different styles and special features in costume through the ages.
- Draw inspiration from the long-established styles for designing.

SYLLABUS OF DSE HH 7D1

THEORY

(Credits 3; Hours 45)

UNIT I: Origin of Costumes

6 Hours

This unit outlines the historical perspective of origin of costumes.

1. Sources of information for historic costumes

- Archaeological excavations and discoveries
- Ancient literature, chronicles and archival records
- Museums and art galleries
- Sculpture and pottery

2. The origin of costume
3. Costumes through the ages- inspiration for designing and styling

UNIT II: Costumes in Early Civilizations

10 Hours

This unit focuses on the origin and evolution of Costumes in the ancient civilizations (300 BC-300 AD)

- Mesopotamia
- Egypt
- Greece
- Rome
- India

UNIT III: Costumes in the Middle Ages and Renaissance

13 Hours

This unit traces the development of European costumes during the Middle Ages and its advancement in the 15th and 16th century (Renaissance).

The feudal ages (1100 AD- 1300AD)

- The late middle ages (1300AD-1500AD)
- Renaissance: Italy, France, England
- India: Mughal period

UNIT IV: Costumes in 17th to 19th century

16 Hours

This unit highlights the changes and developments in European costumes through different eras from 17th to 19th century reflecting social milieu and technological advancements.

- Baroque and Rococo periods - France and England
- French Revolution and thereafter (1790AD-1900AD)
- The Directoire and Empire period (1790AD-1820AD)
- The Romantic period (1820A.D-1850AD)
- The Crinoline period (1850 AD-1869AD)
- The Bustle period (1870 AD- 1900 AD)

TUTORIAL (Credit 1; Hours 15)

1. To discuss and design garments and accessories inspired from any one ancient civilization.
2. Group discussion on highlighting development in textiles and costumes during 17th -19th century:-

- Baroque and Rococo periods - France and England
- The Directoire and Empire period (1790AD-1820AD)
- The Romantic period (1820A.D-1850AD)
- The Crinoline period (1850 AD- 1869AD)
- The Bustle period (1870 AD-1900 AD)

3. To make a report or presentation on any two design collections of eminent designers inspired by historic costumes.
4. Case study of a historical figure (Eg Queen Elizabeth I, Emperor Akbar, Louis XIII etc.) for analyzing their costume with reference to textile materials and colours used, styling of garments, silhouette, accessories etc.
5. Group discussion on influence of socio-cultural, technological factors on styling of costumes.

Essential Readings

- Tortora, P. G. and Marcketti, S. B. (2015) Survey of Historic Costume, Fairchild Books.
- Alkazi, R. (1983) Ancient Indian Costume, Art Heritage Books.
- Black, J. A. and Garland M. (1978) A History of Fashion, London: Orbis Publishing Ltd.

Suggested Readings

- Cumming, V. (2004) Understanding Fashion History, London: Batsford.
- Lester, K.M. (1956) Historic Costume, Illinois: Chas A Bennett Co. Inc.
- Peacock, J. (2007) The Chronicle of Western Costume, Thames and Hudson.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HH 7D2: DYEING, PRINTING AND FINISHING

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code		Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the Course (if any)
			Tutorial	Practical		
Dyeing, Printing and Finishing DSE HH 7D2	4	2	0	2	Class XII	Nil

Learning Objectives

- To gain knowledge of the fundamentals of dyeing and printing on textiles.
- To analyse the application of different dyes on various textile substrates.
- To study various kinds of finishing processes on textile fabrics.

Learning Outcomes

The students will be able to:

- Understand the chemistry of various dye classes.
- Describe the process of dyeing and printing various fibres with different dyes.
- Describe methods and styles of printing fabrics.
- Understand concepts of mechanical and chemical finishing of textiles.

SYLLABUS OF DSE HH 7D2

THEORY
(Credits 2; Hours 30)

UNIT I: Dyeing

10 Hours

In this unit, the students will learn about the chemistry and application of various dye classes on various fibre substrates.

- Theory of dyeing
- Chemistry and application of various dye classes: Direct, Reactive, Vat, Azoic, Sulphur, Acid, Basic, Disperse
- Natural Dyes and Mordants: Plant dyes, Mineral based dyes, Animal dyes

UNIT II: Printing

10 Hours

In this unit, the students will learn about the various methods and styles of printing and printing of

various textile substrates.

- Methods of printing: Block, Roller, Screen (flatbed, rotary)
- Styles of printing: Direct, Resist, Discharge, Transfer, Digital, Flock
- Finishing and after treatment of printed goods: Ageing, Steaming, Baking, washing-off

UNIT III: Measurement of Colour and Colour Fastness

4 Hours

In this unit, students will gain an understanding of the concept and measurement of colour fastness

- Colour theory
- Concept of colour measurement: Optical density, K/S, $L^*a^*b^*$, $L^*c^*h^*$ values
- Principle of colour fastness and its measurement: Wash, Light, Rub, Perspiration

UNIT IV: Finishing

6 Hours

In this unit the students will learn about the chemistry and function of various common finishes applied to textiles

- Classification of finishes
- Preparatory finishes: For Cellulosic, Proteins and Synthetic fibres
- Aesthetic Finishes
- Functional Finishes

PRACTICAL **(Credit 2; Hours 60)**

1. Preparatory Finishing: Cellulosic and Protein fibres
 - Desizing
 - Scouring
 - Bleaching
 - Mercerisation
2. Dyeing
 - Cotton using Direct, Reactive, Vat and Azo dyes
 - Silk and wool using Acid, Basic and Reactive dyes
 - Acrylic using Basic Dyes
 - Polyester using Disperse dyes
 - Selected natural dyes on cotton
3. Printing
 - Screen Printing of cotton using Direct, Reactive and Azoic dyes
 - Resist printing of cotton using Azo dyes
 - Discharge printing of cotton using Direct dyes
4. Colour Fastness Measurement
 - Wash fastness
 - Crock fastness
 - Perspiration fastness

5. Colour Measurement

- Optical Density
- K/S
- $L^*a^*b^*$
- $L^*c^*h^*$

Essential Readings

- Trotman, E. R. (1984) *Dyeing and Chemical Technology of fibres*, Sixth edition, England: Charles Griffin and Company Ltd.
- Rastogi, D. and Chopra, S.(Eds.) (2017)*Textile science*, India: Orient Black Swan Publishing Limited
- Miles, L.W.C. (1994) *Textile Printing*, 2nd ed., West Yorkshire: Society of Dyers and Colorists, England.
- Sekhri S. (2022) *Textbook of Fabric Science: Fundamentals to finishing*, 4th ed., PHI Learning Pvt. Ltd. Delhi
- सेखड़ी सीमा, (2022) वस्त्र ववज्ञान, PHI Learning Pvt. Ltd. Delhi

Suggested Readings

- Aspland J. R., (1997) *Textile Dyeing and Colouration*, NC: AATCC.
- Clarke, W. (1977) *An Introduction to Textile Printing*, London: Butterworth and Co. Ltd.
- Shenai, V.A. (1987) *Chemistry of Dyes and Principles of Dyeing*, Vol II, Bombay: Sevak Publications.
- Shore, John (Ed) (1990) *Colorants and Auxiliaries: Organic Chemistry and Application Properties*, Vol. 1 & 2, West Yorkshire: Society of Dyers and Colorists, England.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HH 7D3: FASHION MARKETING AND MERCHANDISING

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical		
Fashion Marketing and Merchandising DSE HH 7D3	4	2	0	2	Class XII	Nil

Learning Objectives

- To understand the fundamentals of fashion retailing and merchandise planning.
- To study core marketing principles, including product and brand management.
- To gain insights into pricing and promotional strategies in the fashion retail industry.

Learning Outcomes

The students will be able to:

- Knowledge of merchandising activities in a retail setup
- Develop and apply effective Merchandise Planning, Assortment Management, and Inventory Control techniques in a retail setting
- Knowledge of Product Planning and development, and Brand Management Strategies.
- Skill to deliver the customer value through Integrated Marketing Communication strategy.
- Design customer driven Marketing Mix strategy.

SYLLABUS OF DSE HH 703

THEORY
(Credits 2; Hours 30)

UNIT I: Fundamentals of Marketing Management

4 Hours

In this unit, students will gain knowledge of the foundational principles of marketing. They will understand the importance of the 4P's of marketing and learn to segment and target markets effectively.

- Importance and Scope of Marketing
- Market Segmentation and Targeting

UNIT II: Product Pricing, and Promotion Strategies

14 Hours

In this unit students learn to develop strong brands, differentiate products, and create effective marketing communications. It covers product lifecycle management, brand management, positioning, pricing, and promotional strategies..

- Product Mix, Classification & Lifecycle
- Branding Strategies
- Product Positioning & Differentiation
- Pricing Strategies (New Product & Product Mix)
- Developing And Managing Advertising Programs
- Sales Promotion & Personal Selling

UNIT III: Introduction to Fashion Retailing

6 Hours

In this unit, students will explore the retail environment, its emerging trends, and various types of retail formats. They will also learn the importance of visual merchandising in driving customer engagement and enhancing sales.

- Overview of Retail Environment and Emerging Trends
- Classification of Retail Institutions and Formats
- Visual Merchandising in Retail

UNIT IV: Merchandise Planning and Management

6 Hours

This unit focuses on the core concepts of merchandising, types of merchandise, and effective planning techniques. Students will understand how to create assortment plans and set appropriate inventory levels to meet market demands.

- Concept of Merchandising
- Merchandise Categories: Staple, Fashion, and Seasonal
- Assortment Planning
- Setting Product Availability and Inventory Levels

PRACTICAL

(Credit 2; Hours 60)

1. Demographic Analysis of the Indian Market

- Study and analyze the demographics and psychographics of the Indian market to understand consumer preferences, purchasing behaviour, and market segmentation.

2. Branding and Positioning Strategies

- **Case Study Analysis:** Select a renowned fashion brand and evaluate its branding (focusing on brand identity, attributes etc.) and its positioning strategies in the Indian market.
- **Create a Brand Strategy:** Develop a comprehensive branding framework for a hypothetical brand, including logo, tagline, and positioning statement, highlighting its unique selling propositions (USP) and differentiation strategies.
- **Competitor Analysis:** Compare and contrast the branding and positioning strategies of two competing brands.

3. Visual Merchandising and Customer Engagement

- **Store Visit and Analysis:** Observe and document the visual merchandising strategies of a retail store, assessing its impact on customer engagement and sales.
- **Design and Develop:** Create a visual merchandising display concept for a fashion retail store, incorporating elements like layout, color schemes, and product placement.

4. Promotion and Communication Strategies

- **Promotion Analysis:** Examine the influence of promotional activities, such as advertising campaigns, discounts, and offers, on consumer behaviour and purchase decisions.
- **Develop a Communication Strategy:** Create a promotional plan for a hypothetical fashion brand, integrating both traditional media (print, television) and social media platforms targeting a specific demographic.

5. Retail Trends and Innovation

- **New Retail Formats:** Study and analyze how brands use new retail formats such as pop-up stores, concept stores, and hybrid stores to attract customers.
- **Channels Effectiveness:** Compare the effectiveness of two marketing channels (e.g., e-commerce vs. social commerce) for driving sales / Explore the use and impact of marketing channels such as influencer marketing, social commerce, e-commerce, mobile apps, and loyalty programs.

6. Merchandise Planning and Assortment Development

- Develop an assortment plan for a specific product category for a retail store, focusing on branding and positioning to align with target consumer preference

Essential Readings

- Levy, M, Weitz, B.A. and Pandit, A. (2008) *Retailing Management*, Delhi: Tata McGraw Hill Education Private Limited.
- Kotler, P., Keller, K.L., Koshy, A. and Jha, M. (2012) *Marketing Management* 14th ed.: Pearson.
- Pegler, M. (2006) *Visual Merchandising and Display*, New York: Fairchild Publications Inc.
- Clark, J. (2014) *Fashion Merchandising Principles and practice*, Suffolk: Lavenham press ltd.

Suggested Readings

- Diamond, J., Diamond, E. and Litt, S.D. (2006) *Fashion Retailing- A Multi- Channel Approach*: Bloomsbury Publishing Inc.
- Jain, J.N. and Singh, P.P. (2007) *Modern Marketing Management- Principles and Techniques*. New Delhi: Regal Publications.
- Kunz, I. and Grace 3rd ed. (2009) *Merchandising*, New York: Fairchild publications, Inc.
- Posner, H. (2015) *Marketing Fashion –Strategy, Branding and promotion*, 2nd ed., Laurence King Publishing.
- Robbins, P.S. and Dcenzo, A. D. (2005). *Fundamentals of management- essential concepts and Applications* 5th ed. : Pearson education Inc, Dorling kindersley (India) pvt. ltd.

- Belch, E. G. and Belch, A.M. (2003). Advertising and Promotion- An integrated marketing communications perspective 6th ed.: Tata McGraw-Hill publishing company ltd.
- Poloian, G.L.(2009). Multichannel Retailing : Fairchild Books-New York.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HH 7D4: GARMENT MANUFACTURING

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code		Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical/ Practice		
Garment Manufacturing DSE HH 7D4	4	2	0	2	Class XII	Nil

Learning Objectives

- To develop an understanding of the garment industry's structure, operations, and key functional areas.
- To comprehend the processes involved in garment production, including pre-production, production, and post-production stages.
- To gain familiarity with the various materials, machines, tools, and equipment used in garment manufacturing.

Learning Outcomes

- Enable students to understand the functioning of the garment industry, including its processes and technical parameters in garment production.
- Enhance students' awareness of sewn products, machinery, and equipment, preparing them for professional roles within the garment industry.

SYLLABUS OF DSE HH 7D4

THEORY
(Credits 2; Hours 30)

UNIT I: Introduction to the Garment Industry

4 Hours

This unit offers a foundation in garment industry workflows, production systems, standards, and specifications.

- Overview of the garment industry, its key sectors, and their roles
- Standards and specifications
- Production systems

UNIT II: Pre-Production Processes

5 Hours

This unit focuses on pre-production processes like pattern making, sampling, fabric sourcing and the role of time and motion studies in enhancing productivity.

- Pre-production processes- Recording measurements, Pattern making, Sampling, Fabric development, and sourcing, Preparation of specification sheet/Tech-pack, Production planning & control
- Time and motion study- Introduction, the effect of time and motion study on productivity in the garment sector

UNIT III: In-production Processes in Garment Manufacturing

15 Hours

This unit covers key in-production processes in garment manufacturing, including marker-making, fabric spreading, cutting, and fusing. It also explores stitching tools, techniques, and machine mechanisms, emphasizing efficiency and quality control.

- Marker-making- planning, production, efficiency, methods of making
- Spreading of fabric- requirements, methods of spreading
- Cutting- methods and tools, ticketing and bundling
- Fusing- advantages, requirements, processes, equipment, methods, and quality control
- Stitching- types of sewing machines: general and special purpose machines
- Types of sewing needles and threads
- Stitch types and seam types- suitability and usage
- Machine beds and feed mechanisms in sewing machines

UNIT IV: Post-Production Processes in Garment Manufacturing

6 Hours

This unit covers key post-production processes, focusing on quality evaluation of garment components. It also explores finishing techniques such as trimming, pressing, packing, and shipment preparation for market-ready products.

- Evaluating the quality and fit of various garment components- neckline, collars, sleeves, cuffs, plackets, pockets, seams, hemlines, darts, pleats, gathers, flares, tucks, yokes, waistbands.
- Garment finishing- Thread trimming, stain removal, cleaning, dry-cleaning, pressing, checking, folding and packing, warehousing and shipment

PRACTICAL (Credits 2; Hours 60)

1. Developing patterns for bodices with added fullness
2. Developing variations in sleeves- bishop, puff, and short lantern styles
3. Creating collar variations- basic shawl collar and bushirt collar
4. Drafting of women's lower garment (trouser/variations of skirts/ palazzo)

5. Construction of a formal top for self with design elements such as a Peter Pan collar on an altered neckline, mandarin collar, or shawl collar, with a shirtmaker or bishop sleeve and a placket with a suitable fastener.
6. Construction of a skirt or bifurcated garment for self, featuring a waistband, inseam side-hip pocket, and placket with a suitable fastener.

Essential Readings

- Armstrong, H. J. (2014). *Pattern making for fashion design* (5th ed.). Dorling Kindersley, New Delhi.
- Brown, P., & Rice, J. (2014). *Ready to wear apparel analysis* (4th ed.). Pearson Education. New Delhi
- Tyler, D.J. (2008). *Carr and Latham's technology of clothing manufacture* (4th ed.). Blackwell, UK.
- Cooklin, G. (2006). *Introduction to clothing manufacture* (2nd ed.). Blackwell, UK.
- Liechty, E. et.al. (2010). *Fitting and pattern alteration: A multi-method approach to the art of style selection, fitting and alteration*. (2nd ed.). Fairchild Publications. New York.

Suggested Readings

- Aggarwal, J., Yadav, S., & Sonee, N. (2024). *Manual for B.Sc. Home Science pattern making and apparel construction*. Elite Publishing House. New Delhi
- Aldrich, W. (2008). *Metric pattern cutting for women's wear* (5th ed.). Blackwell. UK
- Azad, N. (2019). *Sewing technology*. Neelkanth Publishers Pvt. Ltd. New Delhi
- Dunham, G. R. (2021). *The fitting book: Make sewing pattern alterations and achieve the perfect fit you desire*. Gina Renee Designs Publication.
- Glock, R. E., & Kuntz, G. I. (2009). *Apparel manufacturing: Sewn product analysis*. (4th ed.). Pearson Education, New Delhi.
- MacDonald, N. M. (2010). *Principles of flat-pattern design* (3rd ed.). Fairchild Books. New York.
- Pepin, H. (1947). *Modern pattern design: the complete guide to the creation of patterns as a means of designing smart wearing apparel*. Funk and Wagnalls. New York.
- Reader's Digest (Eds.). (2002). *New complete guide to sewing: Step-by-step techniques for making clothes and home accessories*. Reader's Digest, New York
- Stamper, A. A., Sharp, S. H., & Donnell, L. B. (2005). *Evaluating apparel quality* (2nd ed.). Fairchild. New York

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HH 7E1: HUMAN FACTORS AND ERGONOMICS

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code		Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical		
Human Factors and Ergonomics DSE HH 7E1	4	2	0	2	Class XII	Nil

Learning Objectives

- To sensitize the students towards the importance of ergonomics and its application in daily life
- To understand components of worker inputs
- To develop understanding of functional design and arrangement of workplaces and equipment
- To identify human and workplace factors which contribute to ergonomic hazards
- To develop aptitude in identifying the product / space design problems at place of work

Learning Outcomes

The students will be able to:

- Understand the concept, history and importance of ergonomics in designing.
- Recognize and appreciate the scope of ergonomics in the professional arena
- Develop skills in taking anthropometric measurements as applied to different work stations.
- Apprehend the techniques of conducting time & motion and energy studies.
- Critically evaluate and design different workstations & equipment with respect to their functional effectiveness.

SYLLABUS OF DSE HH 7E1

THEORY
(Credits 2; Hours 30)

UNIT I: Introduction to Human Factors and Ergonomics

8 Hours

This unit introduces the students to the concept of ergonomics and anthropometry and their importance in daily life

- Ergonomics- concept, significance, history, application of Ergonomics in daily life
- Anthropometry – History and its application in interior designing for different work areas and workers
- Human-Centred Design- Design Thinking concept and methodology

UNIT II: The User Component

6 Hours

This unit highlights the importance of various components of worker inputs

- Physical: Bio-mechanics of human movement and musculo-skeletal system, Anatomical position, reference planes and movements
- Temporal
- Cognitive
- Affective

UNIT III: Workplace and Equipment Design

12 Hours

This unit focuses on the functional design of workplaces, work study techniques, indices of indoor comfort and man- machine interface.

- Functional design and arrangement of workplaces
- Work study- Time and motion study, energy study
- Indices of indoor comfort: ventilation, lighting, temperature, noise
- Human Machine Interface- controls and displays

UNIT IV: Risk factors in Ergonomics

4 Hours

This unit provides insight into the occupational safety and health at workplace.

- Identifying ergonomic hazards
- Occupational safety and health at workplace - Applications of ergonomics in different work environments

PRACTICAL (Credits 2; Hours 60)

1. Anthropometric Measurements

8 Hours

- Basic Anthropometry of a selected demography

2. Work Study

8 Hours

- Time and motion study
- Energy study - Physiological cost of workload

3. Kitchen plans

20 Hours

- Prepare floor and elevation plans for different types of kitchen

4. Indices of internal comfort

6 Hours

- Testing suitability of selected environmental factors at a workplace

5. Ergonomic Assessment and Occupational safety analysis of Workplaces

18 Hours

- Case study of a selected workplace - Identifying and assessing workplace for a selected occupation, analysis of posture and equipment used, suggestions for improvement in process of the activity
- Designing workstation/equipment suitable to the selected occupation

Essential Readings

- Bridger, R. (2017). *Introduction to Human Factors and Ergonomics*. CRC Press.
- Salvendy, G. (2012). *Handbook of Human Factors and Ergonomics*. John Wiley & Sons.
- Chakrabarti, D. (1997). *Indian Anthropometric Dimensions for Ergonomic Design Practice*. National Institute of Design.
- Tosi, F. (2019). *Design for Ergonomics*. Springer Nature.
- Steidl, R.E. & Bratton, E.C. (1968). *Work in the Home*. John Wiley & Sons Inc.

Suggested Readings

- Hedge, A. (2016). *Ergonomic Workplace Design for Health, Wellness, and Productivity*. CRC Press.
- Stanton, N. A., Hedge, A., Brookhuis, K., Salas, E., & Hendrick, H. W. (2004). *Handbook of Human Factors and Ergonomics Methods*. CRC Press.
- Helander, M. (2005). *A Guide to Human Factors and Ergonomics* (2nd ed.). CRC Press.
- Shorrock, S., & Williams, C. (2016). *Human Factors and Ergonomics in Practice: Improving System Performance and Human Well-Being in the Real World*. CRC Press.
- DeChiara, J., Panero, J., & Zelnik, M. (2017). *Time-saver standards for interior design and space planning* (2nd ed.). McGraw-Hill Education.
- Neufert, E., & Neufert, P. (2019). *Architects' data* (5th ed.). John Wiley & Sons.

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DISCIPLINE SPECIFIC ELECTIVE COURSE

DSE HH 7E2: ADVANCED INTERIOR DESIGN

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code		Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical		
Advanced Interior Design DSE HH 7E2	4	2	0	2	Class XII	Nil

Learning Objectives

- To gain knowledge of advanced interior design principles elements.
- To apply their knowledge to design functional and aesthetically pleasing interior spaces.
- To critically analyze and evaluate design solutions.

Learning Outcomes

The students will be able to:

- Comprehend the principles and practices of interior design.
- Gain knowledge and necessary skills to design functional, aesthetically pleasing, and sustainable interior spaces.
- Analyze and evaluate design solutions, considering essential interior design elements.
- Engage in creative thinking and problem-solving abilities in the context of interior design.
- Get into entry-level positions in the interior design industry.

SYLLABUS OF DSE HH 7E2

THEORY (Credits 2; Hours 30)

UNIT I: INTERIORS AND ITS CONSTRUCTION

8 Hours

This unit explores the essential elements of interior finishes and their construction, types, materials, and applications.

- Partition, paneling and false ceiling
 - Construction of paneling
 - Types of Panelling – full partition, part partition, construction of partitions
 - Materials used for paneling-ply, glass, gypsum, P.O.P, partition types
 - Types of flooring and their applications

UNIT II: SANITARY WARE AND LIGHTING SYSTEMS IN INTERIORS

8 Hours

This unit explores types, uses, layouts, materials, and finishes of sanitary ware, along with interior and exterior lighting types and fixtures.

- Sanitary ware
 - Various types of sanitary ware and their use
 - Types of layouts – concepts in modern day toilet interiors
 - Materials & finishes – colour, texture & pattern.
- Lighting
 - Different types of lighting for interiors and exteriors
 - Lighting fixtures

UNIT III: BASICS OF FURNITURE CONSTRUCTION AND FURNISHINGS

8 Hours

This unit explores the fundamental principles of furniture design and construction, encompassing measurement systems, furniture construction techniques, finishing processes and upholstery.

- Measurement systems
- Types of Furniture and its Construction
- Types of finishes and preparation of finishing specific to Furniture Materials
- Upholstry materials – Types and Selection

UNIT IV: PROJECT ESTIMATION

6 Hours

This unit explores the key aspects of project estimation including estimation, budgeting, proposals, tenders, record keeping and filing.

- Specifications of materials
- Estimating & budgeting: Types of cost estimations and preparing estimates and budgets
- Proposals & tenders
- Implementation of plan of work and meeting deadlines

PRACTICAL (Credits 2; Hours 60)

1. Floor plan of Studio apartment/ Bedroom/ Living room with elevation plan/ section plan of the same; Create 3D views of the plans (Manual/CAD) **30 Hours**
 2. Preparation of a ceiling plan **06 Hours**
 3. Preparation of wall panelling/ partition. **04 Hours**
 4. Preparation of electrical layout plan. **06 Hours**
 5. Preparation of plumbing layout plan indicating various fittings and fixtures of water supply and sanitary installations. **06 Hours**
 6. Survey on concepts in modern day interiors – materials & finishes **06 Hours**
- OR**
7. Create a mood board based on a style/ theme for interior designing of a selected area; create a setup for the same.
 8. Create a portfolio of the interior design plans made in class **02 Hours**

Essential Readings

- Kennedy, J. (2021). *Launch Into Interior Design: A Beginner's Guide to the Industry*. Kennedy Literary Agency.
- Ramstedt, F. (2020). *The Interior Design Handbook*. Particular Books.
- Leslie, F. (2000). *Designs for the 20th Century Interiors*. Victoria & Albert Museum.
- Ching, F. D. K. (2015). *Architecture: Form, Space and Order* (4th ed.). New Jersey: John Wiley & Sons Inc.
- Poore, J. (1995). *Interior Color by Design: A Design Tool for Architects, Interior Designers, and Homeowners*. Betterway Books.

Suggested Readings

- Pile, J. (2012). *Interior Design: A Comprehensive Guide*. Harry N. Abrams, Inc.
- Grimley, C., & Love, M. (2018). *The Interior Design Reference & Specification Book Updated & Revised: Everything Interior Designers Need to Know Every Day*. Rockport Publishers Incorporated.
- Diamonstein-Spielvogel, B., & Diamonstein, B. (1982). *Interior Design, the New Freedom*. Rizzoli International Publications.
- DeChiara, J., Panero, J., & Zelnik, M. (2017). *Time-saver standards for interior design and space planning* (2nd ed.). McGraw-Hill Education.
- Neufert, E., & Neufert, P. (2019). *Architects' data* (5th ed.). John Wiley & Sons.

Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE COURSE

DSE HH 7E3: RESOURCES AND SUSTAINABLE DEVELOPMENT

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code		Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture		Practical		
Resources and Sustainable Development DSE HH 7E3	4	2	0	2	Class XII	Nil

Learning Objectives

- To build an inter-disciplinary perspective on understanding environmental concerns, sustainable development and its challenges.
- To familiarize students with current debates and perspectives with respect to sustainable development.
- To familiarize students with the concepts of sustainable resource management.
- To develop skills and competencies amongst students with regard to energy, water and waste management.

Learning outcomes

The students will be able to:

- Build an understanding of environmental concerns, sustainable development and its challenges.
- Understand the concept of resources and developmental issues with respect to sustainable development.
- Develop skills in sustainable resource management.

SYLLABUS OF DSE HH 7E3

THEORY (Credit 2; Hours 30)

UNIT I: Introduction to Sustainable Development

9 Hours

This unit introduces the concept, need, principles, and goals of sustainable development, along with key global milestones and initiatives.

- Concept of sustainable development
- Need, objectives and principles of sustainable development
- National and international milestones, initiatives, summits and protocols
- Sustainable Development Goals (SDGs)

UNIT II: Resources and Developmental Issues

7 Hours

This unit explores environmental challenges, resource consumption and sustainable resource management.

- Environmental concerns, population explosion, urbanization, globalization, economic development, ecological footprint, carbon footprint
- Perspectives in resource consumption
- Sustainable management of key resources: Land, green cover, water, air, waste

UNIT III: Sustainable Resource Management

7 Hours

This unit covers sustainable management of energy, water, waste, and air through strategies like energy auditing, rainwater harvesting, and air quality monitoring.

- Energy management – star labelling, energy auditing, renewable energy
- Water management – Rain water harvesting- Calculation of rainwater harvesting potential, water auditing, waste water recycling, water testing
- Waste management – Waste to energy plants, waste to wealth
- Air management – Air quality, AQI

UNIT IV: Green practices by industry

7 Hours

This unit throws light on green practices by industry and green building rating systems.

- Sustainable practices by industry
- CSR initiatives
- Green buildings: need and importance
- Green building rating systems

PRACTICAL

(Credit 2; Hours: 60)

UNIT I: SUSTAINABLE DEVELOPMENT INITIATIVES

- Case studies on sustainable initiatives/CSR initiatives by industry
- Creation of awareness generation material for issues related to sustainable development
- Organizing events/competitions to commemorate important environment related days/ Current issues related to environment and sustainable development
- Calculation of ecological and carbon footprint using various applications and websites
- Case studies on green buildings

UNIT II: ENERGY MANAGEMENT

- Understanding electricity bills: components and calculations
- Understanding BEE star labels as an initiative towards sustainable energy consumption
- Energy auditing for sustainable energy management
- Portfolio/Survey on renewable energy products available in the market

UNIT III: AIR, WATER AND WASTE MANAGEMENT

- Air/noise/water testing, AQI applications and websites
- Green modes of transportation, E-vehicles: components and calculations
- Composting for sustainable waste management
- Case studies on waste management

Essential Readings

- Thakur, B., Thakur, R. R., Chattopadhyay, S., & Abhay, R. K. (Eds.). (2023). *Resource management, sustainable development and governance: India and international perspectives*. Springer.
- Prasad, R., Jhariya, M. K., & Banerjee, A. (2021). *Advances in sustainable development and management of environmental and natural resources: Economic outlook and opinions*. CRC Press, Taylor & Francis Group.
- Goel, S. (Ed.). (2016). *Management of resources for sustainable development*. Blackswan Publications.
- Somayaji, G., & Somayaji, S. (2009). *Environmental concerns and sustainable development: Some perspectives from India*. TERI Publication.
- Sundar, I. (2006). *Environment and sustainable development*. APH Publishing Corporation.

Suggested Readings

- Patel, B. N., & Nagar, R. (2018). *Sustainable development and India*. Oxford University Press India.
- Filho, W. L., Rogers, J., & Raniga, U. I. (Eds.). (2018). *Sustainable development research in the Asia-Pacific region: Education, cities, infrastructure and buildings* (World Sustainability Series). Springer.
- UN Millennium Project. (2005). *Innovation: Applying knowledge in development*. Science, Technology and Innovation Task Force Report.
- World Bank. (2006). *Enhancing agricultural innovation: How to go beyond the strengthening of research systems*. World Bank: Agriculture and Rural Development.

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DISCIPLINE SPECIFIC ELECTIVE COURSE

DSE HH 7E4: MARKETING MANAGEMENT AND CONSUMER BEHAVIOUR

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code		Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical		
Marketing Management and Consumer Behaviour DSE HH 7E4	4	3	1	0	Class XII	Nil

Learning Objectives

- To impart an understanding of the conceptual framework, scope and importance of marketing management.
- To build an understanding of the macro and micro environment of organisations and their role in coping with changing market scenario.
- To impart knowledge regarding importance and techniques of market research.
- To create an understanding about consumer behaviour, dealing with competition in the market and managing marketing communication.

Learning Outcomes

The students will be able to:

- Develop an understanding of the importance and scope of marketing.
- Understand the changing macro and micro environment of organizations and importance of market research.
- Understand consumer behaviour and importance of creating customer value.
- Develop an understanding of the competitive strategies in marketing.
- Understanding the role of marketing communication and its effectiveness.

SYLLABUS OF DSE HH 7E4

THEORY (Credits 3; Hours 45)

UNIT I: Understanding Marketing Management and capturing marketing insight

11 Hours

This unit covers marketing scope, company orientations, macro environment analysis, marketing mix, market research, and new product development.

- Importance and scope of marketing, traditional vs. digital marketing
- Company orientations towards markets and marketing
- Adapting marketing to new economy
- Analyzing the macro environment (demographic, economic, technological, political, legal, social, cultural)
- Marketing mix
- Conducting market research
- New product development-challenges and process

UNIT II: Consumer Behaviour

11 Hours

This unit examines consumer behaviour, factors influencing buying decisions and strategies for customer value, satisfaction, and loyalty.

- Definition, Nature, Scope, Consumer Behaviour's Applications in Marketing
- Factors influencing consumer behaviour
- Consumer Adoption Process-stages and factors influencing
- Buying decision process- five stage model
- Creating customer value, satisfaction and loyalty
- Segmenting consumer markets, market targeting

UNIT III: Dealing with Competition

12 Hours

This unit covers competitor analysis, competitive strategies and service marketing.

- Identify and analyse competitors, competitive strategies for marketing
- Building strong brands- creating brand equity, brand positioning, differentiation strategies
- Product life-cycle marketing strategies
- Characteristics of services, marketing strategies for service firms, managing service quality, differentiating services

UNIT IV: Marketing Communication

11 Hours

This unit throws light on effective marketing communication.

- Role of marketing communication
- Designing effective marketing communication
- Managing mass communication: Advertising, sales promotions and public relations
- Managing Personal Communication: direct marketing and personal selling

TUTORIAL (Credit 1; Hours 15)

- **Market research proposals**
 - Developing market research proposals on consumer buying behaviour, effect of promotional schemes on consumer purchase, consumer satisfaction and opinion regarding selected products/brands/marketing strategies, online purchasing etc.

- **Brand comparison**
 - Brand comparisons of products and services in terms of their marketing strategies, tools used by them for brand building and generating brand, find out their strengths and weaknesses and suggest suitable marketing strategies to increase their market share.
- **E-commerce**
 - Assessment and critical analysis of online retailing websites with focus on visibility, user interface, experience, ease of transaction etc.
 - To develop an e-tailing prototype.
- **Case Studies**
 - To develop an understanding of marketing strategies with emphasis on marketing mix, marketing budgets, creating customer value and cultivating customer relationships.
 - To critically evaluate digital marketing strategies adopted by various product and service brands.
 - To develop digital marketing strategy for a hypothetical brand.

Essential Readings

- Project Management Institute. (2021). *A Guide to the Project Management Body of Knowledge- PMBOK Guide-Seventh Edition*. American National Standard, ANSI/PMI99-001-2021
- Project Management Institute. (2013). *A Guide to the Project Management Body of Knowledge- 5th Edition*. American National Standard, ISBN: 9781935589679
- Meredith J. R., Shafer S. M., and Mantel S. J. Jr. (2021). *Project Management: A Managerial Approach, (11th ED.)*. John Wiley & Sons Inc.
- 4. Jain, G.L. (2014). *Project Management: A Managerial Approach*. DND Publications, ISBN-10. 9380929765 · ISBN-13. 978-9380929767

Suggested Readings

- Erickson T., Khatri, P.V. (2015). *Project Management*. Global Vision Publishing House, ISBN-13: 978-9381695418
- Horine, G. (2017). *Project management absolute beginner's guide (4th ed.)*. Que Publishings
- Nagarajan, K. (2010). *Project Management (6th ed.)*. New Age International Pvt. Ltd.
- Prasanna and Chandra. (2017). *Projects: Planning, Analysis, Selection, Financing, Implementation, and Review*. McGraw Hill Education, ISBN-13 978-9332902572
- Spinner, P. (1991). *Elements of Project Management: Plan, Schedule, and Control*. Prentice Hall, USA, ISBN 13: 9780132532464

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दिल्ली विश्वविद्यालय

UNIVERSITY OF DELHI

Bachelor of Science (Honours) Home Science

Semester VIII



Date:

Under UGCF-2022 based on NEP-2020

(Effective from Academic Year 2022-23)

Syllabus as approved by Academic Council

Executive Council

Department of Home Science
B.Sc. (Honours) Home Science
Semester-VIII

Paper No	Paper Title	Credits		
		Theory	Practical	Tutorial
DSC HH 820	Social Policy and National Development	3	-	1
DSE HH 8A1	Developmental Psychology for India	3	-	1
DSE HH 8A2	Women and Gender Studies	2	2	-
DSE HH 8A3	Diversity, Equity and Inclusion	2	2	-
DSE HH 8A4	Parenting, Guidance and Counseling across the Lifespan	2	2	-
DSE HH 8B1	Clinical Nutrition: Theory to Practice	2	2	-
DSE HH 8B2	Nutritional Biochemistry-II	2	2	-
DSE HH 8B3	Policies and Programmes in Public Health Nutrition	3	-	1
DSE HH 8B4	Perspectives in Food Safety	2	2	-
DSE HH 8C1	Corporate Communication and Public Relations	3	-	1
DSE HH 8C2	Advocacy for Change: Health and Environment	2	2	-
DSE HH 8C3	Programme Monitoring and Evaluation	2	2	-
DSE HH 8C4	Livelihood Systems and Social Entrepreneurship	2	2	-
DSE HH 8D1	Historic Textiles	3	-	1
DSE HH 8D2	Home Textiles	2	2	-
DSE HH 8D3	Textile Conservation	2	2	-
DSE HH 8D4	Sustainability in Textiles and Apparel	2	2	-
DSE HH 8E1	Product Design and Development	2	2	-
DSE HH 8E2	Project Management	2	2	-
DSE HH 8E3	Sustainable Built Environment: Concepts and Practices	2	2	-
DSE HH 8E4	Design Application and Practices	3	-	1

DISCIPLINE SPECIFIC CORE COURSE
DSC HH 820: SOCIAL POLICY AND NATIONAL DEVELOPMENT

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSC HH 820 Social Policy and National Development	4	3	1	0	Studied Semester 6	Nil

Learning Objectives

- To understand the fundamental concepts, theories, and historical evolution of social policy and its role in national development.
- To analyse sectoral dimensions of social policy in India, including health, education, employment, and environmental sustainability.
- To explore the intersection of social policy and marginalized communities, focusing on equity, inclusion, and regional disparities.
- To evaluate challenges in policy formulation, global perspectives, and innovations in social policy, including the role of governance and partnerships.

Learning Outcomes

The student will be able

- Demonstrate a comprehensive understanding of social policy, its theoretical foundations, and its application to national development.
- Critically assess the effectiveness of sector-specific policies and programs in addressing social and economic challenges.
- Analyze the impact of social policies on marginalized groups and suggest strategies for promoting equity and inclusion.
- Develop insights into contemporary debates, global best practices, and innovative approaches in social policy formulation and implementation.

SYLLABUS OF DSC HH 820

THEORY (Credits 3; 45 Hours)

UNIT I: Foundations of Social Policy and National Development 10 hours

This unit explores the foundational concepts, theories, and models of social policy and their relevance to national development. It examines the historical evolution of social policies in India post-independence and highlights global and national frameworks like the HDI, MPI, and SDGs.

- Concepts and Definitions: Social policy, national development, welfare state, and inclusive growth.
- Theoretical Perspectives: Key theories of social policy (functionalism, conflict theory, institutionalism).
- Models of social policy (The Residual Welfare Model of Social Policy, The Industrial Achievement-Performance Model of Social Policy and The Institutional Redistributive Model of Social Policy)
- Historical Context: Evolution of social policies in India post-independence.
- Frameworks and Indicators: Understanding Human Development Index (HDI), Multidimensional Poverty Index (MPI), and Sustainable Development Goals (SDGs).

UNIT II: Sectoral Dimensions of Social Policy in India 13 hours

This unit delves into sectoral aspects of social policy, focusing on health, education, employment, social protection, and environmental sustainability. It addresses contemporary national programs and the challenges of equitable access and implementation.

- Contemporary national development programs (related to poverty, education, health and nutrition, employment, women etc)
- Health: Public health policies, National Health Mission, challenges of universal healthcare.
- Education: Right to Education (RTE), National Education Policy (NEP), and challenges in quality and access.
- Employment and Livelihoods: Policies for skill development, employment generation, and social security.
- Social Protection: Overview of PDS, MGNREGA, and pension schemes.
- Environment, climate change and sustainability
- Other Issues: digital divide, migration, and urban planning.

UNIT III: Social Policy and Marginalized Communities 12 hours

This unit focuses on the interplay between social policy and marginalized communities, exploring government initiatives, equity and inclusion strategies, and rural-urban dynamics. It emphasizes the vision and strategies for transformative national change.

- Social policy and government institutions: Niti Ayog, Ministry of social justice and empowerment, National Commissions and other bodies.
- Equity and Inclusion: Policies for SCs, STs, OBCs, minorities, and women
- Rural and Urban Perspectives: Addressing regional disparities, urbanization, and rural development policies.
- Viksit Bharat: The Vision, pillars and strategies for transformative change.

UNIT IV: Challenges and Contemporary Debates

10 hours

This unit addresses the challenges in policy formulation and implementation, incorporating global perspectives and innovative trends like social entrepreneurship. It evaluates policy impacts and the role of governance and partnerships in driving social change.

- Policy Formulation and Implementation: Role of governance, political will, and public-private partnerships.
- Global Perspectives: Lessons from international experiences in social policy and development.
- Policy Innovations: Emerging trends like social entrepreneurship and technology-driven interventions.
- Policy Impacts: Evaluating affirmative action and the role of NGOs and community-based organizations.

TUTORIAL (1 credit; 15 Hours)

- Policy Analysis Framework: How to critically evaluate a social policy using analytical tools such as SWOT analysis, cost-benefit analysis, and stakeholder mapping.
- Case Studies: Analysis of Indian policies, programs and initiatives in the areas of :
 - Agricultural development & food security
 - Poverty, livelihood and skill development
 - Health, Nutrition and well being
 - Food value chain, food processing industry and food safety
 - Gender and Development: Gender-responsive policies and empowerment frameworks.
 - Children, adolescents and youth
 - Elderly and people with disabilities
 - Textile Manufacturers , SMEs, Handloom and cottage industries and the craft sector
 - Environment , climate change and sustainability

Essential Readings

- Dreze, J., & Sen, A. (2013). *An uncertain glory: India and its contradictions*. Princeton University Press.
- Hill, M. (2003). *Understanding social policy*. Blackwell Publishing.
- International Labour Organization. (2019). *World social protection report 2017–19: Universal social protection to achieve the Sustainable Development Goals*. International Labour Office.
- Midgley, J. (1995). *Social development: The developmental perspective in social*

welfare. SAGE Publications.

- Ministry of Statistics and Programme Implementation, Government of India. (2023). *National Indicator Framework for SDGs: India 2023 update*. Government of India.
- Mishra, R. (1999). *Globalization and the welfare state*. Edward Elgar Publishing.
- Niti Aayog. (2022). *India's SDG index and dashboard 2022: States and Union Territories*. Niti Aayog.
- Titmuss, R. M. (1974). *Social policy: An introduction*. George Allen & Unwin.
- United Nations Development Programme. (2021). *Human development report 2021–22: Uncertain times, unsettled lives*. UNDP.

Suggested Readings

- Bhaduri, A., & Nayyar, D. (1996). *The intelligent person's guide to liberalization*. Penguin Books.
- Chandoke, N. (2003). *The politics of social policy in India*. SAGE Publications.
- Gough, I., & Wood, G. (2004). *Insecurity and welfare regimes in Asia, Africa, and Latin America*. Cambridge University Press.
- Grusky, D. B., & Kanbur, R. (Eds.). (2006). *Poverty and inequality*. Stanford University Press.
- Kabeer, N. (2005). *Inclusive citizenship: Meanings and expressions*. Zed Books.
- Rao, M., & Nair, M. (Eds.). (2021). *Public health challenges in contemporary India*. Springer Nature.
- Sen, A. (2009). *The idea of justice*. Harvard University Press.
- Standing, G. (2017). *Basic income: And how we can make it happen*. Penguin Books.
- UN-Habitat. (2022). *World cities report 2022: Envisaging the future of cities*. UN-Habitat.
- Walker, R., & Chase, E. (Eds.). (2014). *Poverty and social exclusion: New methods of analysis*. Policy Press.

DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HH 8A1: DEVELOPMENTAL PSYCHOLOGY FOR INDIA

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Developmental Psychology for India DSE HH 8A1	4	3	1	0	Appeared in Semester 7	Studied HDCS paper in previous semester

Learning Objectives

- To acquaint the students with the need and concept of a contextually relevant Developmental Psychology
- To develop students' understanding of the lifespan and contexts of care in India
- To appreciate culturally appropriate methods and perspectives to understand self and identity

Learning Outcomes

The students will be able to:

- Understand the relevance of cultural and indigenous perspectives on development
- Delineate life span development across diverse contexts in India
- Deliberate upon culturally appropriate understanding of self and identity

SYLLABUS OF DSE HH 8A1

THEORY
(Credits 3; Hours 45)

UNIT I: Contextualizing Developmental Psychology

15 Hours

This unit introduces the idea of a contextually relevant developmental psychology and the emerging themes of folk, indigenous and cultural psychology.

- Culture and human development: lifespan, domains, and contexts
- Limitations of a universalized psychology
- Folk psychology, indigenous psychology, and cultural studies in child development
- Developmental lessons from cultural psychology: child care, parenting, and ethnotheories

UNIT II: Indian Foundations of Developmental Psychology

12 Hours

This unit explores how historical, philosophical, and socio-cultural traditions in India shape developmental thought.

- Historical and cross-cultural perspectives on developmental psychology in India
- Life-span development in the Indian context
- Developmental themes in contemporary Indian research

UNIT III: Caregiving and Community Contexts in India

6 Hours

This unit emphasizes the multiple layers of caregiving in Indian childhoods and the family-community interface.

- Family as context for care and child development
- Multiple caregiving for young children
- Community contexts of care across childhood

UNIT IV: Self and Identity in the Indian Context

12 Hours

This unit discusses the various dimensions of self and identity development in contemporary Indian context.

- Conceptions of self in Indian philosophy
- Dimensions of selfhood across the life-span
- Socio-demographic variables in the construal of self: age, gender, social class, ethnicity, and historicity
- The social construction of identity

TUTORIAL (Credit 1; Hours 15)

1. Watch documentaries to understand indigenous practices of child care
2. Collect and discuss folktales or stories told to children from diverse communities
3. Workshop/session on self and identity development
4. Using secondary data, understand community models of care for children, policy formulation and intervention programs. (Group presentation)

Essential Readings:

- Anandalakshmy, S. (2010). *Through the lens of culture*. Monographs, Chennai: Bala mandir Research Trust.
- Arnett, J. J. (2008). The neglected 95%: Why American psychology needs to become less American. *American Psychologist*, 63(7), 602-614. DOI:10.1037/0003-066X.63.7.602
- Bhatia, S. (2017). *Decolonizing psychology: Globalization, social justice, and Indian youth identities*. Oxford University Press.
- Burman, E. (2017). *Deconstructing Developmental Psychology*. New York: Routledge.
- Chaudhary, N. (2004). *Listening to culture: Constructing reality from everyday talk*. Sage.
- Kakar, S., & Kakar, K. (2007). *The Indians: Portrait of a people*. Penguin-Viking
- Misra, G. (Ed.). (2011). *Handbook of psychology in India*. Oxford University Press
- *Psychology in Modern India: Historical, Methodological, and Future Perspectives*. Springer. DOI: 10.1007/978-981-16-4705-5_10.
- Saraswathi, T.S., Menon, S., & Madan, A. (2018). *Childhoods in India: Traditions, trends*

and transformations. New York: Routledge.

- Sinha, D. (1986). *Psychology in a third world country: An Indian experience*. Sage.
- Srivastava, A. K., & Misra, G. (2024). *A Contextual Approach to Human Development: Integrating an Indian Perspective*. Taylor & Francis.
- Yogananda, P. (2005). *Autobiography of a Yogi: The Original 1946 Edition plus Bonus Material*. Crystal Clarity Publishers.

Suggested Readings:

- Abebe, T., Dar, A., & Lyså, I. (2022). Southern theories and decolonial childhood studies. *Childhood*, 29. DOI: 10.1177/09075682221111690
- Burman, E. (2024). *Child as Method: Othering, Interiority and Materialism*. New York: Routledge.
- Scheidecker, G., Chaudhary, N., Keller, H., Mezzenzana, F., & Lancy, D. F. (2023). "Poor brain development" in the global South? Challenging the science of early childhood interventions. *Ethos*, 51(1), 3-26.
- Trommsdorff, G. (2023). Being sensitive in their own way: parental ethnotheories of caregiver sensitivity and child emotion regulation across five countries.
- Valsiner, J. (2023). *Farewell to Variables*. Charlotte: IAP. ISBN: 979-8-88730-187-7

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HH 8A2: WOMEN AND GENDER STUDIES

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Women and Gender Studies DSE HH 8A2	4	2	0	2	Class XII	Nil

Learning Objectives

- To understand key concepts in women and gender studies.
- To acquire knowledge of the biological, social and cultural determinants of gender
- To critically evaluate the impact of social structures on gendered experiences
- To gain insights about the history of women movements in India.

Learning Outcomes

By the end of this course, students will:

- Understand key concepts in women and gender studies.
- Acquire knowledge of the biological, social and cultural determinants of gender
- Be able to critically evaluate the impact of social structures on gendered experiences
- Gain insights about the history of women movements in India.

SYLLABUS OF DSE HH 8A2

THEORY
(Credits 2; Hours 30)

UNIT I: Introduction to Gender: Key Concepts

8 Hours

This unit introduces the various key concepts related to sex, gender sexuality and other related determinants

- Concept of sex, gender, sexuality, masculinity, femininity, and gender fluidity
- Biological and cultural determinants of gender
- Feminism and Women's Studies in the Indian context

UNIT II: Intersectionality and Gender Identities

7 Hours

This unit explores the intersecting identities that shape gender experiences.

- Gender and intersectionality: caste, class, disability
- Gender socialization: roles and stereotypes
- The social construction of masculinity

UNIT III: Gendered Structures and Representation

7 Hours

This unit examines how gender is reinforced and reproduced through institutions and media.

- Patriarchy and its influence on gender identity and roles
- Representation of gender in popular media (social media, advertisements, television, and films)
- Women in the workforce and economic inequality

UNIT IV: Gender, Violence, and Social Change

8 Hours

This unit focuses on gender-based violence and efforts to create safer, more equitable societies.

- Gender-based violence
- Domestic violence, sexual assault, and systemic issues
- Strategies to address, reduce, and prevent violence

PRACTICAL (Credit 2; Hours 60)

1. Using appropriate methods students will develop an understanding of social construction of gender by exploring:
 - Gender roles and gendered division of labor
 - Socialization for gender and gender inequality
 - Review of images of men and women
2. Understand gender positioning through films/documentaries
3. Review of songs, stories, mythology and other texts to understand representation of gender
4. Analysis and Review of selected issues: Analysis of gender-based indices for understanding the status of women in society
5. Placement in organizations (NGOs and Govt organizations) working in the area of Gender Empowerment

Essential Readings

- Agosin, M. (2003). *Women, Gender and Human Rights: A Global Perspective* (1st ed.). Rajasthan, India: Rawat.
- Andersen, M.L. (2003). *Thinking about Women: Sociological Perspectives on Sex and Gender*. Sixth Edition. New York: Macmillan Publishing Company.
- Chaudhuri, M. (2005). *Feminism in India: Issues in contemporary Indian Feminism*. New Delhi: Zed books.
- Das, B & Khawas, V. (2009). *Gender issues in development: Concerns for the 21st century*, edited by Bhaswati Das, and Vimal Khawas. New Delhi: Rawat Publications.

Suggested Readings

- Namdeo, R. Pushpa. (2017). Impact of education on decision-making ability of women. *Educational Quest: An International Journal of Education and Applied Social Science* 8, 431-434. <http://ndpublisher.in/admin/issues/EQv8spl7.pdf>
- Pandya, R. & Patel, S. (2010). *Women in the unorganised sector of India*. New Delhi: New Century Publication

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HH 8A3: DIVERSITY, EQUITY AND INCLUSION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical		
Diversity, Equity, and Inclusion DSE HH 8A3	4	2	0	2	Class XII	Nil

Learning Objectives

- To introduce students to the concepts of diversity, equity, and inclusion
- To explore the social, cultural, and historical contexts of disability.
- To understand inclusive practices and their significance in fostering equity.
- To equip students with skills to identify and address barriers to inclusion for individuals with disabilities.
- To promote awareness for creating accessible and inclusive environments.

Learning Outcomes

- Demonstrate an understanding of the principles of Disability Equity and Inclusion with a focus on disability.
- Identify challenges faced by individuals with disabilities in various domains.
- Propose practical solutions to promote inclusion and accessibility.
- Develop advocacy skills for advancing equity.

SYLLABUS OF DSE HH 8A3

THEORY
(Credits 2; Periods 30 Hours)

UNIT I: Introduction to Diversity, Equity, and Inclusion

10 Hours

This unit introduces core concepts and frameworks with a focus on disability as a lens to understand diversity.

- Concepts of diversity, equity and inclusion
- Understanding diversity through the framework of equity
- Equity in access to education, healthcare, employment, and justice
- Global and local DEI frameworks

UNIT II: Understanding Disability and Barriers to Inclusion

8 Hours

This unit explores the different types of disabilities and the various barriers that limit social inclusion.

- Types of disabilities: physical, sensory, intellectual, developmental, and psychosocial
- Models of Disability
- Physical, attitudinal, communication, and systemic barriers to inclusion
- Representation of disability in media, literature, and popular culture

UNIT III: Social Inclusion, Participation, and Advocacy

6 Hours

This unit focuses on promoting active participation of persons with disabilities and highlights the role of movements and culture.

- Promoting participation in social, cultural, and civic life
- Social Inclusion, Active Participation, and Advocacy Strategies
- Designing inclusive plans for schools, workplaces, or communities

UNIT IV: Inclusive Design and Legal Provisions

6 Hours

This unit presents actionable strategies and legal tools for implementing inclusion in various settings.

- Principles of Universal Design: accessibility in infrastructure, technology, and services
- Concept of inclusive education and reasonable accommodations
- Strategies for including students with disabilities in ECE and formal education
- National and International conventions for inclusion

PRACTICAL (2 CREDITS, 60 HOURS)

1. Talks and workshops: Disability rights activists and advocates. Experts on universal design and accessibility. Practitioners implementing inclusive education strategies.
2. Conduct a survey or interview with individuals to understand diverse perspectives on disability.
3. Conduct an accessibility audit of a public or institutional space and suggest improvements.
4. Analyze media representations of disability and present findings through a poster or short video
5. Collaborate in groups to simulate an advocacy campaign addressing a specific disability-related issue.
6. Workshops on adapting Teaching Learning Material for children with various disabilities
7. Planning workshops for ECE teachers/ educators/community on Disability, Inclusion and Equity.
8. Exploring lived experiences of children/adults with disability

Essential Readings

- Barnes, C., & Mercer, G. (2010). *Exploring Disability: A Sociological Introduction*. Polity Press.
- Chopra, G., (2012). *Stimulating Development of Disabilities at Anganwadi and at Home: A Practical Guide*. Engage Publications, New Delhi.
- Ghai, A. (2018). *Rethinking Disability in India*. Routledge.
- Mehrotra, N. (2011). Disability Rights Movements in India: Politics and Practice. *Economic & Political Weekly*, 46(6), 65.
- Rioux, M. H., & Valentine, F. (2006). *Critical Perspectives on Disability Rights*

Suggested Readings

- Government of India. *The Rights of Persons with Disabilities Act (RPWD)*, 2016. Ministry of Law and Justice.
- Rao, I., & Kalyanpur, M. (2008). *Disability, Gender, and Development: A Rights-Based Perspective*. SAGE.
- Burgstahler, S. (2015). *Universal Design in Higher Education: From Principles to Practice*. Harvard Education Press.
- United Nations Children's Fund (UNICEF). (2022). *Parenting Support for Parents of Children with Disabilities*.

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DISCIPLINE SPECIFIC ELECTIVE COURSE**DSE HH 8A4: PARENTING, GUIDANCE, AND COUNSELLING ACROSS THE LIFESPAN****CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE**

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Parenting, Guidance and Counselling Across the Lifespan DSE HH 8A4	4	2	0	2	Class XII	Nil

Learning Objectives

- To appreciate and understand key concepts and strategies of guidance and counselling across different life stages.
- To analyse the impact of various parenting styles and guidance techniques to child and adolescent development.
- To understand guidance and counselling strategies to support families and children facing developmental challenges.
- To familiarize with assessments to discern the psychological needs of children and families.
- To understand intervention techniques for addressing family and individual crises across the lifespan.

Learning Outcomes

By the end of this course, students will:

- Have core counselling skills, such as empathy, effective communication, and active listening, to support parents and caregivers in diverse cultural and social contexts.
- Be able to critically evaluate the effectiveness of different parenting approaches and guidance strategies for managing developmental, behavioral, and emotional challenges.
- Have personal and professional development in the fields of parenting, guidance, and counselling, encouraging reflective practice and continuous learning.

SYLLABUS OF DSE HH 8A4

THEORY (Credits 2; Hours 30)

UNIT I: Parenting and counselling throughout life span: Childhood and Adolescence **12 Hours**

This unit introduces the various key concepts of sex, gender sexuality and other related determinants

- Basic theories in guidance, and counselling
- Lifespan perspective on family dynamics and parenting
- Developmental characteristics and needs of early, middle childhood adolescents
- Communication and interpersonal relationship in parent/caregiver
- Guidance and counselling for parents and adolescents (sexuality, high risk behaviours, career decisions, psychosocial and emotional issues, conflict resolution)
- Life Skills Training during adolescence

UNIT II: Parenting and family dynamics: Adulthood and Transitions **6 Hours**

- Parenting and Family Dynamics in Adulthood
- Aging, Grand parenting, and Late-Life Parenting
- Guidance and Counselling Across Developmental Transitions (marriage, divorce, aging, retirement, loss, and grief)

Unit III: Parent counselling and diverse family systems **6 Hours**

- Counselling Families in Crisis
- Intervention in cases of abuse, neglect, addiction, and mental health issues
- Parenting and Counselling for diverse family structures

UNIT IV: Parenting, counselling and well-being **6 Hours**

- Parental Self-Care and Well-being
- Premarital counselling
- Genetic counselling
- Resources for parent education

PRACTICAL (Credit 2; Hours 60)

1. Conducting interviews and observation as a method of studying children and families.
2. Workshop on (any one atleast)
 - a. Skills of counselling (Rapport building, Communication skills, Empathy skills, Active listening skills, Responding skills, etc.)
 - b. Vocational guidance and counselling
 - c. Life Skills Education
3. Familiarising students with the specific Intelligence tests, Rating scales, checklists etc. through demonstrations and simulated practice in class.
4. Family Dynamics: Role-Play and Reflection Workshop

5. Parenting Style Assessment and Analysis: Students identify and analyze different parenting styles and their impacts on child development.
6. Visit to the institutions/child guidance centres/counselling centres providing counselling to children
7. Cultural and Diversity in Parenting Panel Discussion
8. Guidance strategy worksheets-Transition scenario cards (e.g., starting school, entering adolescence, marriage, retirement)
9. To equip students with practical skills in crisis counselling by simulating family crises. Crisis scenario cards (e.g., family conflict, mental health issues, addiction)

Essential Readings

- Kinra, A.K. (2008). *Guidance and counselling*. Pearson.
- Sahay, S, Deb, S. & Bhandra, S. (2019). *Childhood to Adolescence: Issues and Concerns*. Pearson.
- Parikshit Jobanputra. (2011). *Successful parenting (2nd ed.)* . SAGE India Publications Pvt. Ltd.
- Seligman, L. & Reichenberg L.W. (2001). *Theories of counselling and psychotherapy: Systems, strategies and skills*. Pearson.

Suggested Readings

- Eanes Rebecca, (2009), *Positive parenting*, J. P. Tarcher, U.S/ Perigee Bks, U.S.
- Edworthy, A. (2000). *Managing stress*. Buckingham: Open University Press.
- Gladding, S.T. (2009). *Counseling: A comprehensive profession*. New Delhi: Pearson.
- Golden, B. (2003). *Healthy anger: How to help children and teens manage their anger*. NY: Oxford University Press.
- Gumbiner, J. (2003). *Adolescent assessment*. New Jersey, NJ: Wiley & Sons.
- Jacobs, Ed. E., Mason, R.L., & Harvil, R.L. (2009). *Group counselling: Strategies and skills*. Canada: Cengage learning.
- Jolley, R.P. (2010). *Children & pictures: Drawing and understanding*. UK Wiley Blackwell
- Kinra, A.K. (2008). *Guidance and counselling*. New Delhi: Dolley Kindersley.
- Luz, R., George, A., Vieux, R., & Spitz, E. (2017). Antenatal determinants of parental attachment and parenting alliance: How do mothers and fathers differ?. *Infant Mental Health Journal*, 38(2), 183-197.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HH 8B1: CLINICAL NUTRITION: THEORY TO PRACTICE

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical		
Clinical Nutrition: Theory to Practice DSE HH 8B1	4	2	0	2	Class XII	Studied Dietetics and Public Health Nutrition I DSC HH 514 & Dietetics and Public Health Nutrition II DSE HH 7B1

Learning Objectives

- To understand the basic principles in the management of hospitalized patients using the nutrition care process.
- To understand the etiopathophysiology and metabolic anomalies of various disorders/ diseases and provide appropriate nutrition care and medical nutrition therapy (MNT) of various disorders / diseases
- To acquire basic skills in dietary counseling for management of various disease conditions

Learning Outcomes

- Develop an understanding about the basic principles in management of hospitalized patients
- Acquire an in depth understanding about the etiopathophysiology and metabolic anomalies and MNT of various disorders/diseases
- Learn the principles of dietary counseling in various diseases.

SYLLABUS OF DSE HH 8B1

THEORY (Credits 2; Hours 30)

UNIT I: Nutritional Care of Patients

8 Hours

Students will be introduced to the concept of nutrition care process, ethical issues in patient care and principles of medical nutrition therapy in a hospital setting for both outpatient & hospitalized patients. The concept of nutrition support systems will also be discussed.

- Nutrition care process
Nutritional screening and assessment of the patients – out patient & hospitalized patients
Nutrition diagnosis, nutrition care plan and implementation
Nutrition monitoring, evaluation and follow up
- Ethical issues in patient care
- Dietary counseling
- Nutrition support systems - Enteral and Parenteral Nutrition

UNIT II: Diseases and their medical nutrition therapy

12 Hours

Through this Unit, students will understand the etiopathophysiology, metabolic & clinical aberrations, diagnosis, complications, treatment, MNT and recent advances in different diseases/disorders. They will also be trained on disease specific dietary counseling.

- Metabolic disease: Diabetes Mellitus (Type 1, Type 2, Gestational Diabetes)
- Cardiovascular diseases: Metabolic Syndrome, Myocardial Infarction, Congestive heart failure
- Gastrointestinal disorders- IBD, Diverticular disease

UNIT III: Dietary management of hepatobiliary, lung and bone disorders

6 Hours

This Unit deals with the etiopathophysiology, metabolic & clinical aberrations, diagnosis, complications, treatment, MNT and recent advances in degenerative diseases/disorders.

- Hepatobiliary and pancreatic disorders- MAFLD, Liver Cirrhosis, Cholelithiasis, Cholecystitis, Pancreatitis
- Chronic Obstructive Pulmonary Disease
- Bone disorders – Osteoporosis, sarcopenia

UNIT IV: MNT in surgery

4 Hours

This Unit deals with the metabolic & clinical complications, treatment, MNT and recent advances in surgical care.

- Surgery: Pre and post-operative nutritional care
- Bariatric surgery: Types of bariatric surgery procedures, Indications and contraindications, Management of patient pre and post bariatric surgery

PRACTICAL
(Credits 2; Hours 60)

I. Assessment of Patient Needs – Nutritional Assessment and Screening **8 Hours**

- Nutritional interpretation of routine medical and laboratory data - Fasting and Post Prandial Blood Glucose, HbA1c, Lipid Profile, Liver Function Test

II. Planning and Preparation of Diets and Dietary Counseling for Following Diseases **44 Hours**

- Type 1 diabetes
- Type 2 diabetes
- Metabolic Syndrome/ Myocardial Infarction
- Congestive heart failure
- Diverticular disease
- MAFLD
- Pancreatitis
- Post-operative diet

III. Nutritional Management in Clinical Setting **8 Hours**

- Visit to hospital dietetics department
- Demonstration of dietary assessment software

Essential Readings:

- Indian Dietetics Association, (2018) Clinical Dietetics Manual, 2nd Edition. Elite Publishing House Pvt. Ltd.
- Khanna, K., Gupta, S., Seth, R., Passi, S.J., Seth, R., Mahna, R., Puri, S. (2013). Textbook of Nutrition and Dietetics. 2nd Edn. Phoenix Publishing House Pvt. Ltd.
- Raymond, J.L. and Morrow, K. (2020) Krause and Mahan's Food & the Nutrition Care Process. 15th ed. Saunders-Elsevier
- Seth, V. and Singh, K. (eds.) (2021) Principles of Medical Nutrition Therapy for Positive Clinical Outcomes, 1st Edition. Elite Publishing House Pvt. Ltd.

Suggested Readings

- Chowdhary, S.R. and Aeri, B.T. (2023) Textbook of Food Science and Nutrition. Aarahan Publishers. ISBN:978-93-87270-08-4 <https://amzn.eu/d/blLz8S8>
- Gibney, M.J., Elia M, Ljungqvist & Dowsett J. (2005) Clinical Nutrition. The Nutrition Society Textbook Series. Blackwell Publishing Company
- ICMR (2020) Estimated Average Requirements and Recommended Dietary Allowances for Indians. Published by National Institute of Nutrition, Hyderabad.
- Joshi Y. K. (2008) Basics of Clinical Nutrition 2nd ed. Jaypee Brothers Medical Publishers

- Longvah, T., Ananthan R, Bhaskarachary K and Venkaiah K (2017). Indian Food Composition Tables. National Institute of Nutrition, ICMR, Hyderabad.
- Puri, S., Bhagat, A., Aeri, BT, Sharma, A. (2019). Food Exchange List: A Tool for meal Planning. Elite Publishing House. New Delhi.
- Shils, M.E., Shike, M., Ross, A.C., Caballero, B. and Cousins, R.J. (2005) Modern Nutrition in Health and Disease. 10th ed. Lipincott, William and Wilkins.
- Siddhu, A., Bhatia, N., Singh, K., Gupta, S. (2017). Compilation of food exchange list, technical series 6, Lady Irwin College, University of Delhi. Publ. Global Books Organisation, Delhi
- Williams, S.R. (2001) Basic Nutrition and Diet Therapy. 11th ed. Times Mirror Mosby College Publishing

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HH 8B2: NUTRITIONAL BIOCHEMISTRY-II

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Nutritional Biochemistry -II DSE HH 8B2	4	2	0	2	Class XII	Studied Nutritional Biochemistry I DSE HH 5B1

Learning Objectives

- To attain knowledge on basic concepts of biochemistry.
- To obtain an insight into the role and significance of enzymes
- To develop an understanding of metabolism.

Learning Outcomes

- Develop an understanding of the principles of biochemistry (as applicable to human nutrition).
- Obtain an insight into chemistry of enzymes and major nutrients and physiologically important biomolecules.
- Understand the biological processes and systems as applicable to nutrition.
- Apply the knowledge acquired to human nutrition and dietetics.

SYLLABUS OF DSE HH 8B2

THEORY
(Credits 2; Hours 30)

UNIT I: Enzymes and Carbohydrate Metabolism

15 Hours

- Basic concepts-apoenzyme, holoenzyme, cofactor, prosthetic groups, concept of active site; allosteric enzymes
- Effect of pH, temperature, substrate concentration (K_m and V_{max}) on enzyme activity, Michaelis-Menton equation, Lineweaver-Burk plot
- Glycolysis
- Gluconeogenesis
- Pentose Phosphate Pathway
- Glycogenolysis
- Citric Acid Cycle
- Control of blood glucose (Metabolic-Hexokinase and Glucokinase and Hormonal-Insulin and glucagon/epinephrine)

UNIT II: Lipid Metabolism**5 Hours**

- β -Oxidation of saturated fatty acids
- Ketogenesis and ketosis

UNIT III: Protein Metabolism**5 Hours**

- Transamination of amino acids; Formation of glutamate and glutamine
- Urea cycle

UNIT IV: Nucleotide Metabolism**5 Hours**

- Structure of Nucleotides.
- Catabolism of purine and pyrimidine nucleotides

**PRACTICAL
(Credit 2; Hours 60)**

1. Preparation of normal and molar solutions.
2. Preparation of buffer (phosphate/ acetate).
3. Assay of enzyme (salivary amylase/ alkaline phosphatase).
4. Effect of pH/ temperature on enzyme activity.
5. Estimation of protein using Biuret method.
6. Estimation of cholesterol.
7. Quantitative estimation of DNA.
8. Quantitative estimation of RNA.
9. Assignment on disorders of carbohydrate/ protein/ nucleotide metabolism.

Essential Readings:

- Rodwell, Victor W., David Bender, and Kathleen M. Botham. Harper's Illustrated Biochemistry (31st ed.) New York: McGraw-Hill Medical.
- Nelson, D. L. and Cox, M. M. (2021). Lehninger Principles of Biochemistry (7th ed.). Macmillan Learning.
- Satyanarayana, U & Chakrapani U. (2021). Biochemistry (6th ed.). Elsevier.
- Devlin TM. (2010) Textbook of biochemistry with Clinical Correlations (7th ed.) John Wiley and Sons.

Suggested Readings:

- Stryer, L., Berg, J., Tymoczko, J., Gatto, G. (2019). Biochemistry (9th ed.). New York, WH: Freeman. ISBN-13: 9781319114671.
- Voet, D., Voet. J. G. (2013). Biochemistry (4th ed.). New Jersey, John Wiley & Sons Asia Pvt. Ltd. ISBN: 978-1-11809244-6.
- Plummer, D. T. (1998). An Introduction to Practical Biochemistry. (3rd ed.). Tata McGraw Hill Education Pvt. Ltd. (New Delhi). ISBN: 13: 9780070994874 / ISBN:10: 0070994870.
- Garret, R.H., Grisham, C.M. (2016). Biochemistry (6th ed.). Boston, Cengage Learning. ISBN-10: 1133106293, ISBN-13: 978-1133106296.

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DISCIPLINE SPECIFIC ELECTIVE COURSE**DSE HH 8B3: POLICIES AND PROGRAMMES IN PUBLIC HEALTH NUTRITION****CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE**

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSE HH 8B3 Policies and Programmes in Public Health Nutrition	4	3	1	0	Studied Sem 6	Pass in DSE HH 7B1 (Dietetics and Public Nutrition-II)

Learning Objectives

- To study the various approaches and strategies for improving nutrition and health status of the community.
- To gain an insight into meaning and relevance of a policy, and the policies on nutrition, health, food security and population in India.
- To get an exposure to the programmes for improving nutritional status and health among the population in India.

Learning Outcomes

- Understand the different approaches and strategies for improving nutrition and health status of the community.
- Get acquainted with the purpose and relevance of a policy, and policies on nutrition, health, food security and population.
- Become familiar with the various programmes for improving and nutritional status and health of the population in India.

SYLLABUS OF DSE HH 8B3**THEORY**
(Credits 3; Hours 45)**UNIT I: Approaches and Strategies for Improving Nutrition and Health Status of the Community**
16 Hours

This unit deals with health-based, food-based, education-based and other approaches and strategies for improving nutrition and health status of the community.

- Health based interventions including immunization, provision of safe drinking water/ sanitation, prevention and management of diarrhoeal diseases, other health services such as antenatal care, deworming, medicinal supplements

- Food based interventions including food fortification, dietary diversification, supplementary nutrition programmes and biotechnological approaches
- Education based interventions including growth monitoring and promotion (GMP), health/nutrition related social and behaviour change communication
- Other Approaches such as Conditional Cash Transfer, Livelihood and Women Led Income Generation

UNIT II: National Policies for Improving Nutrition and Health Status of the Population **9 Hours**

This unit deals with the meaning, purpose and relevance of a policy, and the national policies on nutrition, health, food security and population.

- Policy – Meaning and purpose
- Relevance of multi-sectoral policies in public health nutrition
- National Nutrition Policy and National Nutrition Strategy
- National Health Policy
- National Food Security Act
- National Population Policy

UNIT III: Programmes for Improving Nutrition and Health Status of the Population **17 Hours**

This unit deals with various programmes for improving nutrition and health status of the population including programmes for prevention of nutritional deficiencies, and programmes especially focusing on maternal, infant, young child and adolescent nutrition and health.

- Health programmes: National Health Mission, Ayushman Bharat and Pradhan Mantri Jan Arogya Yojana (PM-JAY), National Tuberculosis Control Programme, National Diarrhoeal Diseases Control Programme, Universal Immunization Programme, National Programme for Prevention and Control of Non-Communicable Diseases (NP-NCD)
- Programmes for prevention of nutritional deficiencies (Vitamin A, Iron, Iodine)
- Programmes for maternal, infant, young child and adolescent nutrition and health - POSHAN Abhiyan, ICDS/Poshan 2.0 and Saksham Anganwadis, Pradhan Mantri-Poshan Shakti Nirman (PM-POSHAN), Scheme for Adolescent Girls, Janani Suraksha Yojana, Pradhan Mantri Matru Vandana Yojana

UNIT IV: Programmes for Provision of Water and Sanitation Facilities **3 Hours**

This unit deals with initiatives for provision of water and sanitation facilities to the population.

- Jal Jeevan Mission
- Swachh Bharat Mission

TUTORIAL **(Credit 1; Hours 15)**

1. Development of low cost recipes for vulnerable groups: infants, preschoolers, adolescents, pregnant women, lactating mothers, and elderly.

2. Planning of cyclic menu for school feeding programme.
3. Growth monitoring – Plotting growth charts and interpretation.
4. Planning and preparation of aids/tools for creating nutrition awareness among vulnerable population groups.
5. Development of a Fact Sheet on nutrition and health problems among vulnerable population groups based on surveys/programme data/research evidence available in the public domain.

Essential Readings:

- Park, K. (2023). Park's Textbook of Preventive and Social Medicine (27th ed.), Jabalpur, India: Banarasidas Bhanot Publishers.
- Vir, S.C. (2023). Child, Adolescent and Woman Nutrition in India: Public Policies, programmes and Progress. KW Publishers Pvt. Ltd.
- Vir, S.C. (2021). Public Health Nutrition in Developing Countries. Volume-II, 2nd edition. Woodhead Publishing India Pvt Ltd.
- Longvah, T., Ananthan, R., Bhaskarachary, K. and Venkaiah, K. (2017). Indian Food Composition Tables. National Institute of Nutrition, ICMR, Hyderabad.

Suggested Readings:

- Bamji, M.S., Krishnaswamy, K. and Brahman, G.N.V. (Eds) (2016). Textbook of Human Nutrition, 4th edition. Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi.
- ICMR-NIN Expert Group on Nutrient Requirement for Indians, Recommended Dietary Allowances (RDA) and Estimated Average Requirements (EAR) - 2020. ICMR-National Institute of Nutrition, Hyderabad.
- Chadha, R. and Mathur, P. (eds.) (2015). Nutrition A Lifecycle Approach. New Delhi, India: Orient Blackswan Pvt. Ltd.
- Gibney, M.J., Margetts, B.M., Kearney, J.M. Arab, I., (Eds) (2004) Public Health Nutrition, NS Blackwell Publishing.
- Dietary Guidelines for Indians (2024). ICMR-National Institute of Nutrition, Hyderabad.
- Khanna, K, Gupta, S, Seth, R, Mahna, R, Rekhi, T (2018) The Art and science of Cooking. Fifth Edition. Elite Publishing House Pvt. Ltd.
- Raina, U., Kashyap, S., Narula, V., Thomas, S., Suvira, Vir, S., Chopra, S. (2010) Basic food preparation. (4th ed.) Lady Irwin College.
- Indian government websites – Ministry of Health and Family Welfare, Ministry of Women and Child development, NITI Aayog etc.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HH 8B4: PERSPECTIVES IN FOOD SAFETY

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITE OF THE COURSE

Course title & code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Theory	Tutorial	Practical/ Practice		
Perspectives in Food Safety DSE HH 8B4	4	2	0	2	Class XII	Nil

Learning Objectives

- Understand the basic concept of food safety in terms of related hazards
- Gain knowledge about emerging pathogens and chemical hazards in context of food safety
- Impart knowledge about various processes for management of food safety hazards in the food industry and at the household level

Learning Outcomes

- Explain the relevance of food safety and relate it with health and economy
- Identify different food hazards and the mode of their entry into food
- Comprehend and apply the Food Safety Management Processes including General principles of Hygiene, HACCP, Risk analysis for management of food safety hazards
- Describe the food safety regulations at national and international level

SYLLABUS OF DSE HH 8B4

THEORY
(Credits 2; Hours 30)

UNIT I: Introduction to Food Safety

10 Hours

This unit introduces the types of hazards associated with food, the relevance of and factors that affect the safety of food

- Concept of safe food
- Types of hazards - Physical, Chemical (naturally occurring, adulterants, introduced from environment/processing and packaging) and Biological
- Mode of entry of hazards in food chain
- Consequences of unsafe food on health and economy
- New challenges in food safety, emerging pathogens and chemical hazards

UNIT II: Factors Determining Safety of Food

5 Hours

This unit examines role of various factors which contribute to making food safe/unsafe.

- Time and Temperature Control
- Food Contact Surfaces
- Storage Conditions
- Food handling

UNIT III: Food Safety Management

9 Hours

This unit covers the management of food safety hazards in the food industry/food service establishment as well as at the household level.

- General Principles of Hygiene
- Physical and chemical agents used for cleaning and sanitation
- Waste disposal
- Pest and Rodent control
- Basic concepts of Risk analysis, HACCP and GMP

UNIT IV: Food laws and Regulations

6 Hours

This unit covers the global and Indian food laws and related regulations.

- Food safety laws and regulations in India - FSSAI, BIS, AGMARK
- Codex Alimentarius Commission and other international bodies working on food safety

PRACTICAL (Credits 2; Hours 60)

1. Testing for common adulterants in different foods
2. Testing of foods for microbiological hazards
3. Identification of common food pathogens
4. Bacteriological analysis of water by Most Probable Number (MPN) method
5. Assessment of surface sanitation by swab / rinse method
6. Assessment of personal hygiene
7. Preparation of a HACCP plan
8. Visits to regulatory bodies, food testing labs

Essential Readings

- Forsythe, S.J. (2020). The Microbiology of Safe Food, 3rd edition. UK: Willey.
- Lawley, R., Curtis L. and Davis, J. (2015). The Food Safety Hazard Guidebook. London: RSC.
- Marriott, N. G. and Gravani, R.B. (2006). Principles of Food Sanitation. 5th edition. New York: AVI.
- Mathur, P. (2018). Food Safety and Quality Control. Hyderabad: Orient BlackSwan Pvt. Ltd.
- Suri, S. and Malhotra, A. (2014). Food Science, Nutrition and Safety. Delhi: Pearson.

Suggested Readings

- Agarwal, P. and Mathur, P. (Eds) (2021). Eat Right: A Food Systems Approach. Food Future Foundation. ISBN 978-93-5526459-6
- de Blackburn, C. and Mc Clure, P. (2009). Foodborne Pathogens. Hazards, Risk Analysis and Control. 2nd edition. Washington, US: CRC Press.
- De Vries. (2014). Food Safety and Toxicity..New York: CRC.
- Mortimore, S. and Wallace, C. (2013). HACCP- A Practical Approach. 3rd edition. London: Springer.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time

DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HH 8C1: CORPORATE COMMUNICATION AND PUBLIC RELATIONS

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSE HH 8C1: Corporate Communication and Public Relations	4	3	1	0	Class XII pass with science	NIL

Learning Objectives

- To introduce the concepts and practices of corporate communication and public relations (PR).
- To understand the role of corporate communication in managing an organization's image, reputation, and stakeholder engagement.
- To explore the strategies and tools used in PR campaigns.
- To equip students with practical skills to design and implement effective corporate communication and PR initiatives.

Learning Outcomes

Students will be able to:

- Explain the principles and functions of corporate communication and public relations.
- Analyse the role of communication in building an organization's brand and reputation.
- Develop PR campaigns using appropriate tools and strategies.
- Create crisis communication plans to manage organizational challenges.
- Evaluate the impact of PR activities using measurable parameters.
- Understand the ethical implications and best practices in corporate communication and PR.
- Use digital platforms effectively for corporate communication.

SYLLABUS OF DSE HH 8C1

THEORY (Credits 3; Hours 45)

UNIT I: Introduction to Corporate Communication

6 Hours

This unit introduces the basics of corporate communication, its importance, and application in organizations. Definition and significance of corporate communication

- Definition, scope of corporate communication
- Significance of corporate communication
- Components of corporate communication: internal and external communication
- Corporate identity, image, and reputation management

UNIT II: Leadership & Ethics in Corporate Communication

9 Hours

This unit stresses on the importance of leadership, and application in corporate communication. It also explores the dynamic of crisis communication and Definition and significance of corporate communication and ethics in corporate communication.

- Leadership in Corporate Communication: Importance, scope, relevance and application
- Crisis communication: strategies and tools
- Role of leadership in crisis situations
- Managing rumours, misinformation, and media scrutiny
- Key communication tools: newsletters, press releases, and corporate presentations
- Ethical considerations in corporate communication

UNIT III: Principles of Public Relations (PR)

20 Hours

This unit focuses on the core principles and strategies of PR in building and maintaining relationships. Definition, scope, and objectives of PR

- Introduction to PR: definition, importance, and scope
- Functions of PR: media relations, community engagement, and corporate social responsibility (CSR)
- Steps in PR campaigns: research, planning, execution, and evaluation
- Role of PR in crisis management and reputation repair
- Measuring the effectiveness of PR and corporate communication
- Case studies of effective PR campaigns

UNIT IV: Media and Communication Strategies

10 Hours

Exploration of various media tools and strategies for effective communication.

- Media planning and selection: traditional and digital platforms
- Writing for PR: press releases, speeches, and newsletters
- Social media and PR: using platforms like LinkedIn, Twitter, and Instagram
- Emerging trends: influencer marketing and content marketing in PR

TUTORIAL

(Credit 1; Hours 15)

1. Q&A sessions, Group Discussions, and Problem Solving exercises focused on corporate communication, PR principles, and media strategies.
2. Presentation and discussion of student research, including corporate communication tools, PR campaigns, and media strategies, along with assignments like:
 - Designing a mock PR campaign, including research, target audience, and execution plan.
 - Analyzing a case study of a successful PR campaign and presenting findings.
 - Drafting press releases, media briefs, and speeches for a mock PR event.
3. Scholarly activities to apply conceptual understanding to real-world communication challenges and campaigns.
4. Evaluation and feedback by the teacher to guide students in refining their communication skills and strategies.

Essential Readings:

- Jethwaney, J., & Bhatanagar, N. K. (2019). *Corporate communication: Principles and practices* (3rd ed.). Oxford University Press.
- Argenti, P. A., & Forman, J. (2002). *The power of corporate communication: Crafting the voice and image of your business*. McGraw-Hill.
- Broom, G. M., & Sha, B.-L. (2013). *Cutlip & Center's Effective Public Relations*. Pearson.
- Cornelissen, J. (2020). *Corporate Communication: A Guide to Theory and Practice*. SAGE Publications.
- Newsom, D., Turk, J., & Kruckeberg, D. (2012). *This is PR: The Realities of Public Relations*. Wadsworth.
- Wilcox, D. L., & Cameron, G. T. (2014). *Public Relations: Strategies and Tactics*. Pearson.

Suggested Readings:

- Gregory, A. (2020). *Planning and Managing Public Relations Campaigns*. Kogan Page.
- Tench, R., & Yeomans, L. (2017). *Exploring Public Relations and Corporate Communication*. Pearson.
- Case studies and articles from the Harvard Business Review.
- Relevant blogs and video tutorials from PRSA and CIPR (accessed online).

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE COURSE DSE HH 8C2: ADVOCACY FOR CHANGE: HEALTH AND ENVIRONMENT
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CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit Distribution of the course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical/ Practice		
Advocacy for Change: Health and Environment DSE HH 8C2	4	2	0	2	Class XII	Nil

Learning Objectives

- To learn about the policy framework and planning for health and environment.
- To gain insight into different health legislations, policies and acts.
- To understand the different environment related policies, acts and conventions.
- To appreciate the process of advocacy and strategize advocacy for health and environment.

Learning Objectives

- Enhanced awareness about the policy framework and planning for health and environment.
- Exposure to different health legislations, policies and acts.
- Exposure to different environment related policies, acts and conventions.
- Understanding the process of advocacy and strategize advocacy for health and environment.

SYLLABUS OF DSE HH 8C2

THEORY
(Credits 2; Hours 30)

UNIT I: Foundations of Policy Planning

7 hours

This unit provides a comprehensive understanding of policy framework, its process and all relevant issues that form the core of policy planning in the light of Sustainable Development Goals. Students will also learn to differentiate advocacy from behaviour change communication (BCC)

- Policy Framework and Accountability: An introduction
- Linkages between planning, policy and vulnerable groups and areas.
- Process of Policy Planning,
- Sustainable Development Goals: Mandate and Scope
- Differences between advocacy and behaviour change communication

UNIT II: Advocacy: Concept, Scope & Tools

7 hours

This unit provides a comprehensive understanding of how advocacy can be used as a tool for promoting social change in health and environmental contexts. It covers the concepts, processes, and strategies of advocacy. The unit also explores networking, lobbying, and mobilizing pressure groups for sustained advocacy efforts.

- Advocacy – Concept, process, types, strategies and functions.
- Strategizing health/environmental advocacy and SBCC campaigns- Elements, tools and techniques
- Networking, Lobbying and mobilizing pressure groups. Citizen action and people 'participation in health/environmental movement and campaigns.
- Synergizing inter-sectoral partnerships for health/environmental advocacy and action

UNIT III: Advocacy and change for Health

8 hours

This unit explores health as a critical policy goal, tracing the evolution of health policies in India. It examines rights-based approaches, nutrition policies, health legislations, government programmes, and the challenges in national and international health interventions and suggests Advocacy efforts in the domain of health

- Understanding Health as a major goal
- Approaches for analyzing health problems -rights based approach.
- Health policy- historical perspective, present issues and trends. Nutrition and Food policies perspectives
- Legislations, government policies and programmes in promoting and protecting public health- laws and standards, NHM, Ayushman Bharat, State specific innovation schemes.
- Expenditure on Health
- International and national nutrition and health intervention programmes-. problems and challenges
- Advocacy efforts in the domain of health

UNIT IV: Advocacy and Change for Environment

8 hours

This unit examines environmental policy frameworks, historical and contemporary trends, and major legislation in India. It also delves into international conventions, waste management rules, and the roles of government departments and agencies in environmental protection and management. It also suggests Advocacy efforts in the domain of environment & sustainable development.

- Understanding Environment as a major goal
- Approaches for analyzing environment problems
- Environment policy framework- historical perspective, present issues and trends.
- Legislations, government policies and programmes in promoting and protecting environment- Environment Protection Act 1986, Air Act, Water Act, Wildlife Protection Act, Forest Act, the National Environment Tribunal Act, Climate Change Protocols and Conventions, waste management rules
- Environment Protection and Management
- International and national environment intervention programmes- problems and challenges
- Role and responsibilities of various departments and agencies in environment management
- Advocacy efforts in the domain of environment & sustainable development

PRACTICAL
(Credit 2; Hours 60)

- Advocacy Campaigns for health/nutrition: Design & Evaluation
- Advocacy Campaigns for Environment & Sustainable Development: Design & Evaluation
- Analyzing India's National Strategies for Public Health & related issues
- Analyzing India's National Strategies for Climate Change Adaptation and Mitigation
- Analysis and interpretation of health and environment related indicators
- Development of SBCC and Advocacy tool kit on any issue related to health/nutrition or Environment & Sustainable Development

Essential Readings

- Bapat, J. (2005). *Development Projects and Critical Theory of Environment*. New Delhi: Sage Publications.
- Easterling, D., Gallagher, K.; Lodwick, D. (2003) *Promoting Health at the Community Level*. Thousand Oaks, California: Sage Publications.
- Gardner, A. & Brindis, C. (2017). *Advocacy and Policy Change Evaluation: Theory and Practice*. USA: Stanford Business Books. ISBN-13: 978-0804792561
- Government of India. (2023). *Five Year Plans and beyond: Lessons and strategies for sustainable development*. Planning Commission, Government of India.
- United Nations. (2015). *Transforming our world: The 2030 agenda for sustainable development*. Retrieved from <https://sustainabledevelopment.un.org>

Suggested Readings

- Ahluwalia, V. K. (2015). *Environmental Studies: basic concepts*. The Energy and Resources Institute (TERI).
- Dreze, J., & Sen, A. (2013). *An uncertain glory: India and its contradictions*. Princeton University Press.
- Gupta, A., & Goldar, B. (2005). *Environment and development in India*. Oxford University Press
- Ministry of Health and Family Welfare (India). (2020). *National Health Policy 2017*. Retrieved from <https://mohfw.gov.in>
- Rao, M., & Choudhury, M. (2018). *Financing health in India: Challenges and opportunities*. Routledge.
- Srinivasan, K.; Valassoff, M. (2001). *Population Development Nexus in India*. New Delhi: Tata McGraw Hill Publishing Co. Ltd.
- United Nations Development Programme. (2019). *Human development report 2019: Beyond income, beyond averages, beyond today*. UNDP.
- Unsicker, J. (2012). *Confronting Power: The Practice of Policy Advocacy*. USA : Kumarian Press.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HH 8C3: PROGRAMME MONITORING & EVALUATION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Programme Monitoring & Evaluation DSE HH 8C3	4	2	0	2	Class XII	Nil

Learning Objectives

- To develop the skills to assess needs, conduct problem analyses, and set program goals, objectives, and indicators.
- To understand the concepts, components, and frameworks of monitoring and evaluation.
- To understand the scope, purpose, and types of program evaluation, including participatory approaches.
- To acquire skills in report writing, data management, and documentation for effective presentation of evaluation findings.

Learning Outcomes

- Develop comprehensive program goals, objectives, and strategies based on problem analysis and needs assessments.
- Articulate the core components and approaches to monitoring and evaluation of development programs.
- Differentiate between various types and purposes of program evaluation and apply appropriate tools and techniques.
- Create well-structured evaluation reports, demonstrating effective data management and documentation skills.

SYLLABUS OF DSE HH 8C3

THEORY **(Credits: 2; Hours 30)**

UNIT I: Planning and Design of Development Programmes

8 hours

This unit introduces foundational concepts in development programme design, including planning models, goals, Theory of Change, and key planning steps like needs assessment and stakeholder engagement.

- Programme planning: Models and principles
- Theory of Change
- Setting programme goals, objectives, and indicators
- Problem analysis and needs assessment
- Goal setting and strategizing interventions

UNIT II: Implementation and Results-Based Management

8 hours

This unit focuses on the actual implementation of development programmes and the systems needed to manage for results, including frameworks and the role of logic models and MIS.

- Programme implementation: Strategies and approaches
- Results-Based Management (RBM) and its framework
- Programme logistics and operational planning
- Logic Model: Concept and application
- Management Information Systems (MIS) and feedback mechanisms

UNIT III: Monitoring and Evaluation Fundamentals

7 Hours

This unit covers the basics of M&E, different types and approaches, and tools used to monitor the progress of development initiatives.

- Meaning and concept of Monitoring & Evaluation
- Components and approaches of M&E in development programmes
- Monitoring frameworks and tools
- Types of evaluation: Summative vs. formative, internal vs. external
- Participatory Monitoring and Evaluation (PM&E)

UNIT IV: Advanced Evaluation Techniques and Impact Assessment

7 Hours

This unit delves into advanced evaluation methods, including evaluation design, data tools, stakeholder perspectives, and measuring long-term impact.

- Evaluation designs: Goal-free evaluation and other approaches
- Frameworks and indicators for assessing sustainability, empowerment, and impact
- Role of organizational dynamics and stakeholder perspectives in evaluation
- Report writing and documentation

PRACTICAL (Credis 2; 60 Hours)

- Understand various M&E methods used for various development programmes- national & international.
- Design, implement and evaluate intervention programmes for different target groups of urban and rural communities.
- Evaluate and prepare project proposals for- process documentation, monitoring and evaluation reports for development programmes.
- Understand ICT mediated qualitative and quantitative data
- Data visualization and Mapping
- Creating and managing Dashboards
- Report writing and documentation of M&E projects

Essential Readings

- Connell, J. L. (2019). *Sustainability and impact in development: Evaluating long-term outcomes*. Routledge.
- Green, L. W. (2016). *Introduction to evaluation*. Sage Publications.
- Holzer, J. (2012). *Participatory monitoring and evaluation: A guide for NGOs*. Praxis Institute.
- Patton, M. Q. (2010). *Developmental evaluation: Applying complexity concepts to enhance innovation and use*. Guilford Press.
- White, H., Sabarwal, S., & Kumari, S. (2014). *Impact evaluation in practice*. World Bank Group.

Suggested Readings

- Alex, G; Derek, B. (2000) Monitoring and Evaluation for AKIS Projects: Framework and Options. World Bank Cracknell, B.E. (2000). Evaluating Development Aid-Issue Problems and Solutions. New Delhi: Sage Publications.
- International Planned Parenthood (IPPF). (2009). *Putting the IPPF Monitoring and Evaluation Policy into Practice: A Handbook on Collecting, Analyzing and Utilizing Data for Improved Performance*. London, UK.
- Kumar, S (2002). *Methods for Community Participation: A Complete Guide for Practitioners*. New Delhi: Vistaar Publications.
- Kusek, Jody, Z. & Ray, C. (2004). *Ten Steps to a Results-Based Monitoring and Evaluation System: A Handbook for Development Practitioners*. World Bank
- Mikkelsen, C. (1995). *Methods for Development Work and Research*. New Delhi: Sage Publications.
- Markiewicz, A. (2015). *Developing Monitoring and Evaluation Frameworks*. New Delhi: Sage Publications.
- Reidar, D. (2004). *Evaluating Development Programmes and Projects*. New Delhi: Sage Publications.
- Worthen, B.R.; Sanders, J.R.; Fitzpatrick, J.L. (1997). *Program Evaluation*. USA: Longman Publishers.

Note : Examination Scheme and mode shall be as prescribed by the Examination branch, University of Delhi from time to time.

DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HH 8C4: LIVELIHOOD SYSTEMS & SOCIAL ENTREPRENEURSHIP

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical/ Practice		
Livelihood Systems & Social Entrepreneurship DSE HH 8C4	4	2	0	2	Class XII	Nil

Learning Objectives

- To understand the key concepts, frameworks, and components of livelihood systems, and how they contribute to sustainability in both rural and urban contexts.
- To examine the role of social policy in shaping livelihoods, focusing on social protection mechanisms, employment policies, and gender-sensitive approaches.
- To critically assess the challenges facing livelihood systems, including vulnerabilities related to climate change, globalization, and conflict, and explore innovative solutions such as cooperatives, social enterprises, and technology.
- To analyze the alignment of livelihood strategies with Sustainable Development Goals (SDGs) and their role in shaping future policies for equitable and resilient livelihood systems.
- To analyze the role of social entrepreneurship in promoting sustainable livelihoods and addressing socio-economic challenges through innovative solutions.

Learning Outcomes

- Students will be able to explain the core components of livelihood systems (assets, capabilities, and activities) and analyze their role in promoting sustainable development.
- Evaluate how social policies, including social protection, employment laws, and gender-sensitive approaches, impact livelihoods and income security.
- Identify the key challenges affecting livelihood systems and critically assess innovative approaches to address these issues, with a focus on sustainability.
- Learners will be able to analyze the role of social entrepreneurship in promoting sustainable livelihoods and addressing socio-economic challenges through innovative solutions.

SYLLABUS OF DSE HH 8C4

THEORY (Credits 2; Hours 30)

UNIT I: Livelihood Systems and Sustainability

8 Hours

This unit introduces the concept of livelihood systems, examining their definitions, frameworks, and the core components that contribute to a sustainable livelihood. It explores the key elements such as assets, capabilities, and activities, and how they interact to shape livelihood outcomes. The unit also addresses critical issues in development praxis related to livelihood systems, focusing on both rural and urban contexts. Additionally, it highlights the importance of integrating sustainability within livelihood strategies and policies, emphasizing how these systems are prioritized in development agendas for long-term well-being and resilience.

- Introduction to livelihood systems: Concepts, Definitions and frameworks
- Livelihood Systems: Livelihood systems – global and Indian overview, socio-economic, cultural and historical perspectives and opportunities.
- Components of livelihoods: Assets, capabilities, and activities
- Livelihood Opportunities and Issues: In Rural/Urban areas

UNIT II: Unit 2: Social Entrepreneurship and Livelihoods

7 Hours

This unit explores the critical role of gender-sensitive social entrepreneurship in shaping livelihoods, focusing on the mechanisms that influence social and economic outcomes. It covers key components of social protection, including safety nets, cash transfers, and insurance schemes, which provide vital support to vulnerable populations. The unit also examines employment policies and labor rights, discussing their impact on job opportunities, income security, and worker welfare. Furthermore, it emphasizes the importance of inclusivity and equity. Lastly, the unit explores the status of traditional textiles in modern India, highlighting their cultural, economic, and social significance within the contemporary livelihood context.

- Employment policies, Informal Economy and labor rights
- Issues in Development Praxis, Approach and Sustainability
- Gender-sensitive social entrepreneurship and their impact on livelihoods

UNIT III: Financial Inclusion and Support Systems for Livelihoods and Social Enterprises

8 Hours

This unit focuses on the role of financial inclusion in strengthening livelihood systems and supporting social enterprises. It covers access to credit through microfinance, SHGs, and digital financial services. Emphasis is placed on inclusive growth and sustainability.

- Financial Inclusion and Access to Credit: Role of microfinance, SHGs (Self-Help Groups), and MFIs, NABARD, banks, and fintech in rural credit systems, digital financial services and mobile banking
- Social Enterprise Financing: Funding models, Role of CSR and government schemes, Public-private partnerships
- Government Schemes and Institutional Support: Overview of key livelihood support programs, Start-up India, Stand-up India, Atmanirbhar Bharat initiatives, Skill development and vocational training programs

UNIT IV: Challenges and Innovations in Livelihood Systems

7 Hours

This unit introduces the concept of social entrepreneurship as a transformative approach to addressing social and economic challenges. It explores the defining characteristics of social entrepreneurship and how it differs from traditional entrepreneurship. The unit examines the key challenges and opportunities faced by social enterprises, including policy gaps, access to funding, and the need for skill development to scale solutions. Learners will also study sustainable livelihood strategies, focusing on how social enterprises act as drivers of economic, social, and environmental sustainability.

- Introduction to Social Entrepreneurship: Definition, concepts, and distinguishing features from traditional entrepreneurship.
- Challenges and Opportunities: Policy gaps, access to funding, skill development, and scaling solutions for livelihood enhancement.
- Sustainable Livelihood Strategies: Social enterprises as drivers for economic, social, and environmental sustainability.
- Role of Social Entrepreneurship in Enhancing Livelihoods: Addressing poverty, unemployment, and resource gaps through innovative enterprises.

PRACTICAL (Credit 2; Hours 60)

- Field Visit to Urban Slum or Informal Settlement
- Interactive Mapping of Livelihood Opportunities in a Community
- Analysis of Existing Local Social Protection Schemes
- Observe livelihood practices and sustainability efforts in rural communities.
- Overview of social entrepreneurship development policies and schemes and trends with special reference to India.

Essential Readings

- Anthony (2004), *Social Policy for Development: Local, National and Global Dimensions*, Sage Publications.
- Bina Aggarwal (2016). "Gender Challenges" A three volume compendium of selected papers (Oxford University Press, India: 2016)
- Ian Scoones (2024). *Sustainable Rural Livelihoods: A Framework for Analysis*. IDS Working Paper 72
- Huck-ju Kwon (2017). *Implications of the Sustainable Development Goals for global social policy*. Sage Publications.
- Philips, Bonefiel and Sharma (2011). *Social Entrepreneurship, Global vision* publishing house, New Delhi.

Suggested Readings

- Abhijit Banerjee, et al. (2015). A multifaceted program causes lasting progress for the very poor: Evidence from six countries. *Science Journal*.
- Abhijit Banerjee (2016). *The Long term Impacts of a "Graduation" Program: Evidence from West Bengal*. Working Paper- J-PAL
- Anthony Hall, James Midgley, Jo Beall, Mrigesh Bhatia & Elias Mossialos, (2004). *Social Policy for Development*. Sage Publications.
- Bina Aggarwal (1998). *A Field of One's Own: Gender and Land Rights in South Asia* (Cambridge: Cambridge University Press (CUP), 1994. CUP South Asian edition, 1995. Reprinted 1996, 1998).
- Caroline Moser and Anis A. Dani, Editors (2008). *Assets, Livelihoods, and Social Policy*. World Bank
- Chen, (2007). *Rethinking the Informal Economy: Linkages with the Formal Economy and the Formal Regulatory Environment*. UN DESA: Working Paper.

- Deepti KC&AdhikariSamik (2015) *Socio Economic and Gender analysis of Tribal Population in India*, IFMR LEAD.
- De Haan Leo. J. (2012). *The Livelihood Approach: A Critical Exploration*, ErdkundeBd. pp. 345-357
- Dinanath Kaushik, (2013). *Studies in Indian Entrepreneurship*, New Delhi, Cyber Tech Publications.
- FAO. 2018. *Technical Guide 2 of Toolkit on Gender-sensitive social protection to combat rural poverty and hunger: A guide to integrating gender into the design of cash transfer and public work programmes*. Rome, FAO.
- Gopalkrishnan, (2014). *The Entrepreneur's Choice: Cases on Family Business in India*, Routledge Taylor & Francis Group.
- IGNOU. *Livelihoods and Subsistence Production*. eGyankosh.
- Jean-Eric Aubert and Eriko Suzuta (2015). *Securing Livelihoods: Challenges and Actions*. Sage Publications
- NABARD Report (2021). *State of India's Livelihood*. Access Publication
- Natarajan N. et al. (2022), *A sustainable livelihoods framework for the 21st century*. Elsevier.
- Oliver C. Ruppel & Ruda Murray, (2024). *The Future of the SDGs: A Comparative Constitutional Rescue Plan?: One does not discover new lands without consenting to lose sight of the shore*. Sage Publications
- Pritchard, B; Rammohan, A; Sekher, M; Parasuraman, S; Choithani, C. (2013). *Feeding India: Livelihoods, Entitlements and Capabilities*. New Delhi: Routledge Publication
- Pingali P. et al. (2019). *Rural Livelihood Challenges: Moving out of Agriculture*. Springer Nature Publications.
- Peter F. (1995). *Innovation and Entrepreneurship*, Drucker, New York: Harper Business.
- Guo, C., & Bielefeld, W. (2014). *Social entrepreneurship: An evidence-based approach to creating social value*. San Francisco, CA: Jossey-Bass.
- Robert Chambers and Gordon R. Conway, (1991). *Sustainable Rural Livelihood: Practical Concepts for the 21st Century*. Institute of Development Studies, UK.
- *Capital Have a Role to Play in Deciding Rural Poverty Dynamics: Evidence from Panel Data Analysis from Eastern India*. Sage Publications
- Todaro Michael P and Smith Stephen C (2015) *Economic Development* 12th Edition, Pearson, New York.
- Sunil Khosla & Pradyot Ranjan Jena (2019). *Switch in Livelihood Strategies and Social*

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DISCIPLINE SPECIFIC ELECTIVE COURSE

DSE HH 8D1: HISTORIC TEXTILES

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre- requisite of the Course (if any)
		Lecture	Tutorial	Practical		
Historic Textiles DSE HH 8D1	4	3	1	0	Class XII	Nil

Learning Objectives

- To acquire knowledge of historical textile production methods and processes.
- To analyze the historical development of textiles in ancient cultures.
- To evaluate the artistic and historical significance of textile master pieces of the world.
- To examine the impact of art movements on textile design, production, and appreciation.

Learning Outcomes

- Explain various methods of textile production.
- Describe the evolution of textiles in ancient civilizations and their impact on modern society.
- Identify and analyze masterpieces of world textiles, recognizing their cultural, artistic, and historical significance.
- Explain the influence of various art movements on textile design, production, and appreciation.

SYLLABUS OF DSE HH 8D1

THEORY (Credits 3; Hours 45)

UNIT I: Textile Manufacturing Techniques

10 Hours

This unit lays thrust on history, tools and techniques of textile manufacturing techniques in the world-

- Felt and bark cloth
- Plaiting and basketry
- Spinning
- Weaving
- Tapestry and rug weaving
- Knitting
- Netting knotting and crochet
- Embroidery
- Dyeing and printing

UNIT II: Birth of the Textile Industry: Ancient Contributions

15 Hours

This unit highlights the origin of textile fibres in various ancient civilisations

- Mesopotamia
- Egypt
- Persia
- Greece
- Rome
- China
- India

UNIT III: Global Textile Heritage: Masterpieces and Traditions

12 Hours

This unit highlights on history, construction techniques, styles, colours, motifs and centres of production master pieces of the world (Structural Design)

- Brocades of China, Italy, Spain, Persia France
- Shawls of England and France
- Laces of Europe
- Linen Damasks of Ireland

UNIT IV: Global Textile Heritage: Masterpieces and Traditions

20 Hours

This unit highlights on history, construction techniques, styles, colours, motifs and centres of production master pieces of the world (Applied Design)

- Resist dyed Fabrics of Japan and Indonesia
- Printed Textiles of France and England
- Embroidery of China, England and Persia

TUTORIAL (Credits 1; Hours 15)

1. Visit a textile museum or collection to analyze and appreciate historical and cultural textiles.
2. In-depth analysis of specific textiles or textile-producing cultures in form of Case studies
3. Design and create a garment or accessory using traditional textile techniques and materials.
- create samples of Basketry, Spinning, Weaving, Knitting, Crochet, Embroidery, Appliqué, Dyeing and Printing.
4. Group project -Discussion on Ancient civilisation
5. Discussion on Art Movements. Make a project on Art movements and artists - Gothic Era, Renaissance, Baroque, Neoclassicism, Romanticism, Realism, Cubism, Bauhaus, Art Nouveau, Art Deco, Cubism, surrealism, Abstract, Pop art, Minimalism, Contemporary and Indian Art.
6. Group discussions on various topics, such as the cultural significance of textiles, the impact of industrialization on traditional textile production, and the role of textiles in modern society.

Essential Readings

- Gillow, J., & Sentance, B. (2008). World textiles: A visual guide to traditional techniques. Thames & Hudson.
- Harris, J. (Ed.). (2001). Textiles: 5,000 years (Rev. ed.). British Museum Press.
- Paine, S. (2003). Textiles of the world: A guide to traditional techniques and motifs. Thames & Hudson.
- Wilson, K. (2001). World textiles: A concise history. Thames & Hudson.
- Dehejia, V. (1997). The art of India. National Gallery of Art.

Suggested Readings

- Seiler-Baldinger, A. (1994). Textiles: A classification of techniques. Calico Museum of Textiles.
- Ginsburg, M. (Ed.). (2004). The illustrated history of textiles. Studio Editions.
- Lewis, E. (1953) *Romance Of Textile*, The McMillan Company, New York (Out of Print- Classic).
- Gombrich, E. H. (1995). The story of art. Phaidon Press.
- Adams, L. S. (2016). Art: A brief history. Pearson Education.
- Gardner, H. (2016). Gardner's art through the ages: A global history. Cengage Learning.

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DISCIPLINE SPECIFIC ELECTIVE COURSE

DSE HH 8D2: HOME TEXTILES

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical		
Home Textiles DSE HH 8D2	4	2	0	2	Class XII	Nil

Learning Objectives

- To gain knowledge regarding the selection criteria and care of various classes of textiles used in home.
- To understand the latest technological developments, trends and designing interiors using textiles.

Learning Outcomes

- Gain understanding of the various categories of home textiles.
- Recognize the relevant selection criteria of home textiles.
- Apply the understanding of forecasting trends in choosing fabrics for designing interiors.

SYLLABUS OF DSE HH 8D2

THEORY (Credits 2; Periods 30)

UNIT I: Introduction to entire spectrum of textile products used in homes as well various sectors of hospitality industry 8 Hours

This unit lays thrust on enlisting various categories of textiles used in home and hospitality.

- Classification of textiles used in home (upholstery fabrics, window textiles, bed textiles, bathroom textiles, kitchen textiles, table linen, floor coverings, outdoor textiles)
- Textiles used in various sectors of hospitality such as; hospitals, hotel, modes of travel (air, automobile, rail, restaurants etc.)

UNIT II: Parameters (Aesthetic and performance) for selection, storage, use, care and disposal of textiles for home and hospitality. 8 Hours

In this unit, students will gain understanding of the various functional parameters essential for judicious selection of textiles used in interiors.

- Aesthetic and functional parameters for selection of textiles for home and hospitality (fibre type, colour and design, standard sizes, construction methods, finishes imparted, durability, cost etc.)
- Informative labelling and packaging
- Government regulations and standards
- Storage, use and maintenance of various product categories at domestic and commercial levels

UNIT III: Recent scientific innovations, new fibres and finishes of textiles for home and hospitality- 6 Hours

This unit deals with technological innovations, high performance materials and use of finishes for enhanced aesthetic and performance rating.

UNIT IV: Designing of textiles for home and hospitality. 8 Hours

This unit deals with sources of inspiration for a designer involved with creating textile products used in home and hospitality.

- Period styles in home furnishings
- Forecasting trends for textiles used in home and hospitality.
- Elements and Principles of design, Structural and decorative design usage
- Collections of various designers and brands catering to textiles for home and hospitality.

**PRACTICAL
(Credit 2; Periods 60)**

1. Market survey, case study and report presentation of textiles used in homes

- Market survey of different categories of home textiles (with respect to types, sizes, constructions, price range.)
- Comparison of different brands (local / reputed) with respect to informative labelling and product packaging
- Report on famous designers and key players (brands / outlets) dealing in home textiles

2. Design portfolio

- Planning fabric decorations for any one selected room, with details of colour, size, decoration, finish.
- Compilation of swatches/ pictures of different materials used for home interiors (woven, knit, non-woven, other methods of construction crochet, braiding, nets, laces etc.)

Essential Readings

- Das, Subrata (2010) Performance of Home Textiles, New Delhi: Woodland Publishing India Pvt. Ltd.
- Lebeau, Caroline (2004) Fabrics- the Decorative Art of Textiles, London: Thames and

Hudson

- Seetharaman. P and Pannu, P (2019), Interior Design and Decoration, New Delhi: CBS Publishers & Distributors.
- Wingate, Isabel B. (1949) Textile Fabrics and Their Selection, New York: Prentice Hall.

Suggested Readings

- Howes, Karen (1997) Making the Most of Bedrooms, London: Conran Octopus.
- Larsen, Lenor J. (1989), Furnishing Fabrics: An International Source Book, London: Thames and Hudson.
- Neiswand, Nonie (1998) Bedrooms and Bathrooms, London, Conran Octopus
- Ranall, Charles T. (2002) Encyclopaedia of Window Fashions, California: Randall International
- Sarkar, S (2009) Interior Design and Decoration, New Delhi: Arise Publishers & Distributors

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DISCIPLINE SPECIFIC ELECTIVE COURSE

DSE HH 8D3: TEXTILE CONSERVATION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
Textile Conservation DSE HH 8D3	4	2	0	2	Class XII	Nil

Learning Objectives

- To provide theoretical knowledge and practical experience which enables to contribute to the understanding and preservation of culturally significant textile artifacts.
- To introduce the core ethical principles underlying professional conservation practice.
- To comprehend the principles of preventive conservation for textiles to mitigate deterioration and damage.
- To learn about proper storage and display practices to ensure the long-term preservation and accessibility of textile artifacts.

Learning Outcomes

- Acquire academic, practical and professional skills in textile conservation.
- Recognise agents of deterioration and apply interventive and preventive conservation concepts.
- Use various conservation tools, equipments and conservation grade materials.
- Practice working with different types of textiles, including fragile, delicate and sensitive materials.

SYLLABUS OF DSE HH 8D3

THEORY (Credits 2; Hours 30)

UNIT I: Foundations of Textile Conservation

8 Hours

This unit lays thrust on basic concepts of conservation-

- Importance and Ethics in Conservation
- Principles of Conservation
- Museums and museology
- Terminology
- Documentation

UNIT II: Textile Degradation and Conservation Strategies

10 Hours

This unit highlights the factors deteriorating textiles and methods of conservation

- Natural Factors
- Manmade Factors
- Preventive Conservation
- Interventive Conservation

UNIT III: Textile Collection Preservation: Maintenance and Management Strategies

12 Hours

This unit highlights on conservation materials, tools, methods and Storage and Display

- Workspace and Equipment
- Materials and supplies
- Cleaning
- Restoration

UNIT IV: Textile Collection Preservation: Storage and Display

This unit highlights on types and techniques of Storage and Display of Textile Collections

- Storage
- Display

PRACTICAL (Credits 2; Hours 60)

1. Materials and Equipment

- Identify different types of fibers using various techniques, such as microscopy and burn tests.
- Dye analysis techniques for identifying and dating textiles.
- Handle specialized equipment, such as vacuum cleaners, humidifiers, digital microscope, spectrophotometer or conservation-grade materials.

2. Documentation

- Visit a textile museum or collection and survey external and internal factors.
- Examine textile artifacts and prepare condition reports.
- Photograph textiles from different angles.

3. Cleaning and Stabilization

- Clean different types of textiles using various wet cleaning methods.
- Dry clean techniques for sensitive or fragile textiles.
- Stable fragile or damaged textiles using various techniques, such as stitching, adhesive tapes, or consolidants.

4. Repair and Reconstruction

- Hand-stitching techniques for repairing and reconstructing textiles.
- Re-weave for repairing damaged or missing areas of textiles.

5. Mounting and Display

- Mount textiles on different types of supports, such as boards, rollers, or mannequins.
- Design and create custom mounts for specific textiles or exhibits.
- Display textiles in a way that minimizes damage and maximizes visibility.

6. Conservation Techniques

- Consolidating fragile or damaged textiles using various techniques, such as adhesive tapes or consolidants.
- Deacidification techniques for neutralizing acidic materials in textiles.
- Pest management techniques for preventing and treating infestations in textiles.

Essential Readings

- Finch, K. and Putnam, G. (1985), "The Conservation of Tapestries and Embroideries" by - A detailed guide to the conservation of tapestries and embroideries. Butterworth-Heinemann, London UK.
- Landi, S. (2nd edition, 2000) "The Textile Conservator's Manual"-A comprehensive guide to textile conservation. Butterworth-Heinemann, London UK.
- Lennard, F. and Ewer P (2010), "Textile Conservation: Advances in Practice" A collection of essays on textile conservation techniques and practices. Elsevier, Amsterdam, Netherlands.
- Wood, Elizabeth J.(2017)"Textile Science: An Introduction" by - A comprehensive textbook on textile science, covering fibers, yarns, fabrics, and finishes. Bloomsbury Academic, London UK.

Suggested Readings

- American National Standards Institute (ANSI) Standards for Textile Conservation - A set of standards for textile conservation, covering topics such as cleaning, stabilization, and repair.
- International Organization for Standardization (ISO) Standards for Textile Conservation - A set of international standards for textile conservation, covering topics such as textile testing, cleaning, and repair.
- The Textile Conservation Code of Ethics - A code of ethics for textile conservators, outlining principles and guidelines for professional practice.
- Journal of the American Institute for Conservation (JAIC) - A leading journal on conservation and preservation, including textile conservation.
- Studies in Conservation - A peer-reviewed journal published by the International Institute for Conservation of Historic and Artistic Works (IIC), covering various aspects of conservation, including textiles.

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DISCIPLINE SPECIFIC ELECTIVE COURSE

DSE HH 8D4: SUSTAINABILITY IN TEXTILES AND APPAREL

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical		
Sustainability in Textiles and Apparel DSE HH 8D4	4	2	0	2	Class XII	Nil

Learning Objectives

- Spreading awareness about issues and challenges of sustainable fashion.
- Make students conscious consumers of textiles and apparel
- Inculcating habits of reducing textile waste generation

Learning Outcomes

- The student will be able to gain knowledge of issues and challenges related to over consumption and non-sustainable fashion.
- The student will be able to choose garment consciously and become informed consumer
- The student will be able to use green laundry practices to help the environment
- The student will be able to increase life cycle of garments and reduce waste generation

SYLLABUS OF DSE HH 8D4

THEORY (Credits 2; Hours 30)

UNIT I: Fashion & Sustainability

9 Hours

This unit will deal with aspects of sustainability in relation to fashion and textiles

- Basics of sustainability
- The Fashion Business & sustainability issues
- Ethical & sustainable fashion in the changing global scenario
- Circular fashion
- Start-ups and big brands dealing with sustainability
- Measuring sustainability – How brands do it

UNIT II: Green Consumption

7 Hours

This unit will deal with factors that should be kept in mind while selecting and purchasing apparel.

- Sustainable Consumption: Slow fashion, Durability, Appropriateness, Multifunctional garments, Trans-seasonal garments, emotionally durable design, Local Consumption
- Local consumption and production: Supporting local artisans
- Standards, labels and organisations dealing with sustainable textiles and apparel

UNIT III: Ethical Care and Maintenance

7 Hours

This unit will deal with Green practices for laundry and care of apparel

- Laundry detergents and softeners: Effectiveness and environmental concerns
- Efficient laundering practices, Laundering frequency, Machine vs line drying, Special care laundry
- Energy costs vs consumer needs
- Designing sustainable clothing that enables: low-impact care, extended use

UNIT IV: Intelligent Disposal

7 Hours

This unit will deal with ways to increase the life of garments to reduce waste generation.

- Waste management strategies: up-cycling, Reuse of goods, repair and reconditioning of goods, recycling of goods, zero waste pattern
- Collaborative consumption: Sharing, pass me down, give away
- Vintage Clothing: Traditional Practices in Indian culture leading to sustainable consumption
- Take-back schemes

PRACTICAL (Credit 2; Hours 60)

1. Analysing Market and Consumer Practices

- Market survey to evaluate presence of Sustainable garments in Indian retail market: Identify any one Multiband apparel outlet and analyse brands selling sustainable clothes, green standards marked on labels and any other information available on labels that talks about sustainability in the production of that garment.
- Analysing personal wardrobe to assess individual buying practices
- Analysing personal laundry practices and evaluating its impact on the environment.
- Analysing personal garment disposal practices and finding ways to reduce the waste generation.

2. Field Visit and Report Writing

- Visit to any unit manufacturing recycled textiles and apparel. Observe the process and material management at the facility and make a detailed report.

3. Case Study

- Case study of an Indian apparel brand that promotes sustainable fashion.
- Case study on any one model of Collaborative consumption.

4. Product development

- Create two articles – apparel/non apparel by using any sustainable material/technique
Design display or apparel show

Essential Readings

- Fletcher, K., & Grose, L. (2012). Fashion & sustainability: Design for change. Hachette UK
- Fletcher, K. (2013). Sustainable fashion and textiles: design journeys. Routledge.
- Gwilt, A., & Rissanen, T. (2012). Shaping sustainable fashion: Changing the way we make and use clothes. Routledge.
- Jacques, P. (2020). Sustainability: the basics. Routledge.
- Gardetti, M.A., & Torres, A.L. (Eds.). (2013). Sustainability in Fashion and Textiles: Values, Design, Production and Consumption (1st ed.). Routledge.
- Pratibhan, M. Ed. (2017); Sustainability in Fashion & Apparels (Challenges & Solutions); Woodhead Publishing

Suggested Readings

- Almeida, L. (2015). Ecolabels and organic certification for textile products. A Roadmap to sustainable textiles and clothing (pp. 175-196). Springer, Singapore.
- Muthu, S. S. (Ed.). (2014). Roadmap to sustainable textiles and clothing: Eco-friendly rawmaterials, technologies, and processing methods. Springer.
- Minney, S. (2011). Naked fashion: The new sustainable fashion revolution. New International
- Mahapatra N. N. (2015); Textiles & Environment: Woodhead Publishing
- Kaur, J., & Singh, G. (2021). Cool Branding for Indian Sustainable Fashion Brands. Social and Sustainability Marketing: A Casebook for Reaching Your Socially Responsible Consumers through Marketing Science, 115.
- Gwilt, A. (2020). A practical guide to sustainable fashion. Bloomsbury Publishing.

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DISCIPLINE SPECIFIC ELECTIVE COURSE DSE HH 8E1: PRODUCT DESIGN AND DEVELOPMENT

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical		
Product Design and Development DSE HH 8E1	4	2	0	2	Class XII	Nil

Learning Objectives

- Understand the basic concepts, scope and significance of product design.
- Develop creative and innovative thinking skills to design user-friendly, inclusive and interactive products.
- Gain knowledge of the New Product Development (NPD) process.
- Build skills for the successful promotion of the product in the market.

Learning Outcomes

- Provide students with an understanding of product design principles and real-world challenges.
- Encourage creativity and innovation for designing user-friendly and inclusive products.
- Providing insights regarding the New Product Development (NPD) process, from idea generation to market launch.
- Equip students with the skills to select materials, develop prototypes, and perform cost analysis for efficient design.

SYLLABUS OF DSE HP 8E1

THEORY
(Credits 2; Hours 30)

UNIT I: Introduction to Product Design

8 Hours

This unit covers the concept, scope, importance, approaches, and challenges of product design, along with success factors, design philosophies, and the role of product designers.

- Introduction to Product design: Concept, scope, importance and challenges
- Different approaches to Product design
- Factors for the success of products
- Design philosophies of famous designers

- Role of Product Designers

UNIT II: Creativity and Innovative thinking 6 Hours

This unit covers concept of creativity, innovation in product design, and human-centric design approaches like ergonomics, inclusive, and interactive design.

- Theories and models of creativity
- Techniques of developing creativity
- Role of innovation in product design
- Application of human factors and ergonomics (user-centric design, Inclusive design and Interactive design).

UNIT III: Product Development Process 10 Hours

This unit outlines the stages of new product development, including idea generation, material selection, prototyping, cost-value analysis, and legal aspects like intellectual property rights.

- Stages of New Product Development (NPD): Idea generation, concept development, market analysis, Feasibility study
- Detailed study of Materials
- Prototyping
- Cost-value Analysis for effective design
- Intellectual Property (IPR) and other legal considerations.

UNIT IV: Product Launch and Marketing 6 Hours

This unit highlights product launch strategies, including packaging, advertising, branding, post-launch review, and real-life case studies.

- Introducing the product to the market
- Packaging, Advertising and branding.
- Post-Launch Review and feedback for Improvements
- Real-Life Examples and Projects

PRACTICAL (Credits 2; Hours 60)

1. Case study of selected products-success and failure stories
2. Techniques of creativity
3. Study of selected materials: properties and functions
4. Design Tools and Software: CAD, graphic design tools, 3D printing etc.
5. Product-Life cycle mapping of any consumer product
6. Designing and Prototyping of a product (as per the stages of product development)
7. Simulation of Product Launch: Group activity for launching a product (pricing, promotional strategies and distribution channels)
8. Use of Technology in product design and development

Essential Readings

- Salvendy, G. (Ed.). (2021). *Handbook of human factors and ergonomics* (5th ed.). John Wiley & Sons, Inc.
- Petrov, V. (2019). *Theory of inventive problem solving: Level 1*. Springer Series.

- Ulrich, K. T., & Eppinger, S. D. (2019). *Product design and development* (7th ed.). McGraw-Hill Education.
- Sawyer, R. K. (2012). *Explaining creativity: The science of human innovation* (2nd ed.). Oxford University Press.
- Crawford, M. C., & Di Benedetto, C. A. (2011). *New products management* (11th ed.). McGraw-Hill Education.

Suggested Readings

- Sherman, B., & Bently, L. (2019). *The making of modern intellectual property law*. Cambridge University Press.
- Kotler, P., & Keller, K. L. (2016). *Marketing management* (15th ed.). Pearson Education.
- W.S. Green & P.W. Jordan (Eds) (1999). *Human factors in product design: Current practice and future trends* (pp.206-217). London: Taylor & Francis.
- Cross, N. (2011). *Design thinking: Understanding how designers think and work*. Bloomsbury Academic.
- Doren, Harold V. (1954). *Industrial Design – A Practical Guide to Product Design and Development*. New York: McGraw-Hill Book Company.

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DISCIPLINE SPECIFIC ELECTIVE COURSE

DSE HH 8E2: PROJECT MANAGEMENT

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical		
Project Management DSE HH 8E2	4	2	0	2	Studied in semester-6	NIL

Learning Objectives

- To impart an understanding of the conceptual framework, scope and importance of project management.
- To build proficiency in developing and managing projects.

Learning Outcomes

- Develop an understanding of project management, role of project manager and organizational structure.
- Comprehend the range, scope, and complexity of contemporary project management tools and techniques.
- Acquire skills to design and manage projects.

SYLLABUS OF DSE HH 8E2

THEORY (Credits 2; Hours 30)

UNIT I: Introduction to Project Management

6 Hours

This unit provides an overview of the fundamental principles of project management and project lifecycle.

- Project Lifecycle
- Project Integration Management
- Project Selection

UNIT II: The Project Manager

6 Hours

This unit examines role, characteristics, skills and ethics of a project manager.

- Role and characteristics
- Ethics
- Conflict Management

UNIT III: Project Organization Monitoring and Control

8 Hours

This unit covers scope and importance of project planning, budgeting, risk mitigation, and management.

- Planning
- Budgeting
- Cost Estimation
- Risk Management

UNIT IV: Project Monitoring and Control

10 Hours

This unit focuses on contemporary professional practices in project management, including project scheduling, resource allocation, leveling, auditing, and ensuring success.

- Scheduling
- Resource allocation
- Leveling
- Auditing and termination
- Project success

PRACTICAL (Credit 2; Hours 60)

1. Project Planning and Selection
2. Portfolio Optimization
3. Scheduling
4. Cost Management
5. Resource Management: Resource Allocation, Resource Levelling
6. Project Evaluation
7. Request for Proposal (RFP)

The above practicals will be conducted using latest tools like PRIMA VERA, MS Project etc.

Essential Readings

- A Guide to the Project Management Body of Knowledge- *PMBOK Guide- Seventh Edition, American National Standard*, ANSI/PMI99-001-2021
- *A Guide to the Project Management Body of Knowledge- 5th Edition by the Project Management Institute (PMI)* 2013. ISBN:9781935589679
- Meredith J. R., Shafer S. M., and Mantel S. J. Jr.(2021) . *Project Management: A Managerial Approach, (11th ED.)* Wiley.

Suggested Readings

- Erickson T., Khatri P.V (2015) *Project Management*, Global Vision Publishing House, ISBN- 13 : 978-9381695418
- Horine, G. (2017). *Project management absolute beginner's guide (4th ed.)* Que Publishings
- Jain, G.L. *Project Management: A Managerial Approach*, DND Publications, ISBN-10. 9380929765 · ISBN-13. 978-9380929767
- Nagarajan, K. (2010). *Project Management* (6th ed.) New Age International Pvt. Ltd.
- Project Management- Prasanna and Chandra, Tata McGraw Hill
- Spinner P. *Elements of Project Management*, Prentice Hall, USA

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DISCIPLINE SPECIFIC ELECTIVE COURSE**DSE HH 8E3: SUSTAINABLE BUILT ENVIRONMENT: CONCEPTS AND PRACTICES****CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE**

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical		
Sustainable Built Environment: Concepts and Practices DSE HH 8E3	4	2	0	2	Class XII	Nil

Learning Objectives

- To develop an understanding of the concept of sustainable habitat, its components and growth.
- To build an understanding of the policies and programs for sustainable habitat.
- To familiarize the students with energy and resource use by buildings and net zero buildings.
- To develop an understanding of green building guidelines and norms.

Learning Outcomes

- Understand the concept and importance of sustainable habitat, policies and programs for sustainable habitat.
- Learn about resource use by buildings, impact of buildings on the environment.
- Understand concept, criteria and implementation of green building guidelines and norms.

SYLLABUS OF DSE HH 8E3**THEORY**
(Credits2; Hours 30)**UNIT I: Sustainable Habitat****8 Hours**

This unit covers sustainable habitats, their importance, components, growth, and related policies and rating systems.

- Concept of sustainable habitat- meaning, importance and need
- Impact of built environment on natural resources and environment
- Components and growth of sustainable habitat
- Policies and programs for sustainable habitat - national urban housing and habitat policy, national rating system for green buildings, national mission for sustainable habitat

UNIT II: Building and Resources

8 Hours

This unit focuses on energy and resource use in buildings, including conservation, sustainable materials and resource audits.

- Energy and resource use by buildings - sustainable and otherwise, energy intensive components of buildings, buildings as resource guzzlers
- Energy efficiency and energy conservation in sustainable habitat
- Material use, water sensitive design, waste water treatment
- Resource audit of buildings – focus on energy and water auditing

UNIT III: Green Building Rating Guidelines (GRIHA)

7 Hours

This unit introduces the global and Indian green building rating guidelines, focusing on ECBC and GRIHA.

- Meaning and concept; Green rating guidelines present globally
- Basic guidelines and norms in India, ECBC code
- GRIHA: Basics of GRIHA, background, footprint and registration process, GRIHA rating systems – background, documentation and implementation, criteria details, GRIHA case studies and success stories

UNIT IV: Green Building Rating Guidelines (LEED)

7 Hours

This unit introduces the global green building rating guidelines focusing on LEED and other emerging green building rating guidelines.

- LEED: Basics of LEED USGBC and LEED IGBC, Background, footprint and registration process, LEED rating systems - background and implementation, credit details, LEED case studies and success stories
- Other emerging green building rating guidelines in India

PRACTICAL (Credit 2; Hours: 60)

- **RESOURCE USE IN BUILDINGS**
 - Basic calculations of resource consumption in buildings (like energy consumption, water consumption, landscape water demand etc.).
 - Energy and water auditing of buildings.
 - Calculation of Energy Performance Index (EPI).
 - Calculation of solar rooftop potential using various applications/websites.
 - Calculation of rainwater harvesting potential.
- **GREEN BUILDING RATING GUIDELINES**
 - Understanding and compilation of the basic terms under ECBC/GRIHA/LEED.
 - Critical evaluation and analysis of green buildings through case study approach to assess the green initiatives undertaken.
 - Compilation of strategies and technologies to implement credits/criteria for an in-depth understanding of the various green building rating systems.

- Preparation of IEC material on current topics related to sustainable habitat.
- Field visits to various green buildings.

Essential Readings

- Indian Green Building Council. (2023). *Introduction to Green Buildings & Built Environment*. BS Publications.
- U.S. Green Building Council (USGBC). (2023). *LEED green associate candidate handbook*. USGBC.
- GRIHA Council, & The Energy and Resources Institute. (2021). *GRIHA version 2019*. GRIHA Council & The Energy and Resources Institute.
- Karuppu, K. (2019). *Green Building Guidance: The Ultimate Guide for IGBC Accredited Professional Examination*. Notion Press.
- Roychowdhury, A., & Somvanshi, A. (2014). *Building Sense: Beyond the Green Façade of Sustainable Habitat*. Centre for Science & Environment.

Suggested Readings

- Yudelson, J. (2007). *Green Building A to Z: Understanding the Language of Green Building*. New Society Publishers.
- Redclift, M. (2005). *Sustainable development (1987–2005): An oxymoron comes of age*. Wiley-Interscience.
- Kubba, S. (2009). *LEED practices, certification, and accreditation handbook*. McGraw-Hill.
- Trivedy R. K. (2004). *Handbook of Environmental Laws, Acts, Guidelines, Compliances and Standards (2nd ed.)* Hyderabad: Book Seller.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HH 8E4: DESIGN APPLICATION AND PRACTICES

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical		
Design Application and Practices DSE HH 8E4	4	3	1	0	Class XII	Nil

Learning Objectives

- To gain an understanding of the application of design as a management tool.
- To comprehend the professional practices in design.
- To understand the legal framework of work.
- To build skills for client acquisition and management.

Learning Outcomes

- Understand the application of design as a management tool
- Develop expertise in professional practices in design.
- Gain knowledge about legal framework governing design practices in India.
- Develop skills in communication, negotiation, and working with others

SYLLABUS OF DSE HH 8E4

THEORY
(Credits 3; Hours 45)

UNIT I: Design As a Management Tool

10 Hours

This unit introduces the students to the concept of design as a management tool.

- Design evaluation, designer attributes, setting up a design office
- Finding clients, business correspondence
- Management of design process
- Human factors in managing design/team work

UNIT II: Professional Practices in Design

15 Hours

This unit focuses on the professional practices in design including preparing design briefs, ethics, product analysis and audit, cost estimates, financial analysis and patent laws.

- Design brief – letter of contract
- Ethics - Importance of ethics, Code of Professional Conduct
- Product analysis and audit – diachronic and synchronic, evaluation of design guidelines, design audit
- Preparing cost estimates
- Financial analysis, support systems and funding
- Patent and design registration laws and procedure

UNIT III: Legal Aspects

10 Hours

This unit highlights the legal aspects related to design practices including tenders, contracts, legal and ethical compliance.

- Tenders - Definition, types and process
- Contracts - Definition, Types
- Contract Document
- Legal & ethical compliance

UNIT IV: Client and Portfolio Management

10 Hours

This unit gives insight into client acquisition, building portfolio and networking.

- Client Acquisition and Management
- Building Portfolio
- Understanding Client
- Good Communication and Negotiation Skills
- Networking

TUTORIAL (Credit 1; Hours 15)

1. Critical analysis of products with respect to design, sustainability, safety and ergonomic audit
2. Case studies of successful startups/enterprises
3. User interface design - Critical evaluation of an existing product, finding solution to design problems, sketches and design of improvised product
4. Prototyping new product based on improvised design of user-interface
5. Creating a Design Portfolio

Essential Readings

- Krippendorff, K. (2006). *The Semantic Turn: A new foundation for design*. Boca Raton, London, New York: Taylor & Francis, CRC Press.
- Macleod, Dan. (1995). *The Ergonomics Edge: Improving Safety, Quality and Productivity*. New York: Nostrand Reinhold.
- Jordan, Pat. (1998). *Human Factors in Product Design: Current Practice and Future Trends*. London: Taylor and Francis.
- Namavati, R. H. (2001). *Professional practice (With elements of estimating, valuation, contract & arbitration)* (8th revised ed.). Mumbai: Lakhani Book Depot.
- Punmia, B. C., & Khandelwal, K. K. (2016). *Project planning & controlling with PERT & CPM* (4th ed.). New Delhi: Laxmi Publications Pvt. Ltd.

Suggested Readings

- Norman, D.A. (2004). *Emotional Design: Why we love (or hate) everyday things*. New York, NY: Basic Books.
- Norrid, B and Wilson, J.R. (2001). *Designing Safety into Products*. London: Taylor and Francis.
- Wilson, J.R. and Covlett, N. (2001). *Evaluation of Human Work: A Practical Ergonomics Methodology*. London: Taylor and Francis

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दिल्ली विश्वविद्यालय

UNIVERSITY OF DELHI

Department of Home Science

**Bachelor of Science (Program) Home Science
Semester VII**



Date:

Under UGCF-2022 based on NEP-2020

(Effective from Academic Year 2022-23)

Syllabus as approved by Academic Council

Executive Council

Department of Home Science

B.Sc. (Prog.) Hom Science

Semester -VII

Paper No	Paper Title	Credits		
		Theory	Practical	Tutorial
DSC HP 719	National Development and Social Policy	3	-	1
DSE HP 7A1	Theoretical Perspectives in Human Development	3	-	1
DSE HP 7A2	Gender and Social Change	2	2	-
DSE HP 7A3	Fundamentals of Counselling and Parenting	2	2	-
DSE HP 7B1	Approaches and Programmes in Public Health Nutrition	2	2	-
DSE HP 7B2	Clinical Nutrition	2	2	-
DSE HP 7B3	Communication for Nutrition and Health	3	-	1
DSE HP 7C1	Gender and Media	2	2	-
DSE HP 7C2	Behaviour Change Communication	2	2	-
DSE HP 7C3	Corporate Social Responsibility & Fundraising	3	-	1
DSE HP 7D1	World Textiles	3	-	1
DSE HP 7D2	Sustainable Consumption and Production of Fashion	2	2	-
DSE HP 7D3	Textile Conservation and Documentation	2	2	-
DSE HP 7E1	Ergonomic Design	2	2	-
DSE HP 7E2	Resource Management and Sustainable Development	2	2	-
DSE HP 7E3	Consumer Behaviour and Marketing Management	3	-	1

DISCIPLINE SPECIFIC ELECTIVE COURSE
DSC HP 719: NATIONAL DEVELOPMENT AND SOCIAL POLICY

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
National Development and Social Policy DSE HP 719	4	3	1	0	Class XII	Nil

Learning Objectives

- To comprehend the core concepts, theories, and historical progression of social policy and its influence on national development.
- To evaluate the sectoral dimensions of social policy in India, encompassing health, education, employment, and environmental sustainability.
- To investigate the intersection of social policy with marginalized communities, emphasizing equity, inclusion, and regional disparities.
- To analyze challenges in policy formulation, examine global perspectives, and explore innovations in social policy, including governance and collaborative partnerships.

Learning Outcomes

- Students will develop a robust understanding of social policy's theoretical foundations and their practical application to national development.
- Students will critically evaluate the effectiveness of sector-specific policies and programs in addressing social and economic issues.
- Students will assess the impact of social policies on marginalized groups and propose strategies for fostering equity and inclusion.
- Students will gain insights into current debates, global best practices, and innovative approaches to social policy design and implementation.

SYLLABUS OF DSC HP 719

THEORY (Credit 3; Hours 45)

UNIT I: Foundations of Social Policy and National Development

10 hours

This unit introduces the key concepts, theories, and historical context of social policy, highlighting its role in advancing national development. It explores global and national frameworks such as HDI, MPI, and SDGs.

- Key Concepts: Social policy, national development, welfare state, and inclusive growth.
- Theoretical Perspectives: Functionalism, conflict theory, and institutionalism.
- Social Policy Models: Residual Welfare Model, Industrial Achievement-Performance Model, and Institutional Redistributive Model.
- Historical Context: Post-independence evolution of social policies in India.
- Frameworks and Indicators: Human Development Index (HDI), Multidimensional Poverty Index (MPI), and Sustainable Development Goals (SDGs).

UNIT II: Sectoral Dimensions of Social Policy in India

12 hours

This unit examines sector-specific aspects of social policy, focusing on challenges and solutions within key sectors.

- National Development Programs: Addressing poverty, education, health, employment, and women's welfare.
- Health: Public health policies, National Health Mission, and the quest for universal healthcare.
- Education: Right to Education (RTE), National Education Policy (NEP), and challenges of access and quality.
- Employment and Livelihoods: Skill development, job creation, and social security policies.
- Social Protection: PDS, MGNREGA, and pension schemes.
- Environmental Sustainability: Policies addressing climate change and resource management.
- Emerging Issues: Digital divide, migration, and urban planning.

UNIT III: Social Policy and Marginalized Communities

13 hours

This unit explores the interaction between social policy and marginalized communities, focusing on strategies for equity and inclusion.

- Government Institutions: Role of NITI Aayog, Ministry of Social Justice and Empowerment, and National Commissions.
- Equity and Inclusion: Policies for SCs, STs, OBCs, minorities, and women.
- Regional Dynamics: Addressing rural-urban disparities, urbanization, and rural development.
- Vision for Transformation: “Viksit Bharat” pillars and strategies for inclusive growth.

UNIT IV: Challenges and Contemporary Debates

10 hours

This unit addresses the barriers to effective policy implementation and examines innovative global and local solutions.

- Policy Development: Role of governance, political commitment, and public-private partnerships.
- Global Comparisons: Insights from international social policy frameworks.
- Innovations: Social entrepreneurship, technology-driven solutions, and community-based interventions.
- Impact Analysis: Affirmative action and the contributions of NGOs and community organizations.

TUTORIAL

(1 credit; 15 Hours)

- Policy Analysis Frameworks: Techniques such as SWOT analysis, cost-benefit analysis, and stakeholder mapping.
- Case Studies: Critical examination of Indian policies and initiatives, including:
 - Agricultural development and food security.
 - Poverty alleviation, livelihood, and skill development.
 - Health, nutrition, and well-being.
 - Food value chain, food processing industry, and food safety.
 - Gender-responsive policies and empowerment.
 - Policies for children, adolescents, and youth.
 - Programs for the elderly and persons with disabilities.
 - Development of textiles, SMEs, handlooms, and cottage industries.
 - Environmental sustainability and climate change mitigation.

Essential Readings

- Dreze, J., & Sen, A. (2013). *An uncertain glory: India and its contradictions*. Princeton University Press.
- Hill, M. (2003). *Understanding social policy*. Blackwell Publishing.
- International Labour Organization. (2019). *World social protection report 2017–19: Universal social protection to achieve the Sustainable Development Goals*. International Labour Office.
- Midgley, J. (1995). *Social development: The developmental perspective in social welfare*. SAGE Publications.

- Ministry of Statistics and Programme Implementation, Government of India. (2023). *National Indicator Framework for SDGs: India 2023 update*. Government of India.
- Mishra, R. (1999). *Globalization and the welfare state*. Edward Elgar Publishing.
- Niti Aayog. (2022). *India's SDG index and dashboard 2022: States and Union Territories*. Niti Aayog.
- Titmuss, R. M. (1974). *Social policy: An introduction*. George Allen & Unwin.
- United Nations Development Programme. (2021). *Human development report 2021–22: Uncertain times, unsettled lives*. UNDP.

Suggested Readings

- Bhaduri, A., & Nayyar, D. (1996). *The intelligent person's guide to liberalization*. Penguin Books.
- Chandoke, N. (2003). *The politics of social policy in India*. SAGE Publications.
- Gough, I., & Wood, G. (2004). *Insecurity and welfare regimes in Asia, Africa, and Latin America*. Cambridge University Press.
- Grusky, D. B., & Kanbur, R. (Eds.). (2006). *Poverty and inequality*. Stanford University Press.
- Kabeer, N. (2005). *Inclusive citizenship: Meanings and expressions*. Zed Books.
- Rao, M., & Nair, M. (Eds.). (2021). *Public health challenges in contemporary India*. Springer Nature.
- Sen, A. (2009). *The idea of justice*. Harvard University Press.
- Standing, G. (2017). *Basic income: And how we can make it happen*. Penguin Books.
- UN-Habitat. (2022). *World cities report 2022: Envisaging the future of cities*. UN-Habitat.
- Walker, R., & Chase, E. (Eds.). (2014). *Poverty and social exclusion: New methods of analysis*. Policy Press.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 7A1: THEORETICAL PERSPECTIVES IN HUMAN DEVELOPMENT

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Theoretical Perspectives in Human Development DSE HP 7A1	4	3	1	0	Class XII	Nil

Learning Objectives

- To learn about the history of study of human development.
- To comprehend the cultural notions of children and childhood.
- To study evolving contemporary theories in the discipline.
- To provide a framework to locate human development and childhood in an interdisciplinary context.

Learning Outcomes

The students will be able to

- Understand the historical and philosophical traditions and theories of development.
- Comprehend the task of knowledge construction with reference to human development and childhood studies.
- Appreciate and analyse the different theories of development.
- Develop skills for critical appraisal and construction of theories of development.

SYLLABUS OF DSE HP 7A1

THEORY

(Credits 2; Hours 30)

UNIT I: Theory, construct and phenomena

8 Hours

This unit introduces the foundational concepts of theory, theorizing, and how they connect with research and phenomena.

- Theorizing and its philosophical underpinnings
- Understanding Theory: Definition and Purpose
- Links between phenomena, theory, and method
- Grounded Theory

UNIT II: Biological and Cognitive Theories of Development

12 Hours

This unit focuses on key biological and cognitive perspectives of human development.

- Evolutionary Theory
- Psychosexual Theory
- Cognitive-Developmental Theory
- Vygotsky's Socio-Cultural Perspective

- Theory-of-Mind

UNIT III: Environmental and Lifespan Perspectives on Development

10 Hours

This unit explores environmental and contextual theories that influence human growth across the lifespan.

- Learning Theory
- Social Role Theory
- Life-Course Theory
- Dynamic Systems Theory
- Constructivist Perspective

UNIT IV: Social, Selfhood, and Cultural Perspectives

15 Hours

This unit addresses theories related to self, social construction, and culturally rooted understandings of human development.

- Psycho-Social Theory
- Perspectives from Positive Psychology
- Humanistic Theories
- Theories of Self in the Indian Context

TUTORIAL (Credit 1; Hours 15)

- Watch documentaries on the life and work of theorists.
Discuss and reflect upon self-narratives delineating the importance of context and culture in development.
- Sessions/workshop on self-help approaches for mental wellbeing and other relevant themes for students.

Essential Readings

- Benson, N. (2011). *The psychology book: Big ideas simply explained*. DK: London.
- Buckingham, W. (2011). *The philosophy book*. DK: London.
- Crain, W. (2024). *Theories of development: Concepts and applications*. Routledge: New York.
- Jenks, C. (2005). *Childhood: Critical Concepts in Sociology*. New York; Routledge.
- Rogoff, B. (2003). *The Cultural Nature of Human Development*. USA: OUP.

Suggested Readings

- Dixon, R. A. & Lerner, R. M. (1999). *History and Systems in Developmental Psychology*. In M. H. Bornstein & M. E. Lamb, *Developmental Psychology: An Advanced Textbook*. 4th edition. pp 3 – 48. Mahwah, NJ: Lawrence Erlbaum.
- Frazer, J.G. (2004). *The Golden Bough: A study in magic and religion*. USA: Cosmo.
- Hampden-Turner, C. (1981). *Maps of the mind*. New York: Wiley.
- Ishay, M.R. (2004). *The History of Human Rights: From Ancient Times to the Globalization Era*. Berkeley: University of California Press.
- Ramanujan, A.K. (1994). *Folk Tales From India*. India: Penguin Books.
- Ramanujan, A.K. (1997). *Flowering Tree: And Other Oral Tales From India*. USA: Viking.
- Sobel, D. (1999). *Galileo's Daughter: A Historic Memoir of Science, Faith and Love*. New York: Walker & Co.
- Spivak, G. C. (2004). *Death of a Discipline*. Calcutta: Seagull.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 7A2: GENDER AND SOCIAL CHANGE

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Gender and Social Change DSE HP 7A2	4	2	0	2	Class XII	Nil

Learning Objectives

- To study the role of gender in social change movements.
- To create awareness how gendered identities and experiences shape activism and policy.
- To impart knowledge about various social movements analyzing their impact on society.

Learning Outcomes

- The students will be able to
- Explain key concepts related to gender and social change.
- Recognize historical and contemporary role of gender in social movements.
- Describe effectiveness of gender-based activism
- Provide understanding of intersections of gender with race, class, and sexuality in social change.

SYLLABUS OF DSE HP 7A2

THEORY
(Credits 2; Hours 30)

UNIT I: Foundations of Gender and Social Change

8 Hours

This unit introduces the foundational concepts of gender and social change, along with a historical overview of gender activism.

- Overview of the course
- Key concepts: Gender, social change, activism
- Waves of feminism and social movements
- Key figures in gender activism

UNIT II: Intersectionality and Identity

8 Hours

This unit explores the interconnectedness of gender with other social categories and dimensions of identity.

- Understanding intersectionality
- Gender identity and expression
- The evolution of LGBTQ+ rights movements

UNIT III: Feminist and Gender Movements in India and Beyond

8 Hours

This unit examines gender-related social movements, with a focus on feminist activism globally and in India.

- Historical and contemporary feminist movements
- Feminist movements in India
- Global perspectives on gender justice

UNIT IV: Contemporary Issues in Gender

6 Hours

This unit addresses gender issues in the contemporary contexts and the role of media and technology in activism.

- Gender, social change and Digital activism
- Social media's impact on gender
- Understanding gender-based violence

PRACTICAL (Credit 2; Hours 60)

- Using appropriate methods students will develop an understanding of social construction of gender by exploring: Gender roles and gendered division of labor, Socialization for gender and gender inequality
- Review of images of men and women locally and Globally over the years to understand social change.
- Understand gender and social change through films/documentaries
- Review of songs, stories, mythology and other texts to understand representation of gender
- Review of research articles on Gender related issues addressing social change
- Placement in organizations (NGOs and Govt organizations) working in the area of Gender Empowerment

Essential Readings

- Agosin, M. (2003). Women, Gender and Human Rights: A Global Perspective (1st ed.). Rajasthan, India: Rawat.
- Andersen, M.L. (2003). Thinking about Women: Sociological Perspectives on Sex and Gender. Sixth Edition. New York: Macmillan Publishing Company.
- Chaudhuri, M. (2005). Feminism in India: Issues in contemporary Indian Feminism. New Delhi: Zed books.
- Niumai, A., & Chauhan, A. (Eds.). (2022). Gender, law and social transformation in India. Springer.
- UN Women. (2020). India: Gender equality and social change. United Nations.

Suggested Readings

- Basu, A., & Sarkar, T. (Eds.). (2022). Women, Gender and Religious Nationalism. Cambridge: Cambridge University Press.
- Das, B & Khawas, V. (2009). *Gender issues in development: Concerns for the 21st century*, edited by Bhaswati Das, and Vimal Khawas. New Delhi: Rawat Publications.
- Pandya, R. & Patel, S. (2010). *Women in the unorganised sector of India*. New Delhi: New Century Publication.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 7A3: FUNDAMENTALS OF COUNSELLING AND PARENTING

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Fundamentals Of Counselling And Parenting DSE HP 7A3	4	2	0	2	Class XII	Nil

Learning Objectives

- To appreciate and understand key concepts and strategies of guidance and counselling across different life stages.
- To understand concepts and models of parenting and attributes of positive parenting to aid development of children and adolescents.
- To analyse the impact of various parenting styles and guidance techniques to child and adolescent development.
- To understand guidance and counselling strategies to support families and children facing developmental challenges.
- To understand and practice basic counselling skills.

Learning Outcomes

The students will be able to

- Acquire an overview of counselling techniques and parenting strategies.
- Understand the importance of effective communication and understanding child development.
- Be able to explore key concepts of counselling, practical skills for supporting families
- Gain insights about impact of parenting styles on child's behavior and development.

SYLLABUS OF DSE HP 7A3

THEORY
(Credits 2; Hours 30)

UNIT I: Introduction to Counselling

6 Hours

This unit introduces the various key concepts of counselling and other related determinants.

- Foundations of Counselling
- Skills required in Counselling
- Ethical Considerations in Counselling
- Personal and professional development of the counsellor

UNIT II: Parenting and Child Development

8 Hours

This unit focuses on how parenting styles and practices influence child and adolescent development across different

life stages.

- Parenting styles and their impact on child and adolescent development
- Influence of culture and context in parenting
- Impact of family structure on parenting

UNIT III: Communication and Emotional Support in Parenting

8 Hours

This unit discusses strategies for enhancing positive parent-child relationships and addressing children's emotional needs.

- Strategies for positive parent-child communication
- Managing conflict and discipline
- Supporting children's emotional needs
- Parental self-care and well-being

UNIT IV: Counselling for Effective and Inclusive Parenting

8 Hours

This unit explores how counselling supports parents in diverse family settings and promotes inclusive, nurturing environments.

- Cultural and socio-economic influences on parenting
- Creating supportive environments in diverse family structures
- Parenting and inclusion: Gender, sexuality, disability, multiculturalism
- Counselling approaches for diverse family forms
- Importance of community resources

PRACTICAL (Credit 2; Hours 60)

- Using recorded available Audio-visual aids to gain a basic understanding of the counselling process.
- Visit to the institutions offering counselling to children
- Conducting interviews and observation as a method of studying children and families.
- Workshop on Skills of counselling (Rapport building, Communication skills, Empathy skills, Active listening skills, Responding skills, etc.)
- Mock sessions to demonstrate and practice counselling skills.
- Cultural and Diversity in Parenting Panel Discussion
- Guidance strategy worksheets-Transition scenario cards (e.g., starting school, entering adolescence, marriage, retirement)
- Parenting Style Assessment and Analysis students identify and analyze different parenting styles and their impacts on child development.

Essential Readings

- Beidel, D.C., & Turne, S.M. (2005). *Childhood anxiety disorders: A guide to research and treatment*. New York: Routledge.
- Eanes, R. (2009), *Positive parenting*, J. P. Tarcher, U.S/ Perigee Bks, U.S.
- Kinra, A.K. (2008). *Guidance and counselling*. Pearson.
- Sahay, S, Deb, S. & Bhandra, S. (2019). *Childhood to Adolescence: Issues and Concerns*. Pearson.
- Seligman, L. & Reichenberg L.W. (2001). *Theories of counselling and psychotherapy: Systems, strategies and skills*. Pearson

Suggested Readings

- Golden, B. (2003). *Healthy anger: How to help children and teens manage their anger*. NY: Oxford University Press.
- Gumbiner, J. (2003). *Adolescent assessment*. New Jersey, NJ: Wiley & Sons.
- Jacobs, Ed. E., Mason, R.L., & Harvil, R.L. (2009). *Group counselling: Strategies and skills*. Canada: Cengage learning.
- Jolley, R.P. (2010). *Children & pictures: Drawing and understanding*. UK Wiley Blackwell
- Luz, R., George, A., Vieux, R., & Spitz, E. (2017). Antenatal determinants of parental attachment and parenting alliance: How do mothers and fathers differ? *Infant Mental Health Journal*, 38(2), 183-197.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 7B1: APPROACHES AND PROGRAMMES IN PUBLIC HEALTH
NUTRITION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Approaches and Programmes in Public Health Nutrition DSE HP 7B1	4	2	0	2	Class XII	Nil

Learning Objectives

- To study the various approaches for improving nutrition and health status of the community.
- To gain an insight into the policies on nutrition, health and food security, and programmes for improving nutritional and health status, and food security among the population.

Learning Outcomes

The students will be able to

- Understand the different approaches for improving nutrition and health status of the community.
- Get acquainted with the policies on nutrition and health, and the food security act.
- Become familiar with the programmes for improving nutrition and health status, and food security among the population.

SYLLABUS OF DSE HP 7B1

THEORY

(Credits 2; Hours 30)

UNIT I: Approaches for Improving Nutrition and Health Status of the Community

12 Hours

This unit deals with various types of approaches such as health-based, food-based, education-based and other approaches for improving nutrition and health status of the community.

- Health based interventions including immunization, provision of safe drinking water/ sanitation, prevention and management of diarrhoeal diseases, other health services such as antenatal care, deworming, medicinal supplements
- Food based interventions including food fortification, dietary diversification, supplementary nutrition programmes and biotechnological approaches
- Education based interventions including growth monitoring and promotion (GMP), health/nutrition related social and behaviour change communication
- Other Approaches such as Conditional Cash Transfer, Livelihood and Women Led Income Generation, sustainable food systems

UNIT II: National Policies for Improving Nutrition and Health Status of the Population **4 Hours**

This unit deals with the national policies on nutrition and health, and the food security act.

- National Nutrition Policy and National Nutrition Strategy
- National Health Policy
- National Food Security Act

UNIT III: Programmes for Improving Nutrition and Health Status of the Population **10 Hours**

This unit deals with the programmes for improving nutritional status and health of the population, with special emphasis on programmes for maternal, infant, young children and adolescents.

- Health programmes: National Health Mission, Ayushman Bharat and Pradhan Mantri Jan Arogya Yojana (PM-JAY), National Tuberculosis Control Programme, National Diarrhoeal Diseases Control Programme, Universal Immunization Programme, National Programme for Prevention and Control of Non-Communicable Diseases (NP-NCD)
- Programmes for prevention of nutritional deficiencies (Vitamin A, Iron, Iodine)
- Programmes for maternal, infant, young child and adolescent nutrition and health: POSHAN Abhiyan, ICDS/Poshan 2.0 and Saksham Anganwadis, Pradhan Mantri-Poshan Shakti Nirman (PM-POSHAN), Scheme for Adolescent Girls

UNIT IV: Programmes for Improving Food Security **4 Hours**

This unit deals with the government initiatives for ensuring food security among the population.

- National Food Security Mission
- Public Distribution System/Targeted Public Distribution System
- Antyodaya Anna Yojana

PRACTICAL (Credit 2; Hours 60)

- Development of low-cost recipes for vulnerable sections of the community: infants, preschoolers, adolescents, pregnant and lactating mothers.
- Development of recipes for enhancing nutritional value of foods.
- Planning of cyclic menu for school feeding programme.
- Growth monitoring – Plotting and interpretation of growth charts.
- Planning and preparation of aids/tools for creating nutrition awareness among vulnerable population groups.
- Field visit to an ongoing national public health nutrition programme

Essential Readings

- Longvah, T., Ananthan, R., Bhaskarachary, K. and Venkaiah, K. (2017). Indian Food Composition Tables. National Institute of Nutrition, ICMR, Hyderabad.
- Park, K. (2023). Park's Textbook of Preventive and Social Medicine (27th ed.), Jabalpur, India: Banarasidas Bhanot Publishers.
- Vir, S.C. (2023). Child, Adolescent and Woman Nutrition in India: Public Policies, programmes and Progress. KW Publishers Pvt. Ltd.
- Vir, S.C. (2021). Public Health Nutrition in Developing Countries. Volume-II, 2nd edition. Woodhead Publishing India Pvt Ltd.

Suggested Readings

- Bamji, M.S., Krishnaswamy, K. and Brahnam, G.N.V. (Eds) (2016). Textbook of Human Nutrition, 4th edition. Oxford and IBH Publishing Co. Pvt. Ltd. New Delhi.
- Chadha, R. and Mathur, P. (eds.) (2015). Nutrition A Lifecycle Approach. New Delhi, India: Orient Blackswan Pvt. Ltd.
- Dietary Guidelines for Indians (2024). ICMR-National Institute of Nutrition, Hyderabad.
- Gibney, M.J., Margetts, B.M., Kearney, J.M. Arab, I., (Eds) (2004) Public Health Nutrition, NS Blackwell Publishing.
- ICMR-NIN Expert Group on Nutrient Requirement for Indians, Recommended Dietary Allowances (RDA) and Estimated Average Requirements (EAR) - 2020. ICMR-National Institute of Nutrition, Hyderabad.
- Indian government websites – Ministry of Health and Family Welfare, Ministry of Women and Child development, NITI Aayog etc.
- Khanna, K, Gupta, S, Seth, R, Mahna, R, Rekhi, T (2018) The Art and science of Cooking. Fifth Edition. Elite Publishing House Pvt. Ltd.
- Raina, U., Kashyap, S., Narula, V., Thomas, S., Suvira, Vir, S., Chopra, S. (2010) Basic food preparation. (4th ed.) Lady Irwin College.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 7B2: CLINICAL NUTRITION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Clinical Nutrition DSE HP 7B2	4	2	0	2	Class XII	Studied Public Nutrition and Dietetics DSC HP 617

Learning Objectives

- To understand the basic principles of the nutrition care process in the management of hospitalized patients.
- To understand the etiopathophysiology and metabolic anomalies of various disorders/ diseases and provide appropriate nutrition care for the medical nutrition therapy (MNT) of various disorders / diseases
- To acquire basic skills in dietary counseling for management of various disease conditions

Learning Outcomes

The students will be able to

- Develop an understanding about the basic principles in management of hospitalized patients
- Acquire an in depth understanding about the etiopathophysiology and metabolic anomalies and MNT of various disorders/diseases
- Learn the principles of dietary counseling in various diseases.

THEORY
(Credits 2; Hours 30)

UNIT I: Nutritional Care of Patients

8 Hours

Students will be introduced to the concept of nutrition care process, ethical issues in patient care and dietary counseling for both OPD and IPD patients. The concept of nutrition support systems will also be discussed.

- Nutrition care process
Nutritional screening and assessment of the patients – out patient & hospitalized patients
Nutrition diagnosis, nutrition care plan and implementation
Nutrition monitoring, evaluation and follow up
- Ethical issues in patient care
- Dietary counseling
- Nutrition support systems - Enteral and Parenteral Nutrition

UNIT II: Diseases and their clinical management

10 Hours

Students will understand the etiopathophysiology, metabolic & clinical aberrations, diagnosis, complications, treatment, MNT and recent advances in different diseases/disorders. They will also be trained on disease specific dietary counseling.

- Metabolic disease: Diabetes Mellitus (Type 1, Type 2, Gestational Diabetes)
- Cardiovascular diseases: Metabolic Syndrome, Myocardial Infarction, Congestive heart failure

UNIT III: Dietary management of gastrointestinal and hepatobiliary disorders

6 Hours

Students will understand the etiopathophysiology, metabolic & clinical aberrations, diagnosis, complications, treatment, MNT and recent advances in gastrointestinal and hepatobiliary disorders. They will also be trained on disease specific dietary counseling.

- Gastrointestinal disorders- IBD, Diverticular disease
- Hepatic disorders- MAFLD, Liver Cirrhosis, Cholelithiasis, Cholecystitis

UNIT IV: Dietary management of lung and bone disorders

6 Hours

Students will understand the etiopathophysiology, metabolic & clinical aberrations, diagnosis, complications, treatment, MNT and recent advances in selected lung and bone disorders.

- Chronic Obstructive Pulmonary Disease
- Bone disorders – Osteoporosis, Sarcopenia

PRACTICAL (Credits 2; Hours 60)

I. Assessment of patient needs – nutritional assessment and screening

- Nutritional interpretation of routine medical and laboratory data - Fasting and Post Prandial Blood Glucose, HbA1c, Lipid Profile, Liver Function Test

II. Planning and preparation of diets and dietary counseling for following diseases

- Type 1 diabetes
- Type 2 diabetes
- Metabolic Syndrome/ Myocardial Infarction
- Congestive Heart Failure
- Ulcerative colitis
- Diverticular disease
- MAFLD

III. Nutritional management in clinical setting

- Demonstration of dietary assessment software

Essential Readings

- Indian Dietetics Association, (2018) Clinical Dietetics Manual, 2nd Edition. Elite Publishing House Pvt. Ltd.
- Khanna K, Gupta S, Seth R, Passi SJ, Seth R, Mahna R, Puri S (2013). Textbook of Nutrition and Dietetics. 2nd Edn. Phoenix Publishing House Pvt. Ltd.
- Raymond, J.L. and Morrow, K. (2020) Krause and Mahan's Food & the Nutrition Care Process. 15th ed. Saunders-Elsevier

- Seth, V. and Singh K. (eds.) (2021) Principles of Medical Nutrition Therapy for Positive Clinical Outcomes, 1st Edition. Elite Publishing House Pvt. Ltd.

Suggested Readings

- Chowdhary S.R and Aeri B.T. (2023) Textbook of Food Science and Nutrition. Aarahan Publishers. ISBN:978-93-87270-08-4 <https://amzn.eu/d/bLLz8S8>
- Gibney MJ, Elia M, Ljungqvist & Dowsett J. (2005) Clinical Nutrition. The Nutrition Society Textbook Series. Blackwell Publishing Company
- ICMR (2020) Estimated Average Requirements and Recommended Dietary Allowances for Indians. Published by National Institute of Nutrition, Hyderabad.
- Joshi Y K. (2008) Basics of Clinical Nutrition 2nd ed. Jaypee Brothers Medical Publishers
- Longvah T, Ananthan R, Bhaskarachary K and Venkaiah K (2017). Indian Food Composition Tables. National Institute of Nutrition, ICMR, Hyderabad.
- Puri S, Bhagat A, Aeri, BT, Sharma A (2019). Food Exchange List: A Tool for meal Planning. Elite Publishing House. New Delhi.
- Shils, M.E., Shike, M, Ross, A.C., Caballero B and Cousins RJ (2005) Modern Nutrition in Health and Disease. 10th ed. Lipincott, William and Wilkins.
- Siddhu A, Bhatia N, Singh K, Gupta S (2017). Compilation of food exchange list, technical series 6, Lady Irwin College, University of Delhi. Publ. Global Books Organisation, Delhi
- Williams, S.R. (2001) Basic Nutrition and Diet Therapy. 11th ed. Times Mirror Mosby College Publishing

Note: Examination scheme and mode shall be as prescribed by the Examination branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE**DSE HP 7B3: COMMUNICATION FOR NUTRITION AND HEALTH****CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE**

Course title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Communication for Nutrition and Health	4	3	1	0	XII Pass	Pass in DSC HP 617

Learning Objectives

- To equip students to understand the basics of communication strategies and role of counselling for a healthy lifestyle and in disease management
- To develop skills for conducting counselling sessions/tools for nutrition related problems during the lifecycle

Learning Outcomes

- Gain knowledge on the basics of communication strategies and best suited methods of communicating with individuals to select appropriate strategies of dietary problems
- Understand the importance of BCC in managing nutrition related problems
- Draw out a complete Counselling plan for individuals based on their physiological conditions using the appropriate tools
- Understand how best to maintain adherence to changed dietary practices for specific physiological conditions

SYLLABUS OF DSE HP 7B3**THEORY**
(Credits 3; Hours 45)**UNIT I: Basics of Communication****9 Hours**

Unit Description: Students will become familiar with forms of communication, methods of communication, skills of a good communicator, barriers in effective communication, counselling in the nutrition care process and models for behaviour change. We can remove models

- Meaning of Communication, Forms of communication: Verbal and Non-verbal Communication
- Communication methods
- Characteristics of effective communication, Skills and attributes of a communicator

- Barriers to effective communication
- Concept and importance of communication in the nutrition care process
- Importance of dietary patterns and food choices and their impact on counselling
- Behaviour Change Communication and Models for behaviour change

UNIT II: Processes involved in dietary communication/counselling

6 Hours

Unit description: Students will learn how to design nutrition counselling plans and the various processes involved in designing such plans

- Designing of communication/ counselling plans – goals & objectives, evaluation instruments.
- Implementation: facilitating self-management of disease condition
- Evaluation: evaluating adherence to dietary changes
- Counselling approaches after evaluation

UNIT III: Nutrition communication through the life span

16 Hours

Unit description: Nutrition communication for improving overall health and wellbeing during various stages of the lifecycle.

- Pregnancy and Lactation
- Infancy
- Preschoolers and school going children
- Adolescents
- Adults
- Elderly

UNIT IV: Nutrition communication and strategies for improving common disorders

14 Hours

Unit Description: Nutrition communication for improving overall health and wellbeing during common disorders and strategies to maintain diet adherence.

- Lactose intolerance
- Celiac disease
- Obesity
- Metabolic syndrome
- Diabetes Type 1, Type 2 and Gestational diabetes

TUTORIAL (Credit 1; Hours 15)

Course Objectives:

To gain practical knowledge in preparing Counselling sessions for selected conditions and to identify appropriate counselling strategies for different age groups and physiological conditions

Course learning Outcome:

The students will be able to-

1. Acquire knowledge in different methods of Counselling
2. Plan Counselling sessions for different physiological conditions

UNIT I: Basics of communication and counselling

2 Hours

- Learning how to plan a face to face counselling session and use of a software for counselling.
- Survey of different Diet Apps available online for assessing nutrient intake. Critical Evaluation of any one Diet App and comparing it with manual calculation.

UNIT II: Communication for nutrition and health during the life span

8 Hours

- Listing the traditional/ region specific dietary patterns in a specific physiological condition/minor ailment
- Developing counselling sessions and innovative methods of communication for different physiological stages
 - Preconception counselling
 - Antenatal and lactation/IYCF counselling
 - Micronutrient deficiencies in preschoolers
 - Overweight/obesity in children
 - Eating disorders in adolescents
 - Malnutrition among elderly

UNIT III: Communication for nutrition and health for management of disorders

5 Hours

- Lactose intolerance
- Celiac disease
- Obesity and metabolic syndrome
- Diabetes

Essential Readings:

- Mahan, L. K. and Escott Stump. S. (2016) *Krause's Food & Nutrition Therapy* 14th ed. Saunders-Elsevier
- Snetselaar L. (2009). *Nutrition Counseling Skills for the Nutrition Care Process*. Fourth Ed. Sudbury, Massachusetts: Jones Bartlett Publishers.
- Beto A Judith and Holli B Betsy (2023). *Nutrition Counseling and Education Skills for Dietetics Professionals*. Eighth edition. USA: Lippincot Williams and Wilkins; Wolters Kluwer.

Suggested Readings:

- Gable J. (2016). *Counseling Skills for dietitians*. Florida, USA: John Wiley and Sons.
- Midwinter R and Dickson J.(2015). *Embedding Counseling and Communication Skills. A Relational Skills Model*. Routledge 2015
- Devito Joseph A. (2015) *Human Communication: The Basic Course*. New York: Pearson
- King K and Klawitter B.(2007). *Nutrition Therapy*. Advanced Counseling Skills. Third Edition. Philadelphia, USA: Lippincot Williams and Wilkins; Wolters Kluwer. 2007
- <http://www.fao.org/docrep/X2550E/X2550e04.htm>

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time

DISCIPLINE SPECIFIC ELECTIVE COURSE**DSE HP 7C1: GENDER AND MEDIA****CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE**

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Gender and Media DSE HP 7C1	4	2	0	2	Class XII	Nil

Learning Objectives

- To enable students to understand the concept of sex and gender as well as its implications of gender dynamics in societies on various aspects of human life.
- To explore gender-based disparities, including socio-cultural constraints, deprivations, and violence experienced by men and women throughout their life cycle, along with the legal remedies available.
- To help students understand the role of various forms of media in shaping the perception, opinions, attitudes and mind sets of people across societies and to emphasize the role of media in fostering gender equity.

Learning Outcomes

The students will be able to

- Gain a clear understanding of the concepts of sex and gender and how socio-economic, cultural, and political practices shape gender identities.
- Acquire insights into the dimensions, theories, and approaches to women's empowerment.
- Develop an appreciation for the connections between gender, media and society and its impact on promoting gender equality and equity.

SYLLABUS OF DSE HP 7C1**THEORY**
(Credit 2; Hours 30)**UNIT I: Understanding Gender and Identities****8 hours**

This unit introduces foundational gender concepts, identity spectrums, and social constructs that shape perceptions and realities of gender.

- Concept of gender: Difference between sex and gender
- Social construction of gender
- LGBTQ+ identities: Binary and Non-Binary concepts, intersectionality with other identities
- Challenges faced by LGBTQ+ individuals
- Government initiatives for LGBTQ+ rights and inclusion

UNIT II: Status of Women and Social Structures

8 Hours

This unit focuses on the status of women historically and in contemporary society, influenced by cultural, patriarchal, and matriarchal norms.

- Status of women: Definition, quantification, historical and contemporary perspectives
- Patriarchal vs. matriarchal societies and their impact on women
- Gender differentials in health/nutrition, education, economy, and politics
- Indices of Gender Development (GDI, GII, GGI) with reference to India

UNIT III: Gender, Violence, and Legal Frameworks

7 Hours

This unit examines gender-based violence through a life-cycle approach and explores legal measures and empowerment strategies to counter gender inequalities.

- Life Cycle Approach to gender and violence against women
- Domestic violence, sex-selective practices, workplace harassment
- Legal provisions to combat gender-based violence
- Women empowerment: Economic, social, and political dimensions

UNIT IV: Gender and Media

7 Hours

This unit explores media's influence on gender norms, representation of women, and evolving ethical concerns; includes the role of ICTs in gender discourse.

- Media and gender construction
- Representation of women in media: Political, cultural, and social domains
- Gender stereotypes, objectification, and commodity feminism
- Ethical concerns and gender-responsive media frameworks
- ICTs and Gender: Opportunities and challenges

PRACTICAL (Credit 2; Hours 30)

- Activities on sex and Gender
- Study of gender-based indices with reference to Indian context
- Analysing gender in media content: portrayal of women in media, gender stereotyping
- Research studies on issues linked to Gender
- Case studies of changing representations of femininity and masculinity in various media : magazines, films, TV shows, social media
- Studies on programmes and campaigns for women's development
- Developing Digital stories/ Power point presentations/ Radio Programs/Audio jingles on gender-based Issues

Essential Readings

- Roy, Chakraborty and Bhattacharya (2024). Media, Gender and Society: Emerging trends and interpretations, Penprints publishers
- Chaudhuri M. (2017). Refashioning India: Gender, Media and a transformed public discourse, DSR Book Distributors.
- Saikia, J.P., (2017). Gender Themes and Issues, Concept Publishing Company.
- Bhasin, Kamla (2000). *Understanding Gender*. New Delhi. Kaali for Women.
- Roy et al (2024). Media, Gender and Society: Emerging Trends and Interpretations. Perfect Paperback.

Suggested Readings

- Beauvoir, S. (2015). *The Second Sex*. London: Vintage Books.
- Chattopadhyay, S (2018). *Gender Socialization and the Making of Gender in the Indian Context*. New Delhi: Sage Publications.
- Dube, L. (2001) *Anthropological Explorations in Gender-Intersecting Fields*. New Delhi: Sage Publications.
- Goel, A, Kaur, A and Sultana, A (2006). *Violence against women: Issues and Perspectives*. New Delhi, Deep& Deep Publishers.
- Sohoni, K Neeraja, (1994), *Status of Girls in Development Strategies*, New Delhi, Har-Anand Publications.
- Ghadially, R (1989). *Women in India Society: A Reader*. New Delhi: Sage Publications.
- Ghadially, R. (2007). *Urban Women in Contemporary India*. . New Delhi: sage Publications
- Goel, A. (2004) *Education & Socio-Economic Perspectives of Women Development and Empowerment*. New Delhi: Deep & Deep.
- Goel, A. (2004) *Organisation & Structure of Women Development and Empowerment*. New Delhi: Deep & Deep

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 7C2: BEHAVIOUR CHANGE COMMUNICATION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Behaviour Change Communication DSE HP 7C2	4	2	0	2	Class XII	Nil

Learning Objectives

- To comprehend the principles, methodologies, and theories underpinning Behaviour Change Communication (BCC)
- To gain an understanding of the connections between communication strategies and behavioural change
- To explore the application of BCC concepts to specific areas such as health and environmental issues
- To design effective strategies for behaviour change communication that address a variety of social challenges

Learning Outcomes

The students would be able to

- Learn the principles, methodologies, and theories of Behavior Change Communication (BCC)
- Gain an understanding of the connections between communication strategies and behavior change
- Explore the application of BCC concepts in areas like Health and environmental communication
- Design effective strategies for behavior change communication that will address a variety of social challenges

SYLLABUS OF DSE HP 7C2

THEORY
(Credit 2; Hours 30)

UNIT I: Foundations of Behaviour Change Communication

7 Hours

The unit provides an overview of the concept and relevance of Behaviour Change Communication (BCC). This unit covers the core concepts, principles, and approaches of BCC. It deeply explores the role of communication in influencing behaviour, focusing on Participatory and inclusive communication.

- Introduction to BCC: Definition and scope of BCC. Evolution of Communication for Development.
- Paradigm shifts in BCC
- Key Concepts and Approaches: Principles of BCC, Approaches to BCC, Role of Culture, Norms and values in BCC, Behaviour change vs. social change, Importance of participatory and inclusive communication.
- Participatory and inclusive communication, Role of Mass media, interpersonal communication, social media in behavior change, Community-based communication approaches.

UNIT II: Theories of BCC

10 Hours

This unit focuses on the important BCC theories and models, the application of the Theory of Change in understanding and implementing BCC

- Theories of Behavior Change: Socio-Ecological Model, Stages of Change, Health Belief Model, Social Cognitive Theory, Theory of Planned Behavior, Diffusion of Innovations, Social Network theory and others.
- Understanding the concept and application of Theory of Change in BCC

UNIT III: Tools and Techniques for BCC

7 Hours

This unit focuses on the need for structured BCC strategies and the steps involved in strategy design. It also reviews national BCC campaigns to highlight best practices and challenges

- Need and Relevance of BCC Strategies, Role of BCC in achieving sustainable development goals (SDGs), Steps in BCC Strategy Development
- BCC Strategy Design and Implementation, Human Centred Design, Design Thinking and Principles of effective BCC strategy implementation.
- Analysis of Barriers and enablers in the design and implementation of strategies. Role of partnerships, policy advocacy, and community mobilization in campaigns.
- Flagship campaigns (e.g., India's Pulse Polio Campaign, Swachh Bharat Abhiyan, or HIV/AIDS awareness initiatives)- Analysis of Strategies & Approaches

UNIT IV: Application of BCC to Social Issues

6 Hours

This unit examines the application of BCC in addressing health, environmental, and social justice issues. It emphasizes campaign design, implementation, and the importance of monitoring and evaluation to ensure program success.

- BCC for Health & Nutrition: Addressing issues of health, nutrition & well-being. Campaigns on vaccination, nutrition, maternal health, HIV/AIDS, and mental health, combating stigma and misinformation in health communication
- BCC for Environment & Sustainable Development: promoting climate action and sustainability, engaging communities in waste management and conservation efforts, role of media in promoting environmental communication
- Gender & Social Justice: Addressing gender equality and empowerment, Using BCC to combat discrimination and promote inclusion
- Monitoring and Evaluation (M&E): Importance of M&E in BCC programs, Key indicators for assessing impact, Tools and techniques for tracking progress and refining strategies.

PRACTICAL
(Credit 2; Hours 60)

- Critical analysis of BCC campaigns from a socio-ecological perspective
- Analysis and interpretation of Health and environment-related indicators
- Designing BCC campaign for social and developmental issues
- Review of policy initiatives in Health & Environment
- Evaluation of IEC material of various BCC campaigns on health
- Evaluation of IEC material of various BCC campaigns on environment

Essential Readings

- Atkin, C.K. & Rice, R.E. (2012) *Theory and Principles of Public Campaigns*. In C. Atkins & R Rice (EDS) Public Communication Campaigns. Newbury Park, CA: Sage
- Cox, R. (2006) Environmental Communications and the Public Sphere. Thousand Oaks, CA: Sage.
- McKee, N., Manoncourt, E., Chin, S. Y., & Carnegie, R. (2000). *Involving people, evolving behavior*. Penang: Southbound.
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Free Press.
- Subedi, N R, (2008). *Advocacy Strategies and Approaches: A Training of Trainers Manual*. International

Suggested Readings

- Ashford, J. B., LeCroy, C. W., & Lortie, K.L. (2010). *Human Behavior in the Social Environment: A Multidimensional Perspective* (4th ed.). Belmont CA: Wadsworth/Thomson Learning.
- Glanz, K., Rimer, B. K., & Viswanath, K. (Eds.). (2015). *Health behavior: Theory, research, and practice* (5th ed.). Jossey-Bass.
- Kotler, P. & Lee, N. (2011). *Social Marketing: Influencing Behaviors for Good*, 4th Ed. Thousand Oaks, CA: Sage Publications. (K&L)
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Free Press.
- Schiavo, R. (2013). *Health communication: From theory to practice* (2nd ed.). Jossey-Bass.
- Servaes, J. (Ed.). (2020). *Sustainable development and communication in global change*. Springer.
- UNICEF. (2016). Communication for Social and Behaviour Change Module 2: Theories of Communication for Development and Social Change. SBC Warehouse. Accessible at <https://iec.unicef.in/document/communication-for-social-and-behaviour-change-module-2-theories-of-communication-for-development-and-social-change>
- UNICEF. (2016). Communication for Social and Behaviour Change Module 6: Strategy Design: Planning Models, Processes and Levels of Intervention. SBC Warehouse. Accessible at <https://iec.unicef.in/document/communication-for-social-and-behaviour-change-module-6-strategy-design-planning-models-processes-and-levels-of-intervention>

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time

DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 7C3: CORPORATE SOCIAL RESPONSIBILITY AND FUNDRAISING

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSE HP 7C3 Corporate Social Responsibility and Fundraising	4	3	1	0	Class XII pass with science	NIL

Learning Objectives

- To develop a comprehensive understanding of the concept of Corporate Social Responsibility (CSR), its historical evolution, and its linkages to societal development in national and international contexts.
- To examine CSR strategies, leadership styles, and the integration of corporate governance principles for effective planning and execution of CSR initiatives.
- To explore the fundraising environment, including the types of funding agencies, sources of support, and strategies for mobilizing financial and non-financial resources for development programs.
- To understand donor behavior, ethical fundraising practices, and the impact of funding on development initiatives and organizational growth.

Learning Outcomes:

Student will be able to-

- Critically analyze the growth and factors influencing CSR across diverse socio-economic, legal, and environmental perspectives.
- Demonstrate the ability to design effective CSR strategies by integrating corporate governance principles and leadership approaches tailored to organizational objectives.
- Gain practical knowledge of fundraising techniques and develop strategies for engaging donors and securing financial and in-kind contributions for development programs.
- Evaluate the ethical dimensions of fundraising, assess donor motivations, and identify the impact of funding decisions on the sustainability of development initiatives.

SYLLABUS OF DSE HP 7C3

THEORY
(3 credit, 45 hours)

UNIT I: Corporate Social Responsibility

10 hours

This unit introduces the concept of Corporate Social Responsibility (CSR), exploring its definition, historical evolution, and linkages to societal development. Additionally, it focuses on the nature and types of CSR activities and their impact on development programs. The

relationships between CSR and development organizations are explored, along with their influence on organizational functioning. The unit concludes by discussing government initiatives aimed at promoting CSR practices.

- Definition, concept, linkages to development
- Growth of CSR-historical & contemporary perspectives, national & international scenario
- Factors influencing growth of CSR in societies- ideological, socio-economic, legal & environmental perspectives
- CSR activities–nature, types, impact on development programmes
- CSR & development organisations–relationships, functioning & impact on organisational functioning
- Government initiatives for promoting CSR

UNIT II: CSR Strategy and Leadership

10 hours

This unit focuses on the strategic dimensions of CSR and the leadership required to drive its successful implementation. It examines corporate motivations and behaviors that shape CSR practices, both nationally and internationally, while grounding the discussion in relevant theories and principles. The unit also covers strategic corporate planning and outlines steps to make CSR effective for businesses. Case studies of national and international CSR programs and initiatives are included to illustrate practical applications.

- Corporate motivations & behaviour for CSR – factors influencing national & international perspectives
- Theories & principles of CSR
- Corporate governance, style, leadership & CSR
- CSR Strategies-objectives, approaches, roles and tasks of a corporate managers
- Strategic corporate planning - steps to make CSR Work for Business
- Corporate Social Responsibility: programmes & initiatives – national and international

UNIT III: Fundraising environment

10 hours

This unit provides an in-depth understanding of the fundraising environment, focusing on the types of agencies funding development programs, the nature of support, and the importance of intersectoral partnerships. It explores the significance, sources, and techniques of fundraising, supported by principles and theories. The unit concludes by analyzing the impact of funding on development initiatives and organizational sustainability.

- Types of agencies funding development programmes, nature of support, inter sectoral partnerships and synergies.
- Fundraising- importance, nature, sources and techniques. Principle and theories of Fund raising.
- Non-financial donations and in-kind giving- nature, sources, mobilization strategies
- Donor Behaviour- needs of donors- economic, psychological and, sociological perspective; brand marketing and philanthropy
- Fundraising ethics, ethical decision making, code of Fundraising.
- Funding & impact on development initiatives and organizations

UNIT IV: Ethical Fundraising and Donor Relationships

10 hours

This unit explores the ethical considerations in fundraising and the dynamics of donor relationships. It highlights the importance of transparency, accountability, and donor

engagement in the fundraising process. Students will learn strategies for building long-term relationships with donors, emphasizing the ethical principles that guide the interaction between organizations and supporters.

- Ethical principles in fundraising: transparency, accountability, and honesty
- Building and sustaining donor relationships: strategies for engagement and trust
- Balancing donor expectations with organizational goals and community needs
- Ethical dilemmas in fundraising and decision-making: codes of conduct and best practices
- Evaluating the long-term impact of donor relationships on organizational sustainability

Tutorial **(1 credit, 15 hours)**

- Understanding CSR activities–nature, types, impact on development programmes through industry visits.
- Understand CSR Strategies-objectives, approaches, roles and tasks of a corporate managers through case studies – national & international.
- Designing Donor Communication,
- Understand Fundamentals of Fundraising Planning, design a plan for your own fundraising activity, writing objectives that are an appropriate, concepts such as segmentation, positioning, branding and the case for support.
- Understanding and evaluating project proposals for grants and developing fund raising plans and strategies.

Essential Readings

- Chatterji, M. (2014). *Corporate Social Responsibility*. New Delhi: Oxford University Press.
- Narang R.K. (2009). *Corporate Social Responsibility-Replicable Models on Sustainable Development*. New Delhi: The Energy & Resources Institute.
- Mandal, B.N (2012). *Corporate Social Responsibility in India*. Global Vision Publishing House: Delhi.
- Communication, Governance. UK: Cambridge University Press. R. Kumar, S. L. Goel. (2005). *Administration and Management of NGOs: Text and Case Studies* Paperback. Deep & Deep Publications, India. ISBN 8176296015.
- S. Chandra (2003). *Guidelines for NGO Management in India*. Kanishka Distributors, New Delhi. ISBN 978-8173916038.
- D. Lewis (2001). *Management of Non-Governmental Development Organization*. Second Edition, Routledge, New York. ISBN 9780203002162.
- Subedi, N R, (2008). *Advocacy Strategies and Approaches: A Training of Trainers Manual*. International Centre for Integrated Mountain Development (ICIMOD). ISBN :9291150830
- Abraham, A. (2003). *Formation and Management of NGOs*. Third Edition, Universal Law Publishing Co. Pvt Ltd., New Delhi. ISBN 9350350122.

Suggested Readings

- Grayson D., Hodges A. (2004). *Corporate Social Responsibility- Seven Steps to Make Corporate Social Responsibility Work for Your Business*. UK: Greenleaf Publishing Limited.
- Sundar, P. (2013). *Business and Community: The Story of Corporate Social Responsibility in India*. New Delhi, Sage Publication. ISBN 978-81-321-0955-6.
- Agarwal, S.K. (2008). *Corporate Social Responsibility in India*, Sage publication Pvt. Ltd. <https://doi.org/10.4135/9788132100027>.

- Lewis, D. (2014). *Non-governmental Organizations: Management and Development*. 3rd Edition. Routledge. ISBN 9781138294097.
- Til, J.V. (1988). *Mapping the Third Sector: Voluntarism in a Changing Social Economy*. Foundation Centre, New York. ISBN 0879542403.

Note: Examination Scheme and mode shall be as prescribed by the Examination branch, University of Delhi from time to time.

DISCIPLINE SPECIFIC ELECTIVE COURSE

DSE HP 7D1: WORLD TEXTILES

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
World Textiles DSE HP 7D1	4	3	1	0	Class XII	Nil

Learning Objectives

- To understand the diverse methods and processes involved in textile production.
- To examine the evolution of textiles in ancient civilizations.
- To identify and analyze iconic textiles from around the world, recognizing their cultural, artistic, and historical significance.
- To gain insight into the influence of various art movements on textile design, production, and appreciation.

Learning Outcomes

The students would be able to

- Explain various methods of textile production.
- Describe the evolution of textiles in ancient civilizations and their impact on modern society.
- Identify and analyze masterpieces of world textiles, recognizing their cultural, artistic, and historical significance.
- Explain the influence of various art movements on textile design, production, and appreciation.

SYLLABUS OF DSE HP 7D1

THEORY

(Credits 3; Hours 45)

UNIT I: Textile Production Techniques

10 Hours

This unit lays thrust on history, tools and techniques of textile production techniques in the world-

- Felt and bark cloth
- Plaiting and basketry
- Spinning
- Weaving
- Tapestry and rug weaving
- Knitting
- Netting knotting and crochet

- Embroidery
- Dyeing and printing

UNIT II: Beginnings of the Textile industry in Ancient Civilisations. 15 Hours

This unit highlights the origin of textile fibres, and methods used to produce and process textile fibers in various ancient civilisations

- Mesopotamia
- Egypt
- Persia
- Greece
- Rome
- China
- India

UNIT III: Masterpieces of World Textiles 12 Hours

This unit highlights on history, construction techniques, styles, colours, motifs and centres of production of Master pieces of the world (Structural Design)

- Brocades
- Shawls
- Laces of Europe
- Linen Damasks of Ireland

UNIT IV: Masterpieces of World Textiles 8 Hours

This unit highlights on history, construction techniques, styles, colours, motifs and centres of production of Master pieces of the world (Applied Design)

- Resist dyed Fabrics of Japan and Indonesia
- Printed Textiles of France and England
- Embroidered textiles of China, Persia and England

TUTORIAL (Credits 1; Hours 15)

- Visit a textile museum or collection to analyze and appreciate historical and cultural textiles.
- In-depth analysis of specific textiles or textile-producing cultures in form of Case studies
- Design and create a garment or accessory using traditional textile techniques and materials.
- create samples of Basketry, Spinning, Weaving, Knitting, Crochet, Embroidery, Appliqué, Dyeing and Printing.
- Group project -Discussion on Ancient civilization
- Discussion on Art Movements. Make a project on Art movements and artists - Gothic Era, Renaissance, Baroque, Neoclassicism, Romanticism, Realism, Cubism, Bauhaus, Art Nouveau, Art Deco, Cubism, surrealism, Abstract, Pop art, Minimalism, Contemporary and Indian Art.
- Group discussions on various topics, such as the cultural significance of textiles, the impact of industrialization on traditional textile production, and the role of textiles in modern society.

Essential Readings

- Gale, C., & Dhamija, J. (2010). The textile book: A comprehensive guide to textiles from around the world. Thames & Hudson, London.
- Gillow, J., & Sentance, B. (2008). World textiles: A visual guide to traditional techniques. Thames & Hudson, London.
- Harris, J. (Ed.). (2001). Textiles: 5,000 years (Rev. ed.). British Museum Press. London.
- Paine, S. (2003). Textiles of the world: A guide to traditional techniques and motifs. Thames & Hudson, London.
- Wilson, K. (2001). World textiles: A concise history. Thames & Hudson, London.
- Dehejia, V. (1997). The art of India. National Gallery of Art. Washington, D.C.

Suggested Readings

- Adams, L. S. (2016). Art: A brief history. Pearson Education. New York, NY.
- Gardner, H. (2016). Gardner's art through the ages: A global history. Cengage Learning. Boston, MA
- Ginsburg, M. (Ed.). (2004). The illustrated history of textiles. Studio Editions, London.
- Gombrich, E. H. (1995). The story of art. Phaidon Press. London, England
- Lewis, E. (1953) *Romance Of Textile*, The McMillan Company, New York. (Classic- Out of Print)
- Schacter, R. (2013). The world atlas of street art and graffiti. Yale University Press.
- Seiler-Baldinger, A. (1994). Textiles: A classification of techniques. Calico Museum of Textiles, India.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time

DISCIPLINE SPECIFIC ELECTIVE COURSE

DSE HP 7D2: SUSTAINABLE CONSUMPTION AND PRODUCTION OF FASHION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Sustainable Consumption and Production of Fashion DSE HP 7D2	4	2	0	2	Class XII	Nil

Learning Objectives

- Spreading awareness about issues and challenges of sustainable fashion.
- Make students conscious consumers of textiles and apparel
- Inculcating habits of reducing textile waste generation

Learning Outcomes

The students would be able to

- The student will be able to gain knowledge of issues and challenges related to over consumption and non-sustainable fashion.
- The student will be able to choose garment consciously and become informed consumer
- The student will be able to use green laundry practices to help the environment
- The student will be able to increase life cycle of garments and reduce waste generation

SYLLABUS OF DSE HP 7D2

THEORY (Credits 2; Hours 30)

UNIT I: Fashion and Sustainability

9 Hours

This unit will deal with aspects of sustainability in relation to fashion and textiles

- Basics of sustainability
- The Fashion Business & sustainability issues
- Ethical & sustainable fashion in the changing global scenario
- Circular fashion
- Start-ups and big brands dealing with sustainability
- Measuring sustainability – How brands do it

UNIT II: Green Consumption

7 Hours

This unit will deal with factors that should be kept in mind while selecting and purchasing apparel.

- Sustainable Consumption: Slow fashion, Durability, Appropriateness, Multifunctional garments, Trans-seasonal garments, emotionally durable design, Local Consumption
- Local consumption and production: Supporting local artisans
- Standards, labels and organisations dealing with sustainable textiles and apparel

UNIT III: Ethical Care and Maintenance

7 Hours

This unit will deal with green practices for laundry and care of apparel

- Laundry detergents and softeners: Effectiveness and environmental concerns
- Efficient laundering practices, Laundering frequency, Machine vs line drying, Special care laundry
- Energy costs vs consumer needs
- Designing sustainable clothing that enables: low-impact care, extended use

UNIT IV: Intelligent Disposal

7 Hours

This unit will deal with ways to increase the life of garments to reduce waste generation.

- Waste management strategies: Up-cycling, Reuse of goods, repair and reconditioning of goods, recycling of goods, zero waste pattern.
- Collaborative consumption: Sharing, pass me down, give away
- Vintage Clothing: Traditional Practices in Indian culture leading to sustainable consumption
- Take-back schemes

PRACTICAL

(Credit 2; Hours 60)

1. Analysing Market and Consumer Practices

- Market survey to evaluate presence of Sustainable garments in Indian retail market: Identify any one Multiband apparel outlet and analyse brands selling sustainable clothes, green standards marked on labels and any other information available on labels that talks about sustainability in production of that garment.
- Analysing personal wardrobe to assess individual buying practices
- Analysing personal laundry practices and evaluating its impact on the environment.
- Analysing personal garment disposal practices and finding ways to reduce the waste generation.

2. Field Visit and Report Writing

- Visit to any unit manufacturing recycled textiles and apparel. Observe the process and material management at the facility and make a detailed report. Case Study

- Case study of an Indian Apparel Brand that is promoting Sustainable fashion.
- Case study on any one model of Collaborative consumption.

3. Product development

- Create two articles – apparel/non apparel by using any sustainable material/technique
Design display or apparel show

Essential Readings

- Fletcher, K., & Grose, L. (2012). Fashion & sustainability: Design for change. Hachette UK
- Fletcher, K. (2013). Sustainable fashion and textiles: design journeys. Routledge.
- Gwilt, A., & Rissanen, T. (2012). Shaping sustainable fashion: Changing the way we make and use clothes. Routledge.
- Jacques, P. (2020). Sustainability: the basics. Routledge.
- Gardetti, M.A., & Torres, A.L. (Eds.). (2013). Sustainability in Fashion and Textiles: Values, Design, Production and Consumption (1st ed.). Routledge.
- Pratibhan, M. Ed. (2017); Sustainability in Fashion & Apparels (Challenges & Solutions); Woodhead Publishing

Suggested Readings

- Almeida, L. (2015). Ecolabels and organic certification for textile products. A Roadmap to sustainable textiles and clothing (pp. 175-196). Springer, Singapore.
- Muthu, S. S. (Ed.). (2014). Roadmap to sustainable textiles and clothing: Eco-friendly rawmaterials, technologies, and processing methods. Springer.
- Minney, S. (2011). Naked fashion: The new sustainable fashion revolution. New International
- Mahapatra N. N. (2015); Textiles & Environment: Woodhead Publishing
- Kaur, J., & Singh, G. (2021). Cool Branding for Indian Sustainable Fashion Brands. Social and Sustainability Marketing: A Casebook for Reaching Your Socially Responsible Consumers through Marketing Science, 115.
- Gwilt, A. (2020). A practical guide to sustainable fashion. Bloomsbury Publishing.

Note: Examination scheme and mode shall be as prescribed by the Examination branch, University of Delhi, from time to time

DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 7D3: TEXTILE CONSERVATION AND DOCUMENTATION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Textile Conservation and Documentation DSE HP 7D3	4	2	0	2	Class XII	Nil

Learning Objectives

- To provide theoretical knowledge and practical experience which enables to contribute to the understanding and preservation of culturally significant textile artifacts.
- To introduce the core ethical principles underlying professional conservation practice.
- To understand the principles of preventive conservation for textiles.
- To learn about proper storage and display practices.

Learning Outcomes

The students would be able to

- Develop academic, practical and professional skills in textile conservation.
- Recognise agents of deterioration and apply interventive and preventive conservation concepts.
- Learn to use various conservation tools, equipments and conservation grade materials.
- Practice working with different types of textiles, including fragile, delicate and sensitive materials.

SYLLABUS OF DSE HP 7D3

THEORY
(Credits 2; Hours 30)

UNIT I: Introduction to Textile Conservation

8 Hours

This unit lays thrust on basic concepts of conservation-

- Importance and Ethics in Conservation
- Principles of Conservation
- Museums and museology
- Terminology
- Documentation

UNIT II: Agents of Deterioration and Conservation Concepts

10 Hours

This unit highlights the factors deteriorating textiles and methods of conservation

- Natural Factors
- Manmade Factors
- Preventive Conservation
- Interventive Conservation

UNIT III: Textile Collection Maintenance and Management.

6 Hours

This unit highlights on conservation materials, tools, used in Storage and Display

- Workspace and Equipment
- Materials and supplies
- Cleaning
- Restoration
- Storage
- Display

UNIT IV: Storage and Display Techniques

6 Hours

This unit highlights on Storage and Display techniques for Textile Collections

- Storage
- Display

PRACTICAL

(Credits 2; Hours 60)

1. Materials and Equipment

- Fibre Identification: Identify different types of fibers using various techniques, such as microscopy and burn tests.
- Dye analysis: Dye analysis techniques for identifying and dating textiles.
- Equipment Handling: Handle specialized equipment, such as vacuum cleaners, humidifiers, digital microscope, spectrophotometer or conservation-grade materials.

2. Documentation

- Survey: Visit a textile museum or collection and survey external and internal factors
- Examination: Examine textile artifacts and prepare condition reports
- Photography: Photograph textiles from different angles

3. Cleaning and Stabilization

- Wet Cleaning: Clean different types of textiles using various wet cleaning methods.
- Dry Cleaning: Dry clean techniques for sensitive or fragile textiles.
- Stabilisation: Stabile fragile or damaged textiles using various techniques, such as stitching, adhesive tapes, or consolidants.

4. Repair and Reconstruction

- Hand Stitching: Hand-stitching techniques for repairing and reconstructing textiles.
- Re-weaving: Re-weave for repairing damaged or missing areas of textiles.

5. Mounting and Display

- Mounting textiles: Mount textiles on different types of supports, such as boards, rollers, or mannequins.
- Creating custom mounts: Design and create custom mounts for specific textiles or exhibits.
- Displaying textiles: Display textiles in a way that minimizes damage and maximizes visibility.

6. Conservation Techniques

- Consolidation: Consolidating fragile or damaged textiles using various techniques, such as adhesive tapes or consolidants.
- Deacidification: Deacidification techniques for neutralizing acidic materials in textiles.
- Pest management: Pest management techniques for preventing and treating infestations in textiles.

Essential Readings

- Finch, K. and Putnam, G. (1985), "The Conservation of Tapestries and Embroideries" by- A detailed guide to the conservation of tapestries and embroideries. Butterworth-Heinemann, London UK.
- Landi, S. (2000). The textile conservator's manual (2nd ed.). Butterworth-Heinemann, London UK..
- Lennard, F., & Ewer, P. (2010). Textile conservation: Advances in practice. Elsevier.
- Wood, E. J. (2017). Textile science: An introduction. Bloomsbury Academic.

Suggested Readings

- American National Standards Institute. (n.d.). ANSI standards for textile conservation. Retrieved from (link unavailable) A set of standards for textile conservation, covering topics such as cleaning, stabilization, and repair.
- International Organization for Standardization (ISO) Standards for Textile Conservation - A set of international standards for textile conservation, covering topics such as textile testing, cleaning, and repair.
- The Textile Conservation Code of Ethics - A code of ethics for textile conservators, outlining principles and guidelines for professional practice.
- Journal of the American Institute for Conservation (JAIC) - A leading journal on conservation and preservation, including textile conservation.

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**DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 7E1: ERGONOMIC DESIGN**

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Ergonomic Design DSE HP 7E1	4	2	0	2	Class XII	Studied Space Planning & Sustainability DSC HP 513

Learning Objectives

- To sensitize the students towards the importance of ergonomics and its application in daily life
- To understand components of worker inputs
- To develop understanding of functional design and arrangement of workplaces and equipment
- To identify human and workplace factors which contribute to ergonomic hazards
- To develop aptitude in identifying the product / space design problems at place of work

Learning Outcomes

The students would be able to

- Understand the concept, history and importance of ergonomics in designing.
- Recognize and appreciate the scope of ergonomics in the professional arena
- Develop skills in taking anthropometric measurements as applied to different work stations.
- Apprehend the techniques of conducting time & motion and energy studies.
- Critically evaluate and design different workstations & equipment with respect to their functional effectiveness.

SYLLABUS OF DSE HP 7E1

**THEORY
(Credits 2; Hours 30)**

UNIT I: Introduction to Human Factors and Ergonomics

8 Hours

This unit introduces the students to the concept of ergonomics and anthropometry and their importance in daily life.

- Ergonomics- concept, significance, history, application of Ergonomics in daily life
- Anthropometry – History and its application in interior designing for different work areas and workers
- Human-Centred Design- Design Thinking concept and methodology

UNIT II: The User Component

6 Hours

This unit highlights the importance of various components of worker inputs

- Physical: Bio-mechanics of human movement and musculo-skeletal system, Anatomical position, reference planes and movements
- Temporal
- Cognitive
- Affective

UNIT III: Workplace Design

12 Hours

This unit focuses on the functional design of workplaces, work study techniques, indices of indoor comfort, man- machine interface, as well as the occupational safety and health at the workplace.

- Functional design and arrangement of workplaces
- Work study- Time and motion study, energy study
- Indices of indoor comfort: ventilation, lighting, temperature, noise
- Human Machine Interface- Controls and Displays

UNIT IV: Risk factors in Ergonomics

4 Hours

This unit provides insight into the occupational safety and health at workplace.

- Types of ergonomic risk factors
- Effects of ergonomic hazards
- Occupational safety and health at workplace - Applications of ergonomics in different work environments

PRACTICAL (Credits 2; Hours 60)

- 1. Anthropometric Measurements** **8 Hours**
 - Basic Anthropometry of a selected demography
- 2. Work Study** **8 Hours**
 - Time and motion study
 - Energy study - Physiological cost of workload
- 3. Kitchen plans** **20 Hours**
 - Prepare floor and elevation plans for different types of kitchen
- 4. Indices of internal comfort** **6 Hours**
 - Testing suitability of selected environmental factors at a workplace
- 5. Ergonomic Assessment and Occupational safety analysis of Workplaces** **18 Hours**
 - Case study of a selected workplace - Identifying and assessing workplace for a selected occupation, analysis of posture and equipment used, suggestions for improvement in process of the activity
 - Designing workstation/equipment suitable to the selected occupation

Essential Readings

- Bridger, R. (2017). *Introduction to Human Factors and Ergonomics*. CRC Press.
- Salvendy, G. (2012). *Handbook of Human Factors and Ergonomics*. John Wiley & Sons.
- Chakrabarti, D. (1997). *Indian Anthropometric Dimensions for Ergonomic Design*

Practice. National Institute of Design.

- Tosi, F. (2019). *Design for Ergonomics*. Springer Nature.
- Steidl, R.E. & Bratton, E.C. (1968). *Work in the Home*. John Wiley & Sons Inc.

Suggested Readings

- Hedge, A. (2016). *Ergonomic Workplace Design for Health, Wellness, and Productivity*. CRC Press.
- Stanton, N. A., Hedge, A., Brookhuis, K., Salas, E., & Hendrick, H. W. (2004).
- *Handbook of Human Factors and Ergonomics Methods*. CRC Press.
- Helander, M. (2005). *A Guide to Human Factors and Ergonomics* (2nd ed.). CRC Press.
- Shorrock, S., & Williams, C. (2016). *Human Factors and Ergonomics in Practice: Improving System Performance and Human Well-Being in the Real World*. CRC Press.
- DeChiara, J., Panero, J., & Zelnik, M. (2017). *Time-saver standards for interior design and space planning* (2nd ed.). McGraw-Hill Education.
- Neufert, E., & Neufert, P. (2019). *Architects' data* (5th ed.). John Wiley & Sons.

Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 7E2: RESOURCE MANAGEMENT AND SUSTAINABLE DEVELOPMENT

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical/ Practice		
Resource Management and Sustainable Development DSE HP 7E2	4	2	0	2	Class XII	Nil

Learning Objectives

- To build an inter-disciplinary perspective on understanding environmental concerns, sustainable development and its challenges.
- To familiarize students with current debates and perspectives with respect to sustainable development.
- To familiarize students with the concepts of sustainable resource management.
- To develop skills and competencies amongst students with regard to energy, water and waste management.

Learning Outcomes

The students would be able to

- Build an understanding of environmental concerns, sustainable development and its challenges.
- Understand the concept of resources and developmental issues with respect to sustainable development.
- Develop skills in sustainable resource management.

SYLLABUS OF DSE HP 7E2

THEORY
(Credit 2; Hours 30)

UNIT I: Introduction to Sustainable Development

9 Hours

This unit introduces the concept, need, principles, and goals of sustainable development, along with key global milestones and initiatives.

- Concept of sustainable development
- Need, objectives and principles of sustainable development

- National and international milestones, initiatives, summits and protocols
- Sustainable Development Goals (SDGs)

UNIT II: Resources and Developmental Issues

7 Hours

This unit explores environmental challenges, resource consumption and sustainable resource management.

- Environmental concerns, population explosion, urbanization, globalization, economic development, ecological footprint, carbon footprint
- Perspectives in resource consumption
- Sustainable management of key resources: Land, green cover, water, air, waste

UNIT III: Sustainable Resource Management

7 Hours

This unit covers sustainable management of energy, water, waste, and air through strategies like energy auditing, rainwater harvesting, and air quality monitoring.

- Energy management – star labelling, energy auditing, renewable energy
- Water management – Rain water harvesting- Calculation of rainwater harvesting potential, water auditing, waste water recycling, water testing
- Waste management – Waste to energy plants, waste to wealth
- Air management – Air quality, AQI

UNIT IV: Green practices by industry

7 Hours

This unit throws light on green practices by industry and green building rating systems.

- Sustainable practices by industry
- CSR initiatives
- Green buildings: need and importance
- Green building rating systems

PRACTICAL

(Credit 2; Hours 60)

UNIT I: Sustainable Development Initiatives

- Case studies on sustainable initiatives/CSR initiatives by industry
- Creation of awareness generation material for issues related to sustainable development
- Organizing events/competitions to commemorate important environment related days/ Current issues related to environment and sustainable development
- Calculation of ecological and carbon footprint using various applications and websites
- Case studies on green buildings

UNIT II: Energy Management

- Understanding electricity bills: components and calculations
- Understanding BEE star labels as an initiative towards sustainable energy consumption
- Energy auditing for sustainable energy management
- Portfolio/Survey on renewable energy products available in the market

UNIT III: Air, Water And Waste Management

- Air/noise/water testing, AQI applications and websites
- Green modes of transportation, E-vehicles: components and calculations
- Composting for sustainable waste management
- Case studies on waste management

Essential Readings

- Thakur, B., Thakur, R. R., Chattopadhyay, S., & Abhay, R. K. (Eds.). (2023). *Resource management, sustainable development and governance: India and international perspectives*. Springer.
- Prasad, R., Jhariya, M. K., & Banerjee, A. (2021). *Advances in sustainable development and management of environmental and natural resources: Economic outlook and opinions*. CRC Press, Taylor & Francis Group.
- Goel, S. (Ed.). (2016). *Management of resources for sustainable development*. Blackswan Publications.
- Somayaji, G., & Somayaji, S. (2009). *Environmental concerns and sustainable development: Some perspectives from India*. TERI Publication.
- Sundar, I. (2006). *Environment and sustainable development*. APH Publishing Corporation.

Suggested Readings

- Patel, B. N., & Nagar, R. (2018). *Sustainable development and India*. Oxford University Press India.
- Filho, W. L., Rogers, J., & Raniga, U. I. (Eds.). (2018). *Sustainable development research in the Asia-Pacific region: Education, cities, infrastructure and buildings* (World Sustainability Series). Springer.
- UN Millennium Project. (2005). *Innovation: Applying knowledge in development*. Science, Technology and Innovation Task Force Report.
- World Bank. (2006). *Enhancing agricultural innovation: How to go beyond the strengthening of research systems*. World Bank: Agriculture and Rural Development.

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DISCIPLINE SPECIFIC ELECTIVE COURSE

DSE HP 7E3: CONSUMER BEHAVIOUR AND MARKETING MANAGEMENT

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical		
Consumer Behaviour and Marketing Management DSE HP 7E3	4	3	1	0	Studied Semester 6	NIL

Learning Objectives

- To impart an understanding of the conceptual framework, scope and importance of marketing management.
- To build an understanding of the macro and micro environment of organisations and their role in coping with changing market scenario.
- To impart knowledge regarding importance and techniques of market research.
- To create an understanding about consumer behaviour, dealing with competition in the market and managing marketing communication.

Learning Outcomes

- Develop an understanding of the importance and scope of marketing.
- Understand the changing macro and micro environment of organizations and importance of market research .
- Understand consumer behaviour and importance of creating customer value.
- Develop an understanding of the competitive strategies in marketing.
- Understanding the role of marketing communication and its effectiveness.

SYLLABUS OF DSE HP 7E3

THEORY (Credits 3; Hours 45)

UNIT I: Understanding Marketing Management and capturing marketing insight

11 Hours

This unit covers marketing scope, company orientations, macro environment analysis, marketing mix, market research, and new product development.

- Importance and scope of marketing, traditional vs. digital marketing
- Company orientations towards markets and marketing

- Adapting marketing to new economy
- Analyzing the macro environment (demographic, economic, technological, political, legal, social, cultural)
- Marketing mix
- Conducting market research
- New product development-challenges and process

UNIT II: Consumer Behaviour

11 Hours

This unit examines consumer behaviour, factors influencing buying decisions and strategies for customer value, satisfaction, and loyalty.

- Definition, Nature, Scope, Consumer Behaviour's Applications in Marketing
- Factors influencing consumer behaviour
- Consumer Adoption Process-stages and factors influencing
- Buying decision process- five stage model
- Creating customer value, satisfaction and loyalty
- Segmenting consumer markets, market targeting

UNIT III: Dealing with Competition

12 Hours

This unit covers competitor analysis, competitive strategies and service marketing.

- Identify and analyse competitors, competitive strategies for marketing
- Building strong brands- creating brand equity, brand positioning, differentiation strategies
- Product life-cycle marketing strategies
- Characteristics of services, marketing strategies for service firms, managing service quality, differentiating services

UNIT IV: Marketing Communication

11 Hours

This unit throws light on effective marketing communication.

- Role of marketing communication
- Designing effective marketing communication
- Managing mass communication: Advertising, sales promotions and public relations
- Managing Personal Communication: direct marketing and personal selling

TUTORIAL (Credit 1; Hours 15)

- **Market research proposals**
 - Developing market research proposals on consumer buying behaviour, effect of promotional schemes on consumer purchase, consumer satisfaction and opinion regarding selected products/brands/marketing strategies, online purchasing etc.
- **Brand comparison**
 - Brand comparisons of products and services in terms of their marketing

strategies, tools used by them for brand building and generating brand, find out their strengths and weaknesses and suggest suitable marketing strategies to increase their market share.

- **E-commerce**
 - Assessment and critical analysis of online retailing websites with focus on visibility, user interface, experience, ease of transaction etc.
 - To develop an e-tailing prototype.
- **Case Studies**
 - To develop an understanding of marketing strategies with emphasis on marketing mix, marketing budgets, creating customer value and cultivating customer relationships.
 - To critically evaluate digital marketing strategies adopted by various product and service brands.
 - To develop digital marketing strategy for a hypothetical brand.

Essential Readings

- Kotler, P., & Stigliano, G. (2024). *Redefining Retail: 10 Guiding Principles for a Post-Digital World*. Wiley & Sons.
- Daum, C., & Bartonico, M. (2023). *Marketing Management Essentials You Always Wanted to Know*. Vibrant Publishers.
- Solomon, M. R. (2017). *Consumer behavior: Buying, having, and being* (12th ed.). Pearson Education.
- Kotler, P., Keller, K. (2016). *Marketing Management 15th edition*. Pearson, New Delhi, ISBN:978-81-317-3101-7
- Baines, Fill, Sinha & Page. (2013). *Marketing*. Oxford University Press, New Delhi, Asian Edition, ISBN: 0-19-807944-3

Suggested Readings

- Kotler, P., & Armstrong, G. (2018). *Principles of marketing* (17th ed.). Pearson Education.
- Schiffman, L. G., & Kanuk, L. L. (2010). *Consumer behavior* (10th ed.). Pearson Education.
- Kotler P, Keller K.L., Koshy A, Jha M. (2006). *Marketing Management: A South Asian, Perspective*, Pearson Education.
- Etzel, M. J., Walker, B. J., & Stanton, W. J. (2004). *Marketing management* (13th ed.). Tata McGraw-Hill.
- Kotler, P. (2004). *Marketing Management* (11th ed.) Pearson Education.

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दिल्ली विश्वविद्यालय

UNIVERSITY OF DELHI

Department of Home Science

**Bachelor of Science (Program) Home Science
Semester VIII**



Date:

Under UGCF-2022 based on NEP-2020

(Effective from Academic Year 2022-23)

Syllabus as approved by Academic Council

Executive Council

Department of Home Science
B.Sc. (Prog.) Home Science
Semester VIII

Paper No	Paper Title	Credits		
		Theory	Practical	Tutorial
DSC HP 820	Statistics and Data Management in Home Science Research	3	1	-
DSE HP 8A1	Developmental Assessment and Guidance	2	2	-
DSE HP 8A2	Child Rights in India	2	2	-
DSE HP 8A3	Aging and Elderly	3	-	1
DSE HP 8B1	Food Processing	2	2	-
DSE HP 8B2	Food Service Management	2	2	-
DSE HP 8B3	Nutrition for Sports Performance	3	-	1
DSE HP 8C1	Programme Management and Evaluation	2	2	-
DSE HP8C2	Corporate Communication and Public Relations	3	-	1
DSE HP 8C3	Health and Environment Communication	2	2	-
DSE HP 8D1	Textile Processing	2	2	-
DSE HP 8D2	Apparel Production	2	2	-
DSE HP 8D3	Fashion Retailing and Marketing	3	-	1
DSE HP 8E1	Capacity Building for Sustainable Development	2	2	-
DSE HP 8E2	Product Design and Application	2	2	-
DSE HP 8E3	Facilities and Services Management	3	-	1

DISCIPLINE SPECIFIC CORE COURSE
DSC HP 820: STATISTICS AND DATA MANAGEMENT IN HOME SCIENCE
RESEARCH

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical / Practice		
Statistics and Data Management in Home Science DSE HP 820	4	3	0	1	Class XII	Nil

Learning Objectives

- Introduce students to basic statistical concepts and methods.
- Develop skills to organize, analyze and interpret data.
- Provide the foundation for applying statistical methods in real-world scenarios.
- Equip students with tools for making inferences from data using probability and hypothesis testing.

Learning Outcomes

The students will be able to

- Understand and apply basic statistical concepts.
- Organize and summarize data using descriptive statistics.
- Understand probability theory and apply it to various problems.
- Conduct hypothesis testing and interpret the results.

SYLLABUS OF DSC HP 820

THEORY
(Credits 3; Hours 45)

UNIT I: Introduction to Statistics, Data types, Organization and Summarization 13 Hours

In this unit, the students will be able to classify data into appropriate types and levels of measurement. They will understand the distinction between descriptive and inferential statistics. They will learn how to collect data effectively and will be able to construct and interpret various data representations.

- Definition of Statistics
- Types of statistics: Descriptive vs Inferential
- Types of data: Qualitative (Nominal, Ordinal) vs Quantitative (Discrete, Continuous)
- Scales of measurement: Nominal, Ordinal, Interval, Ratio
- Organizing data: Frequency distributions, Tables and Graphs
- Types of graphs: Histograms, Pie charts, Bar graphs, Line graphs, Frequency polygons
- Percentile and Percentile Ranks

UNIT II: Measures of Central Tendency and Dispersion

8 Hours

In this unit students will understand the concept of central tendency and dispersion for different datasets

- Mean, Median, Mode: Properties, Application, appropriateness for data sets
- Range, Interquartile Range, Variance, Standard deviation
- Coefficient of variation
- Interpretation of variability in data

UNIT III: Probability Theory and Basics of Hypothesis Testing

8 Hours

In this unit the students will understand the fundamentals of probability and the structure of hypothesis testing. They will be able to state hypotheses and interpret the results of hypothesis tests.

- Introduction to Probability
- Null and Alternative Hypothesis
- Type I and Type II Errors
- One-tailed vs Two-tailed tests
- Significance level (α) and confidence intervals

UNIT IV: Hypothesis Testing using Statistical Tests

16 Hours

In this unit students will perform hypothesis tests for population means and proportions using appropriate tests.

- Concept of parametric and non-parametric tests
- Z-test for single means
- One-sample and two-sample t-tests for means
- One-way ANOVA
- Correlation and Regression
- Chi-square test
- Non-Parametric tests- Spearman's correlation, Sign test and Mann Whitney test
- Application of statistical procedures in Home Science -Tests and procedures suitable for research in the areas of Home Science
- Introduction to use of computers for statistical analysis - Excel, SPSS, AtlasTi

PRACTICAL (Credit 1; Hours 30)

1. Introduction to Statistical Software

2 Hours

- To familiarize students with tools like Excel for statistical analysis.
- Activity: Input basic data and perform basic excel functions on it.

2. Construction of Frequency Distributions

4 Hours

- Organisation of raw data into frequency tables.
- Activity: Use a given dataset to create grouped and ungrouped frequency tables.

- 3. Diagrammatic Representation of Data** **6 Hours**
 - To visualize data using bar charts, pie charts, line graphs, histograms and frequency polygons.
 - Activity: Plot diagrams for a dataset and interpret the results.
- 4. Measures of Central Tendency** **4 Hours**
 - Calculation of mean, median, and mode for grouped and ungrouped data using Excel.
 - Activity: Compare central tendencies of two datasets.
- 5. Measures of Dispersion** **4 Hours**
 - Computation of range, variance, and standard deviation using Excel.
 - Activity: Analyze the spread of two different datasets.
- 6. Area under the curve** **2 Hours**
 - Calculation of the area under the curve using standard scores.
- 7. Correlation Analysis** **2 Hours**
 - Measurement of the strength of relationships between two variables.
 - Activity: Calculate Pearson's and Spearman's correlation coefficients.
- 8. Hypothesis Testing (One-sample and two sample t-test)** **2 Hours**
 - To perform a one-sample and two sample t-test and test the significance.
 - Activity: Test a hypothesis about the mean of a single dataset, independent and dependent groups.
- 9. Chi-Square Test for Independence** **2 Hours**
 - To test the independence between categorical variables.
 - Activity: Analyze a contingency table and interpret the test result.
- 10. Interpretation and Presentation of results** **2 Hours**
 - Compilation of results from statistical analysis into a report/file including visualizations and interpretations.

Essential Readings

- Minium, E. W., King, B. M., (2003). Statistical Reasoning for Psychology and Education. 4th Edition, John Wiley and Sons, New York
- Rastogi Veer Bala, (2009). Fundamentals of Biostatistics, 2nd Edition. Ane Books Pvt. Ltd. New Delhi
- Gupta, S.P. (2021) Statistical Methods, 46th Edition. Sultan Chand and Sons. New Delhi.
- Agresti, A., Christine Franklin, C. and Klingenberg, B. (2017). Statistics: The Art and Science of Learning from Data, Pearson, Boston

Suggested Readings

- Schmuller, J. (2016). Statistical Analysis with Excel for Dummies, 5th Edition, New York, USA.
- Gupta, S. C. and Kapoor, V. K. (2020). Fundamentals of Mathematical Statistics, 12th Edition., Sultan Chand and Sons. New Delhi.
- Ross, Sheldon M. (2010). Introductory Statistics, 3rd Edition, Academic Press.

- Derek Rowntree, (2018). Statistics Without Tears- An Introduction for Non-Mathematicians, Penguin, UK.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 8A1: DEVELOPMENTAL ASSESSMENT AND GUIDANCE

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical / Practice		
Developmental Assessment and Guidance DSE HP 8A1	4	2	0	2	Class XII	Nil

Learning Objectives

- The main objective of the course is to understand what is developmental delay and its relationship with milestones. Also, various assessment tools and guidance interventions for children and families will be studied.

Learning Outcomes

The students will be able to:

- Understand what is developmental delay and its relationship with developmental milestones.
- Develop skills to use formal and informal tools and techniques for developmental assessment
- Understand developmental guidance and interventions

SYLLABUS OF DSE HP 8A1

THEORY
(Credits 2; Hours 30)

UNIT I: Understanding Developmental Milestones

6 Hours

This unit provides foundational understanding of developmental stages and age-appropriate expectations across childhood.

- Understanding developmental milestones to track age-appropriate developmental expectations from birth to adolescence.
- Disability milestones – integrating disability and development.

UNIT II: Developmental Delays and Influencing Factors

6 Hours

This unit focuses on children with developmental disabilities and the contextual factors that influence their development.

- Children with developmental disability: Early identification and intervention

- Factors affecting development of children with disability: poverty, stigma, discrimination, low opportunities for education, lack of responsive parenting, violence, access to services

UNIT III: Tools and Techniques for Developmental Assessment

8 Hours

This unit familiarizes students with methods and tools for assessing child development.

- Overview of standardized assessment instruments (e.g., BSID, DASII, Ages and Stages Questionnaires, Wechsler Scales, RPM).
- Using Informal Methods like Checklists, observations, interviews, and anecdotal records.
- Selecting appropriate tools based on the child's age and context.
- Interpreting assessment outcomes and identifying developmental concerns.
- Ethical Considerations- Ensuring confidentiality, cultural sensitivity, and informed consent in assessments.

UNIT IV: Developmental Guidance and Interventions

10 Hours

This unit equips students with the knowledge to provide guidance and to design interventions for optimal development.

- Parental Guidance for supporting parents in understanding and fostering developmental milestones.
- Importance and approaches to Early Intervention for children with developmental delays.
- Strategies for including children with special needs into mainstream settings.
- Collaborating with educators, health professionals, and social workers and exploring community support systems

PRACTICAL (Credit 2; Hours 60)

- Observational study of children with disabilities in their life setting
- Study tests, assessment protocols and developmental norms- Ages & Stages Questionnaire, DASII, DAT, WISC, WPPSI, PORTAGE, Disability Screening Schedule, Ravens Progressive Matrices, Seguin form board
- Specific Learning Disability Screening Questionnaire by Dr. Uday Kumar Sinha (English) any other
- Autism - M-chat
- Social emotional assessment- Self concept inventory, Vineland Social Maturity Scale, DAS scale, CAT, TAT, HOME inventory, any other
- Workshops and visits for understanding Early Intervention services
- Participate in or organize a workshop focused on developing skills in guidance and counseling for children and their caregivers. Include activities such as reflective listening and building trust
- Short placements in organisations working with children with disability

Essential Readings

- Bayley, N. (2005). *Bayley Scales of Infant and Toddler Development*. The

Psychological Corporation.

- Beaty, J. J. (2013). *Observing development of the young child* (8th ed.). Pearson.
- Capuzzi, D., & Stauffer, M. D. (2016). *Foundations of counseling and psychotherapy: Evidence-based practices for a diverse society* (2nd ed.). Pearson.
- Chopra, G. (2024). *Parenting Support for Parents of Children with Disabilities*. UNICEF.
- Greenspan, S. I., & Meisels, S. J. (1996). *The Early Intervention Guidebook for Families and Professionals*. Brookes Publishing.

Suggested Readings

- Guralnick, M. J. (2011). *The Developmental Systems Approach to Early Intervention*. Brookes Publishing.
- Kinra, A.K. (2008). *Guidance and counselling*. New Delhi: Dolley Kindersley.
- Kline, P. (2000) *The Hand book of Psychological testing*, 2nd edition, Routledge Taylor and Francis Group
- Rogoff, B. (2003). *The Cultural Nature of Human Development*. Oxford University Press.
- Sheridan, M. (2014). *From Birth to Five Years: Children's Developmental Progress*. Routledge.
- Sparrow, S. S., Cicchetti, D. V., & Balla, D. A. (2005). *Vineland Adaptive Behavior Scales*. Pearson.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 8A2: CHILD RIGHTS IN INDIA

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical / Practice		
Child Rights in India DSE HP 8A2	4	2	0	2	Class XII	Nil

Learning Objectives

- To understand the meaning of child rights and rights-based approach to providing services and programmes for children
- To identify groups of children who are in need of care and protection and situational analysis of the child in India
- To acquire knowledge of constitutional and legal provisions in India for care and protection of the children.

Learning Outcomes

- Students will acquire a conceptual understanding of child rights.
- The students will acquire knowledge of vulnerable groups of children in India and status of children in India.
- Students will learn about constitutional and legal provisions in India for care and protection of the children.

SYLLABUS OF DSE HP 8A2

THEORY
(Credits 2; Hours:30)

UNIT I: Conceptual Foundations of Child Rights

6 Hours

This unit introduces the fundamental concepts of childhood and rights-based approaches to understanding children.

- Definitions of a child
- Concept and models of child rights
- Factors contributing to the exclusion of children
- Understanding child rights from an Indian perspective

UNIT II: Child Protection and Situational Realities

6 Hours

This unit explores the real-life context of children in India and the mechanisms of child protection.

- Situational analysis of children in India
- Child protection
- Role of family, community, state, and child in protecting rights

UNIT III: Children in Need of Care and Protection

10 Hours

This unit discusses various vulnerable groups of children and the specific challenges they face.

- Street and working children
- Child-trafficking and child abuse
- Abandoned and destitute children
- Children in conflict with law
- Other vulnerable groups:
 - Minorities
 - Children of sex workers
 - Children of prisoners
 - Children in conflict zones

UNIT IV: Legal and Programmatic Frameworks for Child Rights

8 Hours

This unit covers the legal and institutional systems in place to uphold and protect child rights.

- Constitutional provisions for children in India & national policies/programs
- Laws for children: CLPRA, POCSO, HAMA, GAWA, JJ Act
- UNCRC, NCPCR
- Services for children: Institutional and non-institutional care

PRACTICAL (Credit 2; Hours: 60)

- Visits to institutions working for vulnerable children.
- Survey on child rights awareness
- Exploring and analysis of child rights issues through audio-visual sources and workshops.
- Interaction with children in difficult circumstances.
- Preparing stories and awareness materials on child rights
- Case profile of a child in difficult circumstances.
- Programme planning

Essential Readings

- Bajpai, A. (2006). *Child rights in India: Law, policy and practice*. New Delhi: Oxford University Press.
- Chopra, G. (2015). *Child rights in India: Challenges and Social Action*. New Delhi: Springer.
- Chopra, G. (2021). *Child Protection in India: From Silos to System*. S. Puri, 2021 (ed.) *Children in India: Opportunities and challenges*. Nova Science Publishers, Inc.
- Ministry of Women and Child Development, (2013). *National Policy for Children, 2013*. Gazette of India, Part 1, Section 1. Govt of India.

Suggested Readings

- Bhargava, V. (2005). *Adoption in India: Policies and experiences*. New Delhi: Sage.
- Indian Journal of Social Work

- Virani, P. (2000). Bitter chocolate: Child Sexual abuse in India. New Delhi: Penguin
- Weiner, M., Burra, N., Bajpai, A. (2007). Born unfree: Child labour, Education, and the state in India. New Delhi: Oxford University Press.

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DISCIPLINE SPECIFIC ELECTIVE COURSE

DSE HP 8A3: AGING AND ELDERLY

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical		
Aging and Elderly (DSE)	4	3	1	0	Appeared in Semester 7	Studied HDCS paper in previous semester

Learning Objectives:

- To review the physical, cognitive, and social changes associated with aging.
- To examine the dimensions of well-being and mental health among the elderly.
- To evaluate the impact of aging on social relationships, work, and retirement.
- To explore the ethical, social, and policy issues related to aging populations.

Learning Outcomes:

The students will be able to:

- Identify and analyze the physical, cognitive, and social changes associated with aging
- Recognise the impact of aging on social relationships, work, and retirement.
- Describe the ethical, social, and policy issues related to aging populations.

THEORY

(Credits 3; Periods 45)

UNIT I: Understanding Aging: Concepts and Contexts

12 hours

This unit introduces the key perspectives and foundational understanding of aging, especially in the Indian context.

- Perspectives on Aging: Developmental, Social, Cultural, and Medical approaches
- Ageism and cultural perspectives on aging
- Longevity: Trends and implications

UNIT II: Aging in India and the Digital Age

8 hours

This unit focuses on the demographic realities of aging in India and the emerging influence of the digital world.

- Demographic profile of the elderly in India: Indicators and implications
- Aging in the digital world: Opportunities and exclusions

- Bridging the digital divide among the elderly

UNIT III: Psychosocial and Developmental Dimensions of Aging

10 hours

This unit explores the life transitions and developmental changes that influence the psychosocial well-being of older adults.

- Changing physical, social, and cognitive capacities and processes
- Work, career transitions, and retirement
- Health, wellbeing, and quality of life
- Coping with loss: Loneliness, grief, and depression

UNIT IV: Legal, Ethical, and Care Considerations in Aging

15 hours

This unit discusses the legal, ethical, and caregiving frameworks for supporting the elderly in India.

- Systems of care: Familial and extra-familial support
- Constitutional provisions, legislations, and national policies/programmes for the elderly
- Elder abuse, neglect, safety, and violence
- Palliative and end-of-life care

TUTORIAL

(Credit 1; Periods: 15)

- Explore perspectives on the needs and care of the elderly in diverse settings, using personal observations, and conversations with elderly family and community members.
- Watch portrayals of late adulthood in documentaries and popular Indian films.
- Documentation of articles and social media posts on elderly.

Essential Readings

- Boll, T., Ferring, D., & Valsiner, J. (Eds.). (2018). *Cultures of care in aging*. IAP Information Age Publishing.
- Cavanaugh, C. J., & Fields, F. B. (2015). *Adult development and aging* (7th ed.). Cengage Learning.
- Gawande, A. (2014). *Being mortal: Ageing, illness, medicine and what matters in the end*. New York, NY: Henry, Holt and Company.
- Gupta, N. (2019). *Human development in India*. Emerald Publisher.
- Shankardass, M. K. (2020) (Ed.). *Aging issues and responses in India*. New Delhi: Springer
- Srivastava, S., & Sudha, K. R. (2016). *Textbook of human development*. S. Chand & Company.
- Uberoi, P. (1994). *Family, kinship and marriage in India*. New Delhi, India: Oxford University Press.

Suggested Readings

- Austrian, S. S. (2013). *Developmental theories through the life cycle*. Columbia University Press.

- Berk, L. E. (2009). *Development through the lifespan*. Pearson Education.
- Bjorklund, B. R. (2015). *The journey of adulthood* (8th ed.). Pearson.
- Feldman, R. S. (1997). *Development across the life span*. Prentice Hall.
- Giridhar, G., Sathyanarayana, K. M., Kumar, S., James, K. S., & Alam, M. (Eds.). (2014). *Population Ageing in India*. Cambridge: Cambridge University Press.
- Kerschner, H. K., & Silverstein, N. M. (2018). *Introduction to senior transportation: Enhancing community mobility and transportation services*. Routledge
- Sasser, J. R., & Moody, H. R. (2018). *Gerontology: The basics*. Routledge.
- Steinberg, L., & Bornstein, M. H. (2010). *Life span development: Infancy through adulthood*. Wadsworth/Cengage Learning.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 8B1: FOOD PROCESSING

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical / Practice		
Food Processing DSE HP 8B1	4	2	0	2	Class XII	Studied Food Science DSE HP 3B1

Learning Objectives

- To provide a foundational understanding of food processing, including its definition, classification, and the importance of primary, secondary, and tertiary processing methods.
- To gain knowledge of various methods of food processing and preservation across different food categories such as fruits, vegetables, milk, cereals, fats, oils, and meat, with emphasis on their principles and applications.
- To equip students with practical skills in food processing and preservation techniques, and understanding food processing operations through industry visits.

Learning Outcomes

The students will be able to

- Students will acquire understanding of food processing methods enabling them to produce safe, nutritious, and shelf-stable food products.
- Students will be able to evaluate, compare and critically assess the application of different processing methods for specific food products in industrial applications.
- Students will develop hands-on proficiency in processing diverse food products for small scale enterprises.

SYLLABUS OF DSE HP 8B1

THEORY
(Credits 2; Hours 30)

UNIT I: Introduction to food processing

6 hours

This unit provides an introduction to food processing, its definition and types

- Definition, and classification of food processing including primary, secondary and tertiary food processing.
- Significance, scope, present scenario and future prospects of food processing in India

UNIT II: Methods of food processing for plant-based foods

12 hours

This unit provides knowledge of food processing methods used to process plant-based food products

Primary, secondary, tertiary and minimal processing methods for

- **Fruits and vegetable processing-** Drying, dehydration, canning, sterilization, processing with salt and sugar
- **Processing of cereals-** milling, parboiling, malting and processing of breakfast cereals (flaked, puffed, expanded products)
- **Processing of fats and oils-** Extraction, refining, degumming, neutralization, bleaching, deodorization. Hydrogenation, winterizing and fractionation, interesterification, plasticizing and tempering.

UNIT III: Methods of processing for milk and milk products

6 hours

This unit provides knowledge of food processing methods for milk and milk products.

- **Milk and milk products processing** – Pasteurization, homogenization, sterilization, production of important milk products

UNIT IV: Methods of processing for meat, fish poultry and egg products

6 hours

This unit provides knowledge of food processing methods used to process meat, fish. Poultry and eggs.

- **Meat, fish, poultry and egg processing-** Processing of meat products: dried, smoked, salted products and sausages. Poultry processing and poultry products. Egg processing and preservation.

PRACTICAL (Credits 2; Hours 60)

- Identification of the food items on the basis of primary, tertiary and secondary processing. **4 Hours**
- Processing of fruits and vegetables by salt/sugar **12 Hours**
- Processing of by fruits and vegetables drying/dehydration and freezing **16 Hours**
- Processing of cereals (malting/flaking/puffing/ value added cereal or millet products) **8 Hours**
- Demonstration of processing of milk and milk products (curd/butter/buttermilk/ghee processing) **8 Hours**
- Evaluation of preserved meat/poultry products. **4 Hours**
- Visit to food processing industry **8 Hours**

Essential Readings

- Manay, N.S., & Shadaksharaswamy, M. (2008). *Food-Facts and Principles, Third Edition*. New Age International (P) Ltd. Publishers, New Delhi.
- Mathur, P. (2018). *Food Safety and Quality Control*. Orient BlackSwan Pvt. Ltd., Hyderabad.
- Potter, N.N., & Hotchkiss, H.J. (1996). *Food Science, Fifth Edition*. CBS Publication, New

- Delhi.
- Srilakshmi, B. (2014). *Food Science, 6th Edition*. New Age International Ltd., Delhi.
 - Suri, S., & Malhotra, A. (2014). *Food Science Nutrition and Safety*. Delhi: Pearson India Ltd.

Suggested Readings

- Raina, U., Kashyap, S., Narula, V., Thomas, S., Suvira, V.S., & Chopra, S. (2010). *Basic Food Preparation: A Complete Manual, Fourth Edition*. Orient Black Swan Ltd.
- Sethi, M., & Rao, E.S. (2011). *Food science- Experiments and applications, Second Edition*. CBSpublishers & Distributors Pvt Ltd.
- Sivashankar, B. (2002). *Food Processing and Preservation*. PHI learning Pvt. Ltd.

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DISCIPLINE SPECIFIC ELECTIVE COURSE

DSE HP 8B2: FOOD SERVICE MANAGEMENT

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course(if any)
		Lecture	Tutorial	Practical / Practice		
Food Service Management DSE HP 8B2	4	2	0	2	Class XII	Studied Foundation of Food Science and Nutrition DSC HP 205

Learning Objectives

- To understand the basic concepts of Food Service Management.
- To develop skills in menu planning and quantity food production for various food service organizations within specific budgets.

Learning Outcomes

The students will be able to

- Acquire fundamental knowledge of menu planning and resource management in a food service establishment.
- Develop understanding of recipe standardization and quantity food production.
- Develop insight for maintaining hygiene and food safety at institutional kitchens.

SYLLABUS OF DSE HP 8B2

THEORY (Credits 2; Hours 30)

UNIT I: Basic Concepts of Food Service System

4 Hours

In this unit, the students will be able to understand the basics of management and food service for a food establishment.

- Principles of Management
- Functions of Management
- Types of food service systems

UNIT II: Food Production Cycle

12 Hours

In this unit, the students will learn the components of food production cycle to run a food service unit.

- Menu Planning: Importance of menu, Factors affecting menu planning, Types of menu
- Food purchase and receiving
- Storage
- Quantity food production: Standardization of recipes, Recipe adjustment and portion control, Techniques of quantity food production
- Food service

- Food safety in the food production process

UNIT III: Management of Resources in a Food Service Establishment

11 Hours

In this unit, students will understand the fundamentals of space, personnel and financial management.

- Layout planning and Equipment: Types of kitchen areas, Flow of work, Factors affecting selection of equipment
- Personnel Management: Functions of a personnel manager, Components of staffing system: Recruitment, Selection, Orientation, Appraisal, Absenteeism, Motivation theories and application
- Financial Management: Importance, Budgets and budgeting process, Cost concepts

UNIT IV: Establishing a Food Service Unit

3 Hours

In this unit, the students will understand how to set up a food service unit.

- Identifying resources, Developing project plan, Determining investments
- Regulations to set up a food service business

PRACTICAL (Credit 2; Hours 60)

1. Introduction to Food Management

4 Hours

- Market survey for food items available in retail, wholesale and online markets

2. Quantity Food Production

32 Hours

- Standardization of 2 healthy recipes
- Scaling up to larger amounts
- Setting up a food stall

3. Planning Cyclic Menus

20 Hours

- Planning cyclic menus for nursery school
- Planning nutritious freshly cooked lunch for MNC employees
- Planning cyclic menus for college canteens/hostel

4. Promoting Good Hygiene and Sanitation Practices

4 Hours

- Developing tools to promote good hygiene practices at food service units

Essential Readings

- Payne- Palacio J and Theis M (2011) Food service Management: Principles and Practices. 12th ed. Pearson Education., Chapter 11, pg 308-334
- Sethi M (2005) Institutional Food Management, New Age International Publishers, chapter 6, pg 153-165
- West B and Wood L (1988) Food Service in Institutions 6th Edition, Chapter 9, Pg 311-367.
- Desai V (2011) The Dynamics of Entrepreneurial Development and Management, Himalya Publishing House Pvt. Ltd., Mumbai. Chapter 45-48, pg 612-685

Suggested Readings

- Knight J B and Kotschevar LH (2000) Quantity Food Production Planning & Management 3rd edition, John Wiley & Sons.
- Kotas R and Jayawardardene C (1994) Profitable Food and Beverage Management, Hodder & Stoughton Publications.

- Roday S (2003) Food Hygiene and Sanitation, Tata McGraw Hill Publication Ltd.
- Taneja S and Gupta SL (2001) Entrepreneurship Development. Galgotia Publishing
- Dessler Gary (2007) Human Resource Management 11th edition Prentice Hall New Jersey
- Basic Food Safety Training Manual Catering (http://www.fssai.gov.in/home/capacity_building/e-library/training-manual.html)
- Street Food Vendor Training on Food Safety and Hygiene (http://www.fssai.gov.in/home/capacity_building/e-library/training-manual.html)

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 8B3: NUTRITION FOR SPORTS PERFORMANCE

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical/ Practice		
Nutrition for Sports Performance DSE HP 8B3	4	3	1	0	Studied Semester VII	Pass in DSE HP 5B1: Nutritional Biochemistry

Learning Objectives

- To learn the concept of fitness, role of macronutrient and micronutrients in enhancing sports performance, application of nutrition in training, competition and recovery period
- Gain knowledge regarding general metabolic principles, bioenergetic for the working muscle during exercise.
- To understand the hydration guidelines associated with safety and performance of the athletes

Learning Outcomes

Students will be able to

- Understand concepts of fitness, its assessment and different approaches to improve fitness
- Exhibit an understanding of the role of nutrients in performance enhancement in Sports, and strategize its application in training, competition and recovery period
- Effectively plan hydration strategies and sports groups -specific diets for athletes for recreational and competitive athletes in different phases of training and competition.

SYLLABUS OF DSE HP 8B3

THEORY
(Credits 3; Hours 45)

Unit 1- Overview of Physical fitness and health related benefits

8 Hours

In this Unit, students will be acquainted with the basic concepts of health-related physical fitness

- Introduction to physical activity, physical fitness and exercise
- Assessment of health and skill related fitness
- Benefits of physical fitness and approaches to improve Physical fitness

- Assessment of Energy Expenditure in Sports: Energy Balance and Energy Availability

UNIT II: Sports Nutrition

10 Hours

This Unit deals with the importance of fuel, nutrients and hydration for sports performance.

- Introduction to Sports Nutrition: Integrated Approach
- Fuel systems and continuum of energy
- Macronutrient recommendations for sports performance
- Micronutrient requirements for sports performance
- Hydration status- assessment and importance
- Fluid replacement guidelines and monitoring

UNIT III: Nutrition for Sports Performance

15 Hours

This Unit deals with the nutritional inputs during various phases of training and competition and dietary supplements

- Nutrition for Pre competition, during and post competition
- Overview of Dietary Supplements and Ergogenic Aids

UNIT IV Nutrition for special conditions in sports

12 Hours

In this Unit, nutrition for special conditions will be dealt with and an overview of emerging trends in research and practice of Sports Nutrition will be given.

- Specific nutrition for weight category sports and sports requiring aesthetics: Addressing eating disorders and disordered eating in athletes.
- Women athletes, adolescent athletes, athletes with diabetes, vegetarian athletes, vegetarian athletes, RED-S, Special Olympics and Paralympics
- An overview of emerging Trends and Research in Sports Nutrition, ethics and Professional Practice

TUTORIAL **(Credits 1; Hours 15)**

- PARQ assessment and interpretation
- Assessment of health related physical fitness
- Planning a day's diet for a fitness trainee
- Planning a training day's diet for athletes training for ultra-endurance, endurance, strength events, team events and skill based events
- Planning a checklist for dietary modification pre-, during and post-competition for 5 main sports groups
- Planning hydration strategies before, during and after an event
- Survey of sports supplements

Essential Readings:

- Burke, L.M. and Deakin, V. (2002) *Clinical Sports Nutrition, 2nd edition*, Publishers McGraw Hill.
- Hickson, J.F. and Wolinsky, I. (1997) *Nutrition for exercise and Sport. 2nd ed.* CRC Press,
- ILSI, NIN & SAI. (2017) *Nutritional recommendations for high performance athletes 2nd ed.*
- Lal, P.R. (2009). *Handbook of Sports Nutrition*. Friend's Publication, Delhi, India.
- Mahan, L. K. and Escott Stump, S. (2016) *Krause's Food & Nutrition Therapy. 15th ed.* Saunders-Elsevier.

Suggested Readings:

- Austin, K. G. and Seebohar, B. (2021) *Performance Nutrition for Athletes*, Human Kinetics
- Bushman, B. (2017) *ACSM's Complete Guide to Fitness & Health 2nd Edition*, Published by ACSM.
- Benardo, D. (2011) *Advanced Sports Nutrition-2nd Edition*.
- Fik, H. H. and Alan E. Mikesky (2015) *Practical Application in Sports and Nutrition*. Fourth Edition. Jones & Bartlett Learning, Burlington, MA
- Fink, H. H. and Mikesky, A. E. (2017) *Practical Applications in Sports Nutrition 5th Edition*.
- Ryan, M. (2020) *Sports Nutrition for Endurance Athletes (3rd Edition)*. VeloPress
- McArdle, W.D., Katch, F. I. and Katch, V.L. (2020) *Sports and Exercise Nutrition (5th Edition)*. Wolters Kluwer

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 8C1: PROGRAMME MANAGEMENT & EVALUATION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical / Practice		
Programme Management & Evaluation DSE HP 8C1	4	2	0	2	Class XII	Nil

Learning Objectives

- To develop the skills to assess needs, conduct problem analysis, and set program goals, objectives, and indicators.
- To understand the concepts, components, and frameworks of monitoring and evaluation.
- To understand the scope, purpose, and types of program evaluation, including participatory approaches.
- To acquire skills in report writing, data management, and documentation for effective presentation of evaluation findings.

Learning Outcomes

The students will be able to

- Develop comprehensive program goals, objectives, and strategies based on problem analysis and needs assessments.
- Articulate the core components and approaches to monitoring and evaluation of development programs.
- Differentiate between various types and purposes of program evaluation and apply appropriate tools and techniques.
- Create well-structured evaluation reports, demonstrating effective data management and documentation skills.

SYLLABUS OF DSE HP 8C1

THEORY
(Credit 2; Hours 30)

UNIT I: Foundations of Development Programme Planning

8 Hours

This unit introduces students to the basics of planning development programmes, including planning principles, models, and frameworks like the Theory of Change and Results-Based Management.

- Programme planning models and principles
- Theory of Change: Definition and application
- Results-Based Management (RBM) and its importance

- Setting programme goals, objectives, and indicators

UNIT II: Strategic Programme Design and Stakeholder Engagement 7 Hours

This unit focuses on the application of planning strategies, emphasizing needs assessment, stakeholder involvement, and designing strategic interventions.

- Problem analysis and needs assessment
- Goal setting and strategizing interventions
- Programme logistics
- Stakeholder participation in planning
- Networking and synergizing partnerships

UNIT III: Programme Implementation and Monitoring Systems 8 Hours

This unit covers effective implementation strategies and monitoring mechanisms that ensure alignment with programme goals, including use of logic models and MIS.

- Programme implementation: Strategies and approaches
- Meaning and components of monitoring and evaluation
- Monitoring frameworks and approaches
- Logic Model and its application in development
- Management Information Systems (MIS) and feedback systems

UNIT IV: Evaluation of Development Programmes 7 Hours

This unit explores evaluation methodologies and tools used to assess the effectiveness, impact, and sustainability of development interventions.

- Scope, purpose, and uses of evaluation
- Types of evaluation: Summative vs. Formative, Internal vs. External
- Evaluation designs (including goal-free evaluation)
- Tools and methods for evaluation and participatory M&E
- Indicators for assessing sustainability, empowerment, and impact
- Beneficiary and stakeholder perspectives in evaluation
- Report writing, data management, and documentation

PRACTICAL (Credit 2; Hours 60)

- Understand various M&E methods used for various development programmes- national & international.
- Design, implement and evaluate intervention programmes for different target groups of urban and rural communities.
- Evaluate and prepare project proposals for- process documentation, monitoring and evaluation reports for development programmes.
- Understand ICT mediated qualitative and quantitative data
- Data visualization and Mapping
- Creating and managing Dashboards
- Report writing and documentation of M&E projects

Essential Readings

- Connell, J. L. (2019). *Sustainability and impact in development: Evaluating long-term*

outcomes. Routledge.

- Green, L. W. (2016). *Introduction to evaluation*. Sage Publications.
- Holzer, J. (2012). *Participatory monitoring and evaluation: A guide for NGOs*. Praxis Institute.
- Patton, M. Q. (2010). *Developmental evaluation: Applying complexity concepts to enhance innovation and use*. Guilford Press.
- White, H., Sabarwal, S., & Kumari, S. (2014). *Impact evaluation in practice*. World Bank Group.

Suggested Readings

- Cracknell, B.E. (2000). *Evaluating Development Aid-Issues Problems and Solutions*. New Delhi: Sage Publications.
- Kumar, S (2002). *Methods for Community Participation: A Complete Guide for Practitioners*. New Delhi: Vistaar Publications.
- Kusek, Jody, Z. & Ray, C. (2004). *Ten Steps to a Results-Based Monitoring and Evaluation System: A Handbook for Development Practitioners*. World Bank
- Reidar, D. (2004). *Evaluating Development Programmes and Projects*. New Delhi: Sage Publications.
- Worthen, B.R.; Sanders, J.R.; Fitzpatrick, J.L. (1997). *Program Evaluation*. USA: Longman Publishers.
- Alex, G; Derek, B. (2000) *Monitoring and Evaluation for AKIS Projects: Framework and Options*. World Bank
- Mikkelsen, C. (1995). *Methods for Development Work and Research*. New Delhi: Sage Publications.
- International Planned Parenthood (IPPF). (2009). *Putting the IPPF Monitoring and Evaluation Policy into Practice: A Handbook on Collecting, Analyzing and Utilizing Data for Improved Performance*. London, UK.
- Saunders, R.P. (2015). *Implementation Monitoring and Process Evaluation*. New Delhi: Sage Publications.

Note: Examination Scheme and mode shall be as prescribed by the Examination branch, University of Delhi from time to time.

DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 8 C2: CORPORATE COMMUNICATION AND PUBLIC RELATIONS

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical/ Practice		
DSE HP 8C2 Corporate Communication and Public Relations	4	3	1	0	Class XII pass with science	NIL

Learning Objectives

- To introduce students to the principles and practices of corporate communication and public relations.
- To develop an understanding of how organizations communicate with internal and external stakeholders.
- To explore tools, techniques, and strategies for effective PR campaigns.
- To train students in creating and implementing corporate communication plans, with a focus on crisis management and digital media.

Learning Outcomes

Upon completing this course, students will be able to:

- Understand the principles, scope, and significance of corporate communication and public relations.
- Analyze the role of communication in maintaining organizational image and relationships.
- Develop effective communication strategies tailored to various stakeholders.
- Design and evaluate PR campaigns for organizations and brands.
- Apply communication techniques during crises and manage reputation risks.
- Utilize digital platforms to enhance corporate and public relations efforts.
- Exhibit skills in creating corporate communication tools such as press releases, newsletters, and reports.

SYLLABUS OF DSE HP 8C2

THEORY (Credits 3; Hours 45)

UNIT I: Introduction to Corporate Communication

8 Hours

This unit focuses on the fundamentals of corporate communication, highlighting its role in managing brand image, reputation and crisis through effective strategies and best practices. Furthermore, it explores the use of communication tools for effective communication and trust building, while emphasizing the significance of ethics and professionalism in this field.

- Definition and significance of corporate communication
- Components: internal communication and external communication
- Role of corporate communication in brand image and reputation management
- Crisis communication: strategies and best practices
- Building resilience and trust through effective communication
- Monitoring online reputation and handling misinformation
- Communication tools: corporate presentations, newsletters, and reports
- Ethics and professionalism in corporate communication

UNIT II: Public Relations (PR): Principles and Practices

8 Hours

Unit 2 focuses on PR as a strategic tool for managing organizational relationships, along with definitions, objectives and functions of PR. It provides a systematic approach to designing PR campaigns, supported by insights from real-world cases. Additionally, this unit highlights the role of digital PR and how organisations leverage it to their advantage.

- Definition, scope, and objectives of PR
- Functions of PR: media relations, CSR initiatives, event management
- Steps to creating a PR campaign: research, planning, execution, and evaluation
- Case studies: successful PR strategies
- Role of PR in managing organizational crises
- Digital PR: blogs, social media platforms, and SEO integration

UNIT III: Communication Strategies and Media

7 Hours

This unit provides an overview of communication channels and strategies in the corporate and PR space. It discusses significance of media planning, role of social media in PR, and various writing techniques for PR. Unit 3 also incorporates the significance of content marketing and storytelling to enhance corporate communication.

- Media planning: Selecting appropriate channels for different audiences
- Writing for PR: Press releases, newsletters, and digital content
- Social media in PR: Trends, tools, and influencer collaborations
- Content marketing and storytelling in corporate communication

UNIT IV: Crisis Communication and Reputation Management

7 Hours

This unit focuses on the strategies and tools used by organizations to manage communication during crises and protect their reputation. It explores the nature and types of corporate crises, the importance of timely and transparent communication, and how to build trust with stakeholders during difficult times.

Students will learn how to develop a crisis communication plan, handle media interactions under pressure, and implement reputation recovery strategies.

- Introduction to Crisis Communication
- Types of Crises
- Crisis management planning
- Components of Crisis Communication Plan
- Role of PR during crises
- Media Relations in Crisis
- Brand image and reputation management
- Case studies of corporate crisis handling

TUTORIAL **(Credit 1; Hours 15)**

1. Q&A sessions, Group Discussions, and Problem-Solving exercises with the students.
2. Presentation and discussion of project/research activity by students, including:
 - Corporate Communication Tools: Analyzing and drafting press releases, newsletters, and social media posts for mock campaigns.
 - PR Campaign Design: Developing a comprehensive PR campaign plan, including research, target audience analysis, and execution strategy.
3. Evaluation and feedback by the teacher to guide further learning and improvement.

Essential Readings:

- Cornelissen, J. (2020). *Corporate Communication: A Guide to Theory and Practice*. SAGE Publications.
- Broom, G. M., & Sha, B.-L. (2013). *Cutlip & Center's Effective Public Relations*. Pearson.
- Newsom, D., Turk, J., & Kruckeberg, D. (2012). *This is PR: The Realities of Public Relations*. Wadsworth.
- Wilcox, D. L., & Cameron, G. T. (2014). *Public Relations: Strategies and Tactics*. Pearson.

Suggested Readings:

- Tench, R., & Yeomans, L. (2017). *Exploring Public Relations and Corporate Communication*. Pearson.
- Gregory, A. (2020). *Planning and Managing Public Relations Campaigns*. Kogan Page.
- Relevant PR case studies and resources from PRSA and CIPR.

Note:

Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 8C3: HEALTH & ENVIRONMENT COMMUNICATION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical / Practice		
Health and Environment Communication DSE HP 8C3	4	2	0	2	Class XII	Nil

Learning Objectives

- To understand the role of communication in health promotion and behaviour change, focusing on nutrition and public health issues.
- To explore the concepts of sustainable development and the role of communication in promoting environmental sustainability.
- To examine the impact of socio-economic, cultural, and geographic factors on health and environmental issues.
- To analyze effective strategies for health and environmental communication, including media's role, SBCC campaigns, and innovative approaches.

Learning Outcomes

The students will be able to

- Explain the role of communication in health promotion, with a focus on nutrition, malnutrition, and public health challenges.
- Identify and evaluate communication strategies for improving food security, nutrition outcomes, and addressing health inequities in India.
- Demonstrate knowledge of sustainable development concepts, goals, and the relationship between environmental, population, and development issues.
- Assess the impact of socio-economic, cultural, and geographic factors on health and environmental changes.

SYLLABUS OF DSE HP 8C3

THEORY
(Credit 2; Hours 30)

UNIT I: Understanding Health: In the Context of Behaviour Change

7 Hours

This unit explores the role of communication in health promotion, focusing on nutrition and behaviour change among children, adolescents, and women. It covers public health challenges

like malnutrition and addresses various social detriments of health. The unit also examines communication strategies and community-based efforts to improve food security and nutrition outcomes in India.

- Role of Communication in Health: Global and Indian overview of health communication, its objectives, Concepts of Community and Public Nutrition with a focus on Children, Adolescents, and women, Importance and Challenges for interventions
- Public Health Aspects of Malnutrition- Life cycle approach to understanding the nutritional, Awareness building to service delivery, Nutrition support programs and initiatives, ICDS, Food & Nutrition Security- Policy and challenges in India, Behaviour change initiatives for improving nutrition indicators –selected case studies
- Social Detriments of Health, Reproductive and Mother and Child Health- Importance for SDGs, health indicators, appraisal of interpersonal communication in health, Communitization of health

UNIT II: Understanding Environment and Sustainable Development: In the context of Behaviour Change

7 Hours

This unit focuses on the role of communication in promoting sustainable practices. It covers sustainable development concepts, key pillars, and the link between environment, population, and development. It also explores the impact of climate change, environmental risks, and socio-economic factors on environmental change.

- Role of Communication in Environmental Issues: Focus on environmental communication and its role in promoting sustainable practices.
- Sustainable Development: Concept, Key Pillars, Approaches, Action and Agenda. Linkage between environment population and development, Impact of lifestyles and changing consumption patterns on the environment. Environmental legislations and policies, International environmental agreements/protocols.
- Sustainable Development Goals: Goals, Targets, Indicators, India's present situation, Strategies towards SDGs attainment, Sustainable Development Goal Index (SDGI), Changes in the environment- types, hazards and risks.
- Factors affecting changes in the environment: socio, economic, cultural and geographic. Climate Change; Sustainable Development Communication,

UNIT III: Effective Strategies for Health Communication

8 Hours

This unit focuses on strategies for addressing health issues through Behaviour Change communication. It examines national and international agendas on health promotion strategies, including SBCC campaigns, and asserts approaches like Entertainment Education and the Positive Deviance.

- Present and future thrusts of national and international health communication agenda
- Role of media in promoting health, strategies used in health promotion
- Strategizing health advocacy and SBCC campaigns- elements, tools, and techniques,
- Synergizing inter-sectoral partnerships for health advocacy and action, social marketing, participatory training and campaigns of health communication, Innovative
- Approaches in Health Communication: Entertainment Education, Incentives for Health Communication and Positive Deviance Approach.

UNIT IV: Effective Strategies for Environmental Communication

8 Hours

This unit focuses on strategies for addressing environmental issues through Behaviour Change communication. It examines national and international agendas on air pollution, health promotion strategies, including campaigns and climate mitigation strategies

- Present and future thrusts of national and international environment communication agenda: Case of Air Pollution and Water Crisis
- Networking, Lobbying, and Mobilizing pressure groups, citizen's action, and people's, synergizing inter-sectoral partnerships for Climate Change; Sustainable Development advocacy and action, and campaigns
- Impact of media in influencing environmental protection, climate change sensitization and sustainable development

PRACTICAL

(Credit 2; Hours 60)

1. SBCC Campaigns for health/nutrition: Pulse Polio Campaign, RRE Campaign, POSHAN Abhiyan, Surakshit Matritva Abhiyan
2. SBCC Campaigns for Climate change and sustainable development: WWF, 350, Connect4Climate.
3. Analysing India's National Strategies for Climate Change Adaptation and Mitigation
4. Analysis and interpretation of health and environment-related data and indicators
5. Development of SBCC tool kit on any issue related to Health or Climate change and sustainable development concerning:
 - Communication Principles
 - Socio-economic context
 - Message design
 - Channel Selection
 - Audience targeting and segmentation
 - Developing Feedback mechanism

Essential Readings

- Thompson, T., & Parrott, R., (2015). *The Handbook of Health Communication*. Routledge
- O'Neill, M., (2011). *Communication and Environment: A Critical Perspective*. Wiley-Blackwell.
- Eldredge, L., et al., (2016). *Planning Health Communication Campaigns*. Sage Publications.
- Cox, R., (2010). *Environmental Communication and the Public Sphere*. Sage Publications.

Suggested Readings

- Green, L., & Kreuter, M., 2005. *Health Program Planning: An Educational and Ecological Approach*. McGraw-Hill.
- Stibbe, A., 2009. *The Handbook of Environmental Communication*. Routledge.
- Harper, J., 2007. *Communicating Sustainability: A Critical Perspective*. Sage.
- Stokols, D., et al., 2003. *Health and Environment: A Cross-Cultural Perspective*. Wiley.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 8D1: TEXTILE PROCESSING

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical / Practice		
Textile Processing DSE HP 8D1	4	2	0	2	Class XII	Fundamental of Textiles DSC HP 307

Learning Objectives

- To understand the theories and mechanisms of textile colouration.
- To study the application of various dyes and auxiliaries for dyeing and printing of textiles.
- To gain knowledge of various kinds of finishing processes on textile fabrics.

Learning Outcomes

The students will be able to

- Understand the chemistry, and application of various dyes for dyeing of textiles.
- Learn the methods and styles of textile printing using various dye classes,
- Learn about various types of mechanical and chemical finishes applied to textiles.

SYLLABUS OF DSE HP 8D1

THEORY
(Credits 2; Hours 30)

UNIT I: Dyeing

10 Hours

This unit will provide students with an in-depth understanding of the chemistry and application of various dye classes on different fibre substrates

- Theory of dyeing
- Chemistry and application of various dye classes: Direct, Reactive, Vat, Azoic, Sulphur, Acid, Basic, Disperse
- Dyeing auxiliaries

UNIT II: Printing

10 Hours

This unit will focus on the various printing methods and techniques, along with their application to different textile substrates.

- Methods of printing: Block, Roller, Screen (flat bed, rotary)
- Styles of printing: Direct, Resist, Discharge, Transfer, Digital, Flock
- Printing with various classes of dyes on different fibres
- Finishing and after treatment of printed goods: Ageing, Steaming, Baking, washing-off

UNIT III: Finishing

6 Hours

In this unit the students will learn about the chemistry and function of various finishes applied to textiles.

- Classification of finishes
- Preparatory finishes: For Cellulosic, Proteins and Synthetic fibres
- Finishes affecting appearance and texture
- Finishes for enhancing performance characteristics

UNIT IV: Measurement of Colour and Colour Fastness

4 Hours

In this unit, students will gain an understanding of the concept of colour and measurement of colour fastness

- Colour theory
- Concept of colour measurement: Optical density, K/S, $L^*a^*b^*$, $L^*c^*h^*$ values
- Principle of colour fastness and its measurement: Wash, Light, Rub, Perspiration

PRACTICAL (Credits 2; Hours 60)

1. Preparatory Finishing: Cellulosic and Protein fibres

- Desizing
- Scouring
- Bleaching
- Mercerisation

2. Dyeing

- On cotton using direct, reactive, azo and vat
- On wool and silk using acid, basic and reactive

- On acrylic using basic dyes
- 3. Printing with blocks and screens**
 - Direct style of Printing on cotton
 - Discharge printing on cotton using direct dyes
 - Resist Printing on cotton using azo dyes
- 4. Colour fastness measurement**
 - Wash fastness
 - Crock/Rub fastness
 - Perspiration fastness
- 5. Colour measurement**
 - Optical Density
 - K/S
 - $L^*a^*b^*$
 - $L^*c^*h^*$

Essential Readings

- Trotman, E. R. (1984) *Dyeing and Chemical Technology of fibres*, Sixth edition, England: Charles Griffin and Company Ltd.
- Rastogi, D. and Chopra, S. (Eds.) (2017) *Textile science*, India: Orient Black Swan Publishing Limited
- Miles, L.W.C. (1994) *Textile Printing*, 2nd ed., West Yorkshire: Society of Dyers and Colorists, England.
- Sekhri S. (2022) *Textbook of Fabric Science: Fundamentals to finishing*, 4th ed., PHI Learning Pvt. Ltd. Delhi

Suggested Readings

- Aspland J. R., (1997) *Textile Dyeing and Colouration*, NC: AATCC.
- Clarke, W. (1977) *An Introduction to Textile Printing*, London: Butterworth and Co. Ltd.
- Shenai, V.A. (1987) *Chemistry of Dyes and Principles of Dyeing*, Vol II, Bombay: Sevak Publications.
- Shore, John (Ed) (1990) *Colorants and Auxiliaries: Organic Chemistry and Application Properties*, Vol. 1 & 2, West Yorkshire: Society of Dyers and Colorists, England.

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**DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 8D2: APPAREL PRODUCTION**

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical/ Practice		
Apparel Production DSE HP 8D2	4	2	0	2	Class XII	Studied Pattern Making and Construction for Women's Wear DSE HP 5D1 OR Designing for Children's Wear DSE HP 5D2:

Learning Objectives

- To gain an understanding of the structure, operations, and key functional areas within the garment industry.
- To learn the processes involved in garment production, spanning pre-production, production, and post-production stages.
- To become familiar with the materials, machinery, tools, and equipment used in garment manufacturing.

Learning Outcomes

The students will be able to

- Explain the steps involved in pre-production, production, and post-production of garments.
- Use drafting techniques to develop patterns and produce finished garments.
- Utilize sewing machines, cutting tools, and other production equipment effectively.
- Identify common garment defects and suggest corrective actions using quality control methods.

SYLLABUS OF DSE HP 8D2

**THEORY
(Credits 2; Hours 30)**

UNIT I: Overview of Apparel Industry

3 Hours

This unit introduced the student to major sectors of the apparel industry and the major production systems used in the apparel industry.

- Major sectors of the apparel industry: Design, production, marketing, and retail
- Production systems

UNIT II: Pre-production Processes in Apparel Production

6 Hours

This unit focuses on pre-production processes like pattern making, sampling, and fabric sourcing. It also covers tech-packs and the role of time and motion studies in enhancing productivity.

- Pre-Production Processes: Recording measurements, developing patterns, sourcing fabrics
- Specification sheets/tech-packs, and planning and controlling production workflows.
- Time and Motion Study in Apparel Production

UNIT III: In-production Processes in Apparel Production

15 Hours

This unit helps students understand in-production processes in garment manufacturing, including marker-making, fabric spreading, cutting, and fusing. It also explores stitching tools, techniques, and machine mechanisms, emphasizing efficiency and quality control.

- Marker Making: planning, production, and methods to optimize fabric usage and efficiency
- Fabric Spreading: various methods for spreading fabric
- Cutting: methods and tools used for fabric cutting, ticketing, and bundling processes.
- Fusing: advantages, requirements, processes, equipment, methods, and quality control techniques for fusing.
- Stitching: Types of sewing machines, machine bed and feed mechanism, sewing needles types, sewing threads, stitch and seam types and seam defects and remedies

UNIT IV: Post-production Processes in Apparel Production

6 Hours

This unit covers key post-production processes, focusing on quality evaluation of garment components. It also explores finishing techniques such as trimming, pressing, packing, and shipment preparation for market-ready products.

- Evaluating the Quality and Fit of Garment Components: fit and quality of various garment components such as necklines, collars, sleeves, cuffs, plackets, pockets, seams, hemlines, darts, pleats, gathers, flares, tucks, yokes, and waistbands.
- Garment Finishing: trimming, stain removal, cleaning, dry-cleaning, pressing, checking, folding, packing, warehousing, and transportation.

PRACTICAL

(Credit 2; Hours 60)

1. Developing patterns in bodices with yoke variations, dart clusters, graduated darts, parallel darts, asymmetric darts, radiating darts etc.
2. Drafting of shirt collar, shawl collar, peter pan collar on altered neckline
3. Sleeve variations with shirtmaker, bishop, and leg-o-mutton
4. Construction of samples
 - Kurta placket
 - Zipper attachment
 - Patch and In-seam pocket
5. Construction of Blouse/Kurta/Top
6. Construction of one lower garment

Essential Readings

- Aldrich, W. (2008) *Metric Pattern Cutting for Women's Wear*, ISBN 10: 1405175672 / ISBN 13: 9781405175678, Wiley Blackwell Publication.
- Armstrong, H. J. (2014). *Pattern making for fashion design* (5th ed.). Dorling Kindersley, New Delhi.
- Brown, P. and Rice, J. (2014). *Ready to Wear Apparel Analysis*. Fourth Edition. Pearson Education, India.
- Cooklin. G., Hayes (Ed.), McLoughlin J. (Ed.). (2006). *Introduction to Clothing Manufacture*. Second Edition. Blackwell Scientific Publication, U.K.
- Tyler, D.J. (2008). *Carr and Latham's technology of clothing manufacture* (4th ed.). Blackwell, U.K.

Suggested Readings

- Glock, R. E., & Kuntz, G. I. (2009). *Apparel manufacturing: Sewn product analysis*. (4th ed.). Pearson Education, New Delhi.
- Stamper, Sharp and Donnell, (1991), *Evaluating Apparel Quality* (2nd edition), Fairchild Publications, New York.
- Dunham, G. R., (2021) *The Fitting Book: Make Sewing Pattern Alterations and Achieve the Perfect Fit You Desire*, ISBN: 9783033083745, Gina Renee Designs Publication, India.
- Azad, N., (2019), *Sewing Technology*, Neelkanth Publishers Pvt. Ltd. India.
- Aggarwal, J., Yadav, S., & Sonee, N. (2024). *Manual for B.Sc. Home Science Pattern Making and Apparel Construction*. Elite Publishing House, New Delhi. ISBN 978-81-95556-78-6.
- MacDonald, Nora M. (2010), *Principles of Flat-Pattern Design*, Fairchild Books, New York.
- Reader's Digest (Eds.). (2002). *New complete guide to sewing: Step-by-step techniques for making clothes and home accessories*. Reader's Digest, New York.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 8D3: FASHION RETAILING AND MARKETING

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre- requisite of the course (if any)
		Lecture	Tutorial	Practical		
Fashion Retailing And Marketing DSE HP 803	4	3	1	0	Studied Semester VII	Nil

Learning Objectives

- To understand the fundamentals of fashion retailing and merchandise planning.
- To study core marketing principles, including product and brand management.
- To gain insights into pricing and promotional strategies in the fashion retail industry.

Learning Outcomes

- Knowledge of merchandising activities in a retail setup
- Develop and apply effective Merchandise Planning, Assortment Management, and Inventory Control techniques in a retail setting
- Knowledge of Product Planning and development, and Brand Management Strategies.
- Skill to deliver the customer value through Integrated Marketing Communication strategy.
- Design customer driven Marketing Mix strategy.

SYLLABUS OF DSE HP 803

THEORY
(Credits 2; Hours 45)

UNIT I: Introduction to Fashion Retailing

7 Hours

In this unit, students will explore the retail environment, its emerging trends, and various types of retail formats. They will also learn the importance of visual merchandising in driving customer engagement and enhancing sales.

- Overview of Retail Environment and Emerging Trends

- Classification of Retail Institutions and Formats
- MultiChannel Retail

UNIT II: Merchandise Planning and Management

10 Hours

This unit focuses on the core concepts of merchandising, types of merchandise, and effective planning techniques. Students will understand how to create assortment plans and set appropriate inventory levels to meet market demands.

- Concept of Merchandising
- Merchandise Categories: Staple, Fashion, and Seasonal
- Assortment Planning
- Setting Product Availability and Inventory Levels

UNIT III: Marketing Management and Product Branding

18 Hours

This unit covers the foundational principles of marketing, product lifecycle management, brand management concepts, and positioning strategies. Students learn to understand the 4P's of marketing, segment and target markets, develop strong brands, and differentiate products in competitive markets

- Importance and Scope of Marketing
- Core Elements of Marketing: The 4P's
- Market Segmentation and Targeting
- Product Mix, Product Classification & Lifecycle
- Brand Management
 - Brand Attributes, Identity, and Image
 - Branding Strategies
 - Product Positioning and Differentiation in Competitive Markets

UNIT IV: Pricing and Promotion

10 Hours

In this unit, students will understand various pricing strategies and promotional techniques to improve market reach. They will also learn about integrated marketing communications and its role in product success.

- Pricing Objectives and Strategies
- Development And Managing Advertising Programs
- Sales Promotion and Personal Selling

TUTORIAL (Credit 1; Hours 15)

Interactive discussions and presentations on marketing mix of various fashion brands and their retail formats and merchandise categories

1. Demographic Analysis of the Indian Market

- **Discussion:** Overview of Indian consumer demographics and psychographics.
- **Class Activity:** Students analyze real-life examples of consumer segmentation and discuss their impact on purchasing behavior.

2. Branding and Positioning Strategies

- **Case Study:** Review and discussion on branding and positioning strategies of a well-known fashion brand.
- **Student Presentations:** Groups present insights and propose alternative branding strategies

3. Promotion and Communication Strategies

- **Activity:** Create a simple communication plan for a hypothetical fashion brand, incorporating traditional and social media elements. .

4. Retail Trends and Innovation

- **Discussion** on innovative retail formats like pop-up stores and their role in attracting customers.
- **Group Activity:** Compare two marketing channels and discuss their effectiveness in reaching target consumers.

5. Merchandise Planning and Assortment Development

- **Exercise:** Develop a basic assortment plan for a specific product category, focusing on target consumer preferences.
- **Feedback Session:** Groups present their plans and receive input on aligning with consumer preferences and branding goals.

Essential Readings

- Levy, M, Weitz, B.A. and Pandit, A. (2008) *Retailing Management*, Delhi: Tata McGraw Hill Education Private Limited.
- Kotler, P., Keller, K.L., Koshy, A. and Jha, M. (2012) *Marketing Management* 14th ed.: Pearson.
- Pegler, M. (2006) *Visual Merchandising and Display*, New York: Fairchild Publications Inc.
- Clark, J. (2014) *Fashion Merchandising Principles and practice*, Suffolk: Lavenham press ltd.

Suggested Readings

- Diamond, J., Diamond, E. and Litt, S.D. (2006) *Fashion Retailing- A Multi- Channel Approach*: Bloomsbury Publishing Inc.
- Jain, J.N. and Singh, P.P. (2007) *Modern Marketing Management- Principles and Techniques*. New Delhi: Regal Publications.
- Kunz, I. and Grace 3rd ed. (2009) *Merchandising*, New York: Fairchild publications, Inc.
- Posner, H. (2015) *Marketing Fashion –Strategy, Branding and promotion*, 2nd ed., Laurence King Publishing.
- Robbins, P.S. and Dcenzo, A. D. (2005). *Fundamentals of management- essential concepts and Applications* 5th ed. : Pearson education Inc, Dorling kindersley (India) pvt. ltd.
- Belch, E. G. and Belch, A.M. (2003). *Advertising and Promotion- An integrated marketing communications perspective* 6th ed.: Tata McGraw-Hill publishing company ltd.
- Poloian, G.L. (2009). *Multichannel Retailing* : Fairchild Books-New York.

Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time

- Posner, H. (2015) *Marketing Fashion –Strategy, Branding and promotion*, 2nd ed., Laurence King Publishing.
- Robbins, P.S. and Dcenzo, A. D. (2005). *Fundamentals of management- essential concepts and Applications* 5thed. : Pearson education Inc, Dorling kindersley (India) pvt. ltd.
- Belch, E. G. and Belch, A.M. (2003). *Advertising and Promotion- An integrated marketing communications perspective* 6th ed.: Tata McGraw-Hill publishing company ltd.
- Poloian, G.L.(2009). *Multichannel Retailing* : Fairchild Books-New York.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 8E1: CAPACITY BUILDING FOR SUSTAINABLE DEVELOPMENT

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the Course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical		
Capacity Building for Sustainable Development DSE HP 8E1	4	2	0	2	Class XII	Nil

Learning Objectives

- To impart an understanding of conceptual framework, scope and importance of capacity building and organizational capacity development.
- To build proficiency in designing and implementing capacity building initiatives for sustainable development.

Learning Outcomes

The students will be able to

- Develop an understanding of the concepts related to capacity building and its role in sustainable development.
- Acquire skills to design, develop and implement capacity building initiatives for sustainable development.
- Critically analyze interventional strategies of organizational capacity development

SYLLABUS OF DSE HP 8E1

THEORY
(Credits 2; Hours 30)

Unit I: Conceptual framework and Organizational learning **4 Hours**

This unit introduces the students to the concepts of capacity building for sustainable development, its evolution, elements, process and approaches.

- Capacity Development- Concept, evolution and process
- Organizational Capacity Development- Approaches and elements

Unit II: Interventional Strategies for sustainable development **10 Hours**

This unit focuses on contemporary professional practices in capacity building including training need assessment, methodologies, developing ICT material and evaluation.

- Training Need Assessment (TNA)
- Training methodologies
- ICT for sustainable development
- Training Evaluation

Unit III: Institutionalizing capacity building programmes

8 Hours

This unit highlights the approaches adopted by National level capacity building programmes.

- Approaches to land to lab and lab to land transfer
- Sustainability planning and mainstreaming into policy.

Unit IV: Monitoring and evaluation of and Sustainability of Capacity Building Initiatives

8 Hours

This unit explores the frameworks for monitoring, evaluating, and sustaining capacity-building programmes for long-term impact and policy integration.

- Monitoring and Evaluation (M&E) frameworks
- Indicators of capacity development success
- Impact assessment and reporting

PRACTICAL (Credit 2; Hours 60)

1. Critical analysis of capacity building programmes through Case Studies and live projects
2. Training Need Assessment (TNA)
3. Training Methodologies
4. ICT Material for Sustainable Development
5. Training Evaluation
6. Design and development of capacity building programmes
7. Implementation of capacity building programmes

Essential Readings

- Bamberger, M., & Chevalier, J. (2010). *The Capacity Building Handbook: A Guide for Practitioners in Sustainable Development*. GIZ.
- Horton, D., & Mackay, R. (2003). *Developing Effective Capacity Building Programs*. Oxford University Press.
- James, V. U. (2018). *Capacity Building for Sustainable Development*. CAB International.
- Swanson, R. A., & Holton, E. F. (2001). *Foundations of Human Resource Development*. Berrett-Koehler Publishers.
- Williams, T., & Goodwin, T. (2015). *Capacity Development for Organizational Learning*. Routledge.

Suggested Readings

- Blumenthal, B. (2003). *Investing in Capacity Building: A Guide to High-Impact Approaches*. Routledge.

- Bemmerlein-Lux, F., & Bank, P. (2011). *Lessons Learnt & Tools Applied: A Working Book on Capacity Building Approaches in India*. GIZ.
- Hamel, G., & Prahalad, C. K. (1994). *Competing for the Future*. Harvard Business Review Press.
- Kenny, S., Clarke, M. (Eds.) (2010). *Challenging Capacity Building: Comparative Perspectives*. Palgrave Macmillan UK.

Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time

DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 8E2: PRODUCT DESIGN AND APPLICATION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical		
Product Design and Application DSE HP 8E2	4	2	0	2	Class XII	Nil

Learning Objectives

- Understand the basic concepts, scope and significance of product design.
- Develop creative and innovative thinking skills to design user-friendly, inclusive and interactive products.
- Gain knowledge of the New Product Development (NPD) process
- Build skills for the successful promotion of the product in the market.

Learning outcomes

The students will be able to

- Provide students with an understanding of product design principles and real-world challenges.
- Encourage creativity and innovation for designing user-friendly and inclusive products.
- Providing insights regarding the New Product Development (NPD) process, from idea generation to market launch.
- Equip students with the skills to select materials, develop prototypes, and perform cost analysis for efficient design.

SYLLABUS OF DSE HP 8E2

THEORY
(Credits 2; Hours 30)

UNIT I: Introduction to Product Design

8 Hours

This unit covers the concept, scope, importance, approaches, and challenges of product design, along with success factors, design philosophies, and the role of product designers.

- Introduction to Product design: Concept, scope, importance and challenges
- Different approaches to Product design
- Factors for the success of products
- Design philosophies of famous designers

- Role of Product Designers

UNIT II: Creativity and Innovative thinking

6 Hours

This unit covers concept of creativity, innovation in product design, and human-centric design approaches like ergonomics, inclusive, and interactive design.

- Theories and models of creativity
- Techniques of developing creativity
- Role of innovation in product design
- Application of human factors and ergonomics (user-centric design, Inclusive design and Interactive design).

UNIT III: Product Development Process

10 Hours

This unit outlines the stages of new product development, including idea generation, material selection, prototyping, cost-value analysis, and legal aspects like intellectual property rights.

- Stages of New Product Development (NPD): Idea generation, concept development, market analysis, Feasibility study
- Detailed study of Materials
- Prototyping
- Cost-value Analysis for effective design
- Intellectual Property (IPR) and other legal considerations.

UNIT IV: Product Launch and Marketing

6 Hours

This unit highlights product launch strategies, including packaging, advertising, branding, post-launch review, and real-life case studies.

- Introducing the product to the market
- Packaging, Advertising and branding.
- Post-Launch Review and feedback for Improvements
- Real-Life Examples and Projects

PRACTICAL (Credits 2; Hours 60)

1. Case study of selected products-success and failure stories
2. Techniques of creativity
3. Study of selected materials: properties and functions
4. Design Tools and Software: CAD, graphic design tools, 3D printing etc.
5. Product-Life cycle mapping of any consumer product
6. Designing and Prototyping of a product (as per the stages of product development)
7. Simulation of Product Launch: Group activity for launching a product (pricing, promotional strategies and distribution channels)
8. Use of Technology in product design and development

Essential Readings

- Salvendy, G. (Ed.). (2021). *Handbook of human factors and ergonomics* (5th ed.). John Wiley & Sons, Inc.
- Petrov, V. (2019). *Theory of inventive problem solving: Level 1*. Springer Series.
- Ulrich, K. T., & Eppinger, S. D. (2019). *Product design and development* (7th ed.). McGraw-Hill Education.
- Sawyer, R. K. (2012). *Explaining creativity: The science of human innovation* (2nd ed.). Oxford University Press.
- Crawford, M. C., & Di Benedetto, C. A. (2011). *New products management* (11th ed.). McGraw-Hill Education.

Suggested Readings

- Sherman, B., & Bently, L. (2019). *The making of modern intellectual property law*. Cambridge University Press.
- Kotler, P., & Keller, K. L. (2016). *Marketing management* (15th ed.). Pearson Education.
- W.S. Green & P.W. Jordan (Eds) (1999). *Human factors in product design: Current practice and future trends* (pp.206-217). London: Taylor & Francis.
- Cross, N. (2011). *Design thinking: Understanding how designers think and work*. Bloomsbury Academic.
- Doren, Harold V. (1954). *Industrial Design – A Practical Guide to Product Design and Development*. New York: McGraw-Hill Book Company.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE HP 8E3: FACILITIES AND SERVICES MANAGEMENT

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITES OF THE COURSE

Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the (if any)
		Lecture	Tutorial	Practical		
Facilities and Services Management DSE HP 8E3	4	3	1	0	Studied in Semester 6	NIL

Learning Objectives

- To understand the evolution, nature and scope of facilities and service management in various organizations.
- To prepare operational and strategic facilities management plan for attaining business efficiency.

Learning Outcomes

- Understand the nature and scope of facilities and service management.
- Develop an understanding of operations management and maintenance.
- Gain knowledge about the strategies of facilities and service management.
- Have a practical understanding regarding the management of services in various organizations.

SYLLABUS OF DSE HP 8E3

THEORY
(Credit 3; Hours 45)

UNIT I: Introduction to Facilities and Service Management

10 Hours

This unit introduces facilities and service management, focusing on scope, classification, competencies, and emerging trends.

- Nature and scope of facilities and services
- Classification and characteristics of facilities and services
- Role and core competencies of facility managers
- Emerging trends in facility management

UNIT II: Operations and Maintenance

12 Hours

This unit focuses on facility operations, covering building systems, maintenance types, management practices, and health, safety, and security standards.

- Overview of building systems and their components
- Types of maintenance
- Facility management practices and processes
- Health, safety and security standards

UNIT III: Service Management and Quality Parameters

11 Hours

This unit covers service management, understanding and measuring service quality, applying service quality models, and managing specialist services.

- Understanding and measuring service quality
- Service quality models and their applications
- Managing specialist services

UNIT IV: Strategies in Facility Management

12 Hours

This unit focuses on strategic planning, technology integration, and sustainable practices in facility management to enhance efficiency and long-term viability.

- Strategic planning for facility management
- Technology integration in facility management
- Sustainable facility management practices

TUTORIAL (Credit 1; Hours 15)

1. Analysing service management through case studies
2. Care and maintenance of different surfaces
3. Surveying hard and soft services across varied industries/institutions
4. Designing OSHA safety and health checklists
5. Field visits to evaluate facility management operations
 - Observe and analyze facility management practices in malls, hospitals, hotels, restaurants, etc.
6. Customer journey mapping for enhanced service delivery
 - Understand user experiences and propose strategies for improvement
7. Drafting professional service contracts for cleaning or maintenance
8. Designing customized facility inspection checklists

Essential Readings

- Atkin, B., & Brooks, A. (2021). *Total facility management* (4th ed.). Wiley-Blackwell.
- Cotts, D. G., Roper, K. O., & Payant, R. P. (2021). *The facility management handbook* (5th ed.). AMACOM
- Alexander, K. (Ed.). (2013). *Facilities management: Theory and practice*. Routledge.
- Whitman, M. E., & Mattord, H. J. (2022). *Principles of information security* (7th ed.). Boston, MA: Cengage Learning.
- Stevenson, W. J. (2020). *Operations management* (14th ed.). New York, NY: McGraw-Hill Education.

Suggested Readings

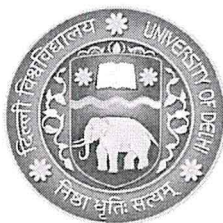
- Roper, O. K., & Payant, P. R. (2014). The facility management handbook (4th ed.). AMACOM.
- Barrett, P., & Baldry, D. (2009). Facilities management: Towards best practice (2nd ed.). Wiley-Blackwell.
- International Facility Management Association. (2020). IFMA facility management handbook. IFMA Press. <https://www.ifma.org/>
- Oakland, J. S. (2018). Total quality management and operational excellence: Text with cases (4th ed.). Routledge.
- Petrov, V. (2019). Theory of inventive problem solving: Level 1. Springer Series.

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दिल्ली विश्वविद्यालय
UNIVERSITY OF DELHI

Bachelor of Science in Food Technology
or
**Bachelor of Science (Hons.) Food Technology with
Dissertation/ Academic Projects/ Entrepreneurship**

*Under UGCF-2022 based on NEP-2020
(Effective from Academic Year 2022-23)*



*Syllabus as
approved by
Academic
Council*

Date:

No:

Executive Council

Date:

No:

Department of Home Science
Semester -VII
B.Sc (Honours) Food Technology

Paper No	Paper Title	Credits	
		Theory	Practical
DSC FT 19	Statistical Analysis in Research	3	1
DSE FT 05	Sensory Science	2	2
DSE FT 06	Nutraceuticals and Functional Foods	2	2
DSE FT 07	Food Additives	2	2

DISCIPLINE SPECIFIC CORE COURSE
DSC FT 19: STATISTICAL ANALYSIS IN RESEARCH

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITE OF THE COURSE

Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical		
Statistical Analysis in Research DSC FT 19	4	3	0	1	Studied XII	Nil

Learning Objectives

- Introduce students to basic statistical concepts and methods.
- Develop skills to organize, analyze and interpret data.
- Provide the foundation for applying statistical methods in real-world scenarios.
- Equip students with tools for making inferences from data using probability and hypothesis testing.

Learning Outcomes

- Understand and apply basic statistical concepts.
- Organize and summarize data using descriptive statistics.
- Understand probability theory and apply it to various problems.
- Conduct hypothesis testing and interpret the results.

SYLLABUS OF DSC FT 19

THEORY
(Credits 3; Hours 45)

UNIT I: Basics of Statistics

16 Hours

In this unit, the students will be able to classify data into appropriate types and levels of measurement. They will understand the distinction between descriptive and inferential statistics. The students will

also learn how to collect, organize and interpret data. They will understand the concept of central tendency and dispersion for different data sets.

- Definition, Scope, types and limitations of statistics
- Data vs Information, variable, frequency, frequency distribution, sample, population, univariate, bivariate and multivariate data tables, types of data (qualitative & quantitative), sources of data (primary and secondary), visualization of data.
- Level of measurement: Nominal, Ordinal, Interval & Ratio with examples
- Importance of Reliability and validity
- Meaning and Measures of Central Tendency- Arithmetic mean, geometric mean and harmonic mean, median, mode, their properties and relationship, partition values (Quartile, Decile, Percentile), Percentile vs Percentile Rank for ungrouped and grouped data.
- Meaning and Measures of Dispersion: Absolute Vs Relative Dispersion for ungrouped and grouped data.
- Overview of Skewness & Kurtosis.

UNIT II: Probability and Probability Distributions

8 Hours

- Probability: Basic concepts, addition and multiplication rules of probability, conditional probability, Bayes theorem and its applications in Food Sciences
- Probability Distribution: Definition of Random variable: Discrete (Binomial and Poisson probability distribution) and Continuous (Normal distribution) random variables, properties of Normal distribution, Z-score, area under the normal curve
- Mathematical Expectation and Variance: definition with examples.

UNIT III: Correlation and Linear Regression

7 Hours

- Correlation Analysis: Definition, Types of correlation, measure of correlation (Scatter diagram, Karl Pearson's coefficient of correlation and Spearman's rank correlation coefficient), coefficient of determination, properties of coefficient of correlation.
- Regression Analysis: Meaning of regression, Regression Lines (regression equations), regression coefficients along with their properties, Simple Linear model.

UNIT IV: Sampling & Hypothesis Testing

14 Hours

Sample, population, techniques of sampling, sample size, sampling distribution, standard error, null and alternate hypothesis, one-tail and two tail test, type I and type II errors, level of significance & level of confidence, concept of confidence interval estimation.

Parametric analysis:

- Large sample tests for single mean and difference of means
- Student t-distribution: test for single mean, unpaired and paired t- test,
- F-test and one-way analysis of variance (ANOVA)
- Karl Pearson's (Product moment) Coefficient of correlation

Non-parametric analysis:

- Chi-square distribution: tests for goodness of fit, test for independence of attributes
- Test the significance of Spearman's rank correlation coefficient.

Parametric analysis:

- Large sample tests for single mean and difference of means
- Student t-distribution: test for single mean, unpaired and paired t- test,
- F-test and one-way analysis of variance (ANOVA)
- Karl Pearson's (Product moment) Coefficient of correlation

Non-parametric analysis:

- Chi-square distribution: tests for goodness of fit, test for independence of attributes
- Test the significance of Spearman's rank correlation coefficient.

PRACTICAL
(Credit 1; Hours 30)

Computer-based practicals using any statistical software like MS-Excel, SPSS, etc. to understand the following concepts:

1. Graphical data representation
2. Measures of central tendency, partition and dispersion
- 3 Normal distribution (Continuous distribution)
4. Correlation and linear regression analysis
5. Student t- test (one sample and 2 sample)
6. Chi-square test
7. ANOVA (one way)

Essential Readings

- Minium, E. W., King, B. M., & Bear, G. (2017). Statistical Reasoning for Psychology and Education. New York: Wileyand Sons.
- Rastogi Veer Bala, Fundamentals of Biostatistics, latest edition.
- Gupta, S.P. (2022) Statistical Methods, 46th Edn. S.Chand and Sons.
- Agresti, A., Christine Franklin, C. and Klingenberg, B. (2017). Statistics: The Art and Science of Learning from data, Pearson, Boston.
- Biostatistical Analysis, 5th edition (2009), Jerrold H. Zar, Pearson. ISBN-13: 978-0131008465

Suggested Readings

- Derek, R. (2018). Statistics Without Tears, An Introduction for Non-Mathematicians ISBN:978-0-141-98749-1.

- Schmuller, J.(2016). Statistical Analysis with Excel for Dummies, 5th Edition, New York, USA.
- Gupta, S. C. & Kapoor, V. K.: (2020). Fundamentals of Mathematical Statistics, 12th Edn., S. Chand and Sons. ISBN: 9781119844549
- Ross, Sheldon M. (2010): Introductory Statistics, 3rd Edition, Academic Press.

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DISCIPLINE SPECIFIC ELECTIVE COURSE
DSE FT 05: SENSORY SCIENCE

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITE OF THE COURSE

Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical		
Sensory Science DSE FT 05	4	3	0	1	Studied XII	Nil

Learning Objectives

1. To appreciate the significance of sensory science in food product designing and development.
2. To understand the physiology and mechanism of taste, aroma, texture and colour perception.
3. To study the various instrumental techniques/ measurements used in evaluating sensory attributes of food.

Learning Outcomes

- Apply the principles of sensory science in product development, reformulation and optimization, packaging, storage, and studies on alternative of foods.
- Assess colour, flavour, texture, and other sensory characteristics of food for quality assurance.
- Evaluate consumer perception and acceptance of food products.

SYLLABUS OF DSE FT 05

THEORY
(Credit 2; Hours 30)

UNIT I: Gustation

8 Hours

Unit description: This unit will focus on the physiology of taste, its perception and evaluation techniques.

- Introduction and importance of gustation
- Structure and physiology of taste organs- tongue, papillae, taste buds, salivary glands

- Mechanism of taste perception
- Chemical dimensions of basic tastes- sweet, salt, sour, bitter and umami
- Factors affecting taste quality, reaction time, taste modification, absolute and recognition threshold
- Recent advances in Taste measurement- Electronic Tongue
- Taste abnormalities

UNIT II: Olfaction

7 Hours

Unit description: This unit will focus on the physiology of smell, its perception and evaluation techniques.

- Introduction, definition and importance of odour and flavour.
- Anatomy of nose, physiology of odour perception
- Pre-requisites of odour perception.
- Mechanism of odour perception
- Recent advances in olfaction measurement – Electronic Nose
- Olfactory abnormalities

UNIT III: Colour

7 Hours

Unit description: This unit will focus on the importance of colour, its perception and evaluation techniques.

- Introduction and importance of colour
- Dimensions of colour.
- Attributes of colour; gloss etc.
- Perception of colour
- Colour Measurement: Hunter colour system, Tintometer.
- Colour abnormalities

UNIT IV: Texture

8 Hours

Unit description: This unit will focus on texture, its significance, physiology, and measurement.

- Introduction, definition, and importance of texture.
- Significance of sound in texture evaluation
- Physiology of Sense of Touch
- Texture perception
- Phases of oral processing.
- Receptors involved in texture evaluation.
- Texture measurement – basic rheological models, forces involved in texture measurement.

PRACTICAL (Credit 2, Hours 60)

1. Training of sensory panel.
2. To perform recognition tests for basic tastes.

3. To perform various Analytical tests
 - a. Discriminative Tests: Simple and directional Difference tests, Ranking and Rating Tests.
 - b. Sensitivity Tests: Threshold, /Dilution for basic tastes
 - c. Descriptive Tests: Category Scaling (structured and unstructured) Quantitative Descriptive Analysis.
4. To perform Affective Tests (Preference and Acceptance Tests)
 - a. Hedonic Scale (verbal, facial)
 - b. Food Action Scale
5. Perform sensory evaluation of any dairy product-market milk/cheese/butter/ice cream.
6. Analyze flavour defects in milk/ ice-cream/ butter.
7. Colour measurement using Lovibond Tintometer/ Hunter Colour Lab.

Essential Readings

- Rao, E. S. (2013). Food Quality Evaluation (I ed.). Variety Book Publishers, New Delhi.
- Herbert S., Rebecca B., & Heather T. (2020) (5th ed.) *Sensory Evaluation Practices*. Elsevier.
- Meilgard (2014). Sensory Evaluation Techniques (3rd ed.). CRC Press LLC.

Suggested Readings

1. George, A. B. (2004). Fenaroli's Handbook of Flavor Ingredients (5th ed.). CRC Press
2. Harry, T. L. & Barbara, P. K. (1991) Sensory Science Theory and Applications in Food. New York: Marcel Dekker.
3. Morton, I. D. & Macleod, A. J. (1990). Food Flavours. *Part A, B & C*. Elsevier.
4. Rao, E. S. (2014). Food Quality Testing and Evaluation: Sensory Tests and Instrumental Techniques. New Delhi. Variety Book Publishers

Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE
DSE FT 06: NUTRACEUTICALS AND FUNCTIONAL FOODS

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITE OF THE COURSE

Course Title & code	Credits	Credit distribution of the course			Eligibility criteria	Pre-requisite of the course (if any)
		Theory	Tutorial	Practical/ Practice		
Nutraceuticals And Functional Foods DSE FT 06	4	2	0	2	Completed VI semester	Should have studied Biology/Biochemistry/Chemistry/Biomedical Science/Home Science in previous semesters

Learning Objectives

- To understand the types of nutraceutical and functional foods
- To understand the potential of various nutraceuticals and functional foods in promoting human health
- To understand the safety issues and consumer acceptance of nutraceutical and functional foods
- To understand labeling, marketing and regulatory issues related to nutraceutical and functional food
- To understand the processing technologies related to development of nutraceuticals and functional foods.

Learning Outcomes

- Differentiate between nutraceuticals and functional foods based on their composition and form.
- Understand the potential health benefits of consuming nutraceuticals and functional foods.
- Knowledge on safety issues and consumer acceptance of nutraceutical and functional foods, including the importance of regulation and quality control.
- Understand the labelling, marketing, and regulatory issues related to nutraceutical and functional food.
- Knowledge of the processing technologies involved in the development of nutraceuticals and functional foods.

SYLLABUS OF DSE FT06

THEORY (Credits 2; Hours 30)

UNIT I: Gustation

8 Hours

Unit description: This unit will focus on the physiology of taste, its perception and evaluation techniques.

- Introduction and importance of gustation
- Structure and physiology of taste organs- tongue, papillae, taste buds, salivary glands
- Mechanism of taste perception
- Chemical dimensions of basic tastes- sweet, salt, sour, bitter and umami
- Factors affecting taste quality, reaction time, taste modification, absolute and recognition threshold
- Recent advances in Taste measurement- Electronic Tongue
- Taste abnormalities

UNIT II: Olfaction

7 Hours

Unit description: This unit will focus on the physiology of smell, its perception and evaluation techniques.

- Introduction, definition and importance of odour and flavour.
- Anatomy of nose, physiology of odour perception
- Pre-requisites of odour perception.
- Mechanism of odour perception
- Recent advances in olfaction measurement – Electronic Nose
- Olfactory abnormalities

UNIT III: Colour

7 Hours

Unit description: This unit will focus on the importance of colour, its perception and evaluation techniques.

- Introduction and importance of colour
- Dimensions of colour.
- Attributes of colour; gloss etc.
- Perception of colour
- Psychological impact of colour
- Colour Measurement: Hunter colour system, Tintometer.
- Colour abnormalities

UNIT IV: Texture

8 Hours

Unit description: This unit will focus on texture, its significance, physiology, and measurement.

- Introduction, definition, and importance of texture.

- Significance of sound in texture evaluation
- Physiology of Sense of Touch
- Texture perception
- Phases of oral processing.
- Receptors involved in texture evaluation.
- Texture measurement – basic rheological models, forces involved in texture measurement.

PRACTICAL **(Credits 2; Hours 60)**

1. Identification of various nutraceuticals and functional foods available in the market.
2. Estimation of chlorophyll content.
3. Determination of lycopene.
4. Determination of anthocyanins.
5. Estimation of free radical scavenging activity/antioxidant activity by DPPH/FRAP.
6. Estimation of total phenolic content.
7. Estimation of flavonoid content.
8. Development of a functional food.

Essential readings

- Wildman, R.E.C. (2019). Handbook of Nutraceutical and Functional Foods. 3rd ed, CRC Press
- Joyce I. B. (2015). Nutraceutical and Functional Food Processing Technology. United Kingdom: Wiley.
- Bagchi, D., Sreejayan, N. (2016). Developing New Functional Food and Nutraceutical Products. Netherlands: Elsevier Science.
- Egbuna, C., Tupas, G. D. (2020). Functional Foods and Nutraceuticals: Bioactive Components, Formulations and Innovations. Germany: Springer International Publishing.

Suggested readings

- Ranganna, S. (1986). Handbook of analysis and quality control for fruits and vegetable products. Tata McGraw-Hill publishing company limited, Second edition
- Galanakis, C. M. (Ed.). (2021). Nutraceutical and functional food components: Effects of innovative processing techniques. Academic Press.
- Aluko, R. E. (2012). Functional foods and nutraceuticals (pp. 37-61). New York, NY, USA: Springer.

Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC ELECTIVE COURSE**DSE FT 07: FOOD ADDITIVES****CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITE OF THE COURSE**

Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the course (if any)
		Lecture	Tutorial	Practical		
Food Additives DSE FT 07	4	2	0	2	Studied XII	PCM/PCB

Learning Objectives

- To understand the significance of food additives in food processing and preservation.
- To appreciate the technological functions of additives in foods.
- To comprehend the chemistry and toxicological aspects of food additives.

Learning Outcomes

- Apply the knowledge of food additives in food processing and preservation.
- Appreciate the chemical, technological functions, and toxicological evaluation of food additives in food preservation.

SYLLABUS OF DSE FT 07**THEORY**
(Credit 2; Hours 30)**UNIT I: Introduction to Food Additives****8 Hours**

Unit description: The unit will provide information on the classification, significance, toxicological evaluation and regulatory aspects of food additives used in food processing and preservation.

- Definition, classification, and significance of food additives in food processing and preservation.
- Food Category System of FSSAI- Vertical and Horizontal standards.

- Toxicological evaluation of food additives -Risk assessment studies- Safety and quality evaluation of additives, Acute and chronic studies, NOAEL, ADI, LD₅₀
- Regulatory aspects of food additives.

UNIT II: Preservatives

7 Hours

Unit description: The unit will provide insight to different kinds of preservatives, their classification and mechanism of action, technological and toxicological aspects used in food industries.

- Importance, classification: Class I and Class II preservatives.
- Antimicrobials: mechanism of action, chemical, technological, and toxicological aspects- Sulfites, nitrates, benzoates, and their salts.

Unit III: Colours and Sweeteners

8 Hours

Unit description: This unit will focus on importance, classification, safety concerns and recent developments in colours and sweetening agents that are used in food industries.

- **Colours-** Importance and classification
- Application and their safety concerns.
- Recent developments in the food industry.
- **Sweeteners-** Importance and classification
- Consideration for choosing sweetening agents.
- Recent developments of sweeteners in food industry

Unit IV: Emulsifiers, Stabilizers, Thickeners

7 Hours

Unit description: There are various emulsifiers, stabilizers and thickeners that are used in food industries. This unit will introduce functions, mechanism of action and recent developments in these in the food industry

- Introduction, functions, and mechanism of action
- Permitted emulsifiers, stabilizers, thickeners used in foods.
- Recent developments in the food industry.

PRACTICAL (Credit-2; Hours 60)

1. Qualitative estimation of Sulphur dioxide in beverages.
2. Quantitative estimation of Sulphur dioxide in beverages.
3. Qualitative estimation of benzoic acid in ketchup and sauces.
4. Extraction of food pigments and effect of heat and pH on stability.
5. Paper chromatographic estimation of colours.
6. Analysis of moisture content in different edible salts.
7. Analysis of matter insoluble water (MIW) and total chlorides in edible salt.

Essential Readings

- Sen, M. (2021). Food Chemistry: The Role of Additives, Preservatives and Adulteration. United States: Wiley.

- Brannen, D., & Salminen, T. (2002). *Food Additives*. 2nd edition. New York: Marcel Dekker, Inc.
- Fennema, O. R. (1996). *Food chemistry* (Vol. 76). CRC Press.
- Baines, D., & Seal, R. (Eds.). (2012). *Natural food additives, ingredients, and flavourings*. Elsevier.
- Msagati, T. A. M. (2013). Chemistry of food additives and preservatives: emulsifiers.

Suggested Readings

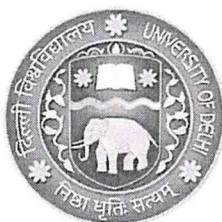
- Codex Alimentarius Commission (2001). Class names and the international numbering system for food additives. Codex Alimentarius: Vol. 1A—General Requirements.
- WHO (1987). Principles for the safety assessment of food additives and contaminants in food. Environmental Health Criteria 70. World Health Organization, Geneva.
- FDA. (1993). Toxicological Principles for the Safety Assessment of Direct Food Additives and Colour Additives used in Food (Redbook II). National Technical Information Services, Springfield, Virginia.
- Emerton, Victoria, "Food Colours". Blackwell Publishing, 2008.
- Mahindru, S. N. (2000) Food Additives- Characteristics Detection and Estimation, TATA McGraw Hill.
- DeMan. (2007). *Principles of Food Chemistry*. Springer, 3rd edition.
- Davidson, P. M., & Branen, A. L. (1993). Antimicrobials in Foods. Marcel Dekker, New York.

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दिल्ली विश्वविद्यालय
UNIVERSITY OF DELHI

Bachelor of Science in Food Technology
or
**Bachelor of Science (Hons.) Food Technology with Dissertation/
Academic Projects/ Entrepreneurship**

Under UGCF-2022 based on NEP-2020
(Effective from Academic Year 2022-23)



Syllabus as
approved by
Academic Council

Date:

No:

Executive Council

Date:

No:

Department of Home Science
Semester -VIII
B.Sc (Honours) Food Technology

Paper No	Paper Title	Credits	
		Theory	Practical
DSC FT 20	Food Standards & Regulations	3	1
DSE FT 08	Food Rheology	2	2
DSE FT 09	Food Plant Design Sanitation	2	2
DSE FT 10	Food Toxicology	2	2

DISCIPLINE SPECIFIC CORE COURSE
DSC FT 20: FOOD STANDARDS AND REGULATIONS

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITE OF THE COURSE

Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical		
Food Standards And Regulations DSC FT 20	4	3	0	1	Studied XII	Nil

Learning Objectives

- To understand the concept of food standards and food safety.
- To comprehend the need for Regulations pertaining to the safety of food, their implementation and the agencies involved in this process at the National and International levels.
- To know the requirements for the Food Business Operators in terms of licensing, registration and labeling

Learning Outcomes

After completing this course, students will be able to understand:

- The food standards, their types, their formulation process, and relevance in consumer safety
- Food categories and groups mentioned as per the FSSA act
- Transition of various acts and orders to one single National food regulatory system in India
- Role of agencies for exporting food commodities from India
- Requirements for the Food Business Operators in terms of licensing, registration and labeling
- Global standards related to food safety and the role of international organizations

SYLLABUS OF DSC FT 20

Theory
(Credit 3; Hours 45)

Unit I: Food Standards

8 Hours

Unit Description: This unit shall introduce students to types of standards and specifications related to food commodities. The various stages that are involved in the formulation of food standards shall be discussed. The various types of foods that are discussed under our current regulations will also be covered for a better understanding of the regulations.

Subtopics:

- Difference between food standards and specifications
- Types of Standards- vertical and horizontal
- Stages for Formulation of Food Standards
- Definitions of Proprietary food, non-specified foods, Nutraceuticals, Functional Food, Novel Food, bioactive compounds, antioxidants, food allergens, fortified foods

Unit II: National Food Regulatory Status

17 Hours

Unit Description: The transition of various acts and orders to one single National food regulatory system shall be covered in this unit. Students shall understand the difference between accreditation and certification process. To make students understand the requirements for exporting food commodities from India, the role of export promotion organizations shall be taken up.

Subtopics:

- FSSAI – (transition from PFA, FPO, MMPO, MFPO), composition and role
- Qualification and duties of public analyst and Food Safety Officers
- FSS Act, Rules and Regulations – Schedule 4(basic requirements and significance)
- Accreditation, Certifications (BIS, QCI, AGMARK, etc.)
- Role of Export Promotion Organizations / Commodity Boards in food safety (APEDA, MPEDA, Spices Board, etc.) and Export Inspection Council

Unit III: Requirements for Food Business Operators

10 Hours

Unit Description: A “food business operator” in relation to food business means a person by whom the business is carried on or owned and ensures compliance of the rules and regulations of FSS Act. In this unit, the requirements for food business operators shall be taken up.

Subtopics :

- Licensing and Registration of Food Businesses
- The Legal Metrology (Packaged Commodities Rules)
- Labelling requirements, Advertising and Claims
- Food recall procedure

UNIT IV: International Food Standards

10 Hours

Unit Description: This unit shall deal with the global standards related to food safety. These standards are developed through the consensus of experts from several countries, allowing users to achieve similar products every time.

Subtopics:

- WTO, Agreements on Sanitary and Phytosanitary Measures (SPS) and Technical Barriers to Trade (TBT),
- International Organization for Standardization (ISO)
- CODEX, FAO, WHO ,JECFA, JEMRA, OIE

PRACTICAL
(Credit 1; Hours 30)

1. Analysis of food labels of commonly consumed foods for compliance to standards.

2. Case study of a food recall/ export rejection.
3. Understanding the process of auditing using a checklist.
4. Market survey of different food types understanding their categorization.
5. Comparative study of Codex, USDA, EFSA and FSSAI standards for selected food types.
6. Understanding the concept of harmonisation of standards using any one food type.

Essential Readings

- Hester, R. E. & Harrison, R. M. (2001) Food Safety and Food Quality :Issues in Environmental Science and Technology ,Cambridge.
- Paster, T. (2007) The HACCP Food Safety Training Manual, John Wiley and Sons Inc. 2007
- Roday, S (1999) Food Hygiene and Sanitation, Tata McGraw Hill.
- Ilbco's (2017) Food Safety and Standards Act 2006, Rules 2011, Regulations 2011 with comments, short notes, gazette notifications, Advisories, Digest of food safety case laws, Images/banners on Food Safety, Commodity & Word Index -International Law Book Company, India, 18 th edition.
- Boisrobert, C., Stjepanovic, A., Oh, S. & Lelieveld, H. (2009) Ensuring global food safety: Exploring global harmonization ,Academic Press.

Important Websites

- Food Safety and Standards Authority of India-<http://www.fssai.gov.in/home#>
- Bureau of Indian Standards <http://www.bis.gov.in/>
- Agricultural and Processed Food Products Export Development Authority (APEDA) <http://apeda.gov.in>
- Spices Board of India <http://www.indianspices.com/>
- Export Inspection Council of India <https://www.eicindia.gov.in/>
- Codex Alimentarius Commission -<http://www.fao.org/fao-who-codexalimentarius/en/>
- Quality Council of India <http://www.qcin.org/#>
- International Organization for Standardization <https://www.iso.org/home.html>
- International Laboratory Accreditation Cooperation (ILAC) <http://ilac.org/>
- International Accreditation Forum (IAF) <http://www.iaf.nu/>

Suggested Readings

- Mathur, P. (2018). *Food Safety and Quality Control*. Hyderabad: Orient BlackSwan Pvt. Ltd.
- Agarwal, P. & Mathur, P. (Eds) (2021). *Eat Right: A Food Systems Approach*. Food Future Foundation. ISBN 978-93-5526459-6.
- Codex Guidelines on Nutrition Labelling 2021

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DISCIPLINE SPECIFIC ELECTIVE COURSE**DSE FT 08: FOOD RHEOLOGY****CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITE OF THE COURSE**

Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the Course (if any)
		Lecture	Tutorial	Practical		
Food Rheology DSE FT 08	4	2	0	2	Studied XII	Nil

Learning Objectives

- To appreciate the significance of food rheology in food product designing and development.
- To understand the chemistry and rheology of cereal based and meat and dairy food products.
- To study the various instrumental techniques/ measurements used in evaluating rheological properties.

Learning Outcomes

- Apply the principles of food rheology in product development and optimization of process parameters.
- Evaluate food quality attributes of final products in relation to rheological properties.

SYLLABUS OF DSE FT08**THEORY**
(Credit 2; Hours 30)**UNIT I: Introduction to Rheology of Foods****10 Hours**

- Definition of rheology, viscosity, viscoelasticity, and plasticity of foods.
- Classification of texture- based on chemical composition and physical structure of foods.
- Essential elements of texture measuring devices.
- Approaches to Instrumental Measurement of Texture- Fundamental, Empirical, and Imitative tests.
- Basic rheological models and forces involved in texture measurement.
- Importance and rheological applications in food measurements.
- Texture profile Analysis.

UNIT II: Rheological Applications in Cereal food products**10 Hours**

- Chemistry of bread and biscuit/ cookie making- type of flours, protein content etc.
- Rheological properties of Dough- Effect of stress on dough, Viscosity Modulus Quotient.
- The three – phase concept of bread making.
- Instrumental measurement of rheological properties of dough- mixing, load extension, viscosity measurements.

UNIT III: Rheological Applications in Meat

4 Hours

- Compositional and textural attributes influencing meat quality.
- Instrumental measurement of meat quality: compression, shear, torsion etc.
- Texture profile analysis of meat

UNIT IV: Rheological Applications in Dairy

6 Hours

- Rheology of Cheese: structure, model of cheese rheology, texture and factors affecting structure of Cheddar cheese.
- Instrumental measurement of cheese quality.
- Rheology of Milk fat and Butter: Body and texture, rheological properties- spreadability, plasticity.

PRACTICAL (Credit 1; Hours 30)

1. Determine the flow properties of Newtonian and Non-Newtonian fluids using two tube capillary viscometers.
2. Study the viscosity of various food products using Brookfield's Viscometer.
3. Determine the force required to penetrate butter/ ghee/ margarine using penetrometer.
4. Study the pasting behaviour of various starches.
5. Study the rheological properties of dough (Viscosity Modulus Quotient).
6. Study the consistency of various foods using Bostwick consistometer.
7. Texture Profile Analysis of any given food product- Biscuits/ cookies/ chips/ fruits.
8. Textural evaluation of various food products.

Essential Readings

- Rao, E. S. (2013). *Food Quality Evaluation* (I ed.). Variety Book Publishers, New Delhi.
- Fox, P.F., Guinee, T.P., Cogan, T.M. & McSweeney, P.L.H. (2017). Cheese: Structure, Rheology and Texture. In: *Fundamentals of Cheese Science*. Springer, Boston, MA.

Suggested Readings

- Wright, A. J., Scanlon, M. G., Hartel, R. W., & Marangoni, A. G. (2001). Rheological properties of milkfat and butter. *Journal of food science*, 66(8), 1056-1071.

- De Ávila, M. D. R., Cambero, M. I., Ordóñez, J. A., de la Hoz, L., & Herrero, A. M. (2014). Rheological behaviour of commercial cooked meat products evaluated by tensile test and texture profile analysis (TPA). *Meat science*, 98(2), 310-315.

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DISCIPLINE SPECIFIC ELECTIVE COURSE

DSE FT 09: FOOD PLANT DESIGN SANITATION

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITE OF THE COURSE

Course Title & Code	Credits	Credit Distribution of the Course			Eligibility Criteria	Pre-requisite of the Course
		Lecture	Tutorial	Practical/Practice		
Food Plant Design Sanitation DSE FT 09	4	2	0	2	Studied Semester VI	Nil

Learning objectives

- To study the principles and design of plant and processing equipment.
- To understand the concepts of food storage, warehousing and Cold chain Management.
- To develop comprehensive understanding of waste product handling, management, cleaning and sanitation processes.

Learning Outcomes

- To understand the principles and draw/design food processing plant and processing equipment.
- To get an understanding of warehousing and cold chain management used for storage and transportation of foods.
- To be able to develop waste management and sanitation schedules and designs for food industry and Effluent treatment plant.

SYLLABUS OF DSE FT 09

Theory
(Credits 2; Hours 30)

UNIT I Food Plant Layout and Design**8 Hours**

- General principles of food plant Design and layout , Principles of Site Location, Planning and selection.
- Types of layout, Construction materials and design principles, Illumination, Ventilation and Maintenance of food plant.
- Design of Food Service Areas.

UNIT II Processing Equipment Design**4 Hours**

- Design of food processing equipment : Size Reduction, Mixing, Extraction, Filtration, Centrifugation, Heat exchanger, Dryer, distillation and, Gas absorption equipment.

UNIT III Warehousing and Cold Chain Management**8 Hours**

- Food hygiene and safety in transportation, with a focus on warehouse storage and refrigerated ships- Safe food storage at shopping outlets: use of coolers/chillers/freezers.
- Scope of Cold Chain for enhancing marketing potentials of perishables in domestic and international markets.
- Principles of Cold Chain Creation and Management. Aerated, refrigerated and controlled atmospheric storage. Economics of warehouse storage.

UNIT IV Food Plant Hygiene and Sanitation**10 Hours**

- Waste disposal, Control methods using Physical and Chemical Agents, Pest and Rodent Control.
- Good Manufacturing Practices and Personal Hygiene.
- Detergents, Sanitizers. Sanitation Schedule, CIP, COP.
- Classification of waste: Wastewater and solid waste characterization. BOD, COD
- Waste water Treatment : Physical, Chemical, Biological, Aerobic, Anaerobic, Primary, Secondary and Tertiary (advanced) treatments.

PRACTICAL
(Credit 2; Hours 60)

1. Design and layout of food processing Plant (Dairy/ fruit and Vegetable/Bakery/Meat)
2. Design and layout of cold storage and warehouse.
3. Design of Food Processing Equipment.
4. Preparation of a sanitation schedule for food preparation area.
5. Testing of sanitizers and disinfectants.
6. Study of Phenol coefficient of sanitizers.
7. Determination of BOD (biological oxygen demand)/ COD in waste water.
8. Study of waste water treatment system/ETP.
9. Study of CIP Layout

Essential Readings

- Norman G. Marriott and Robert B. Gravani. (2006). Principles of Food Sanitation, 5th edition
- Rao, D. G. (2010). Fundamentals of Food Engineering, PHI learning Private Ltd.

- Fellows P. (2000). Food Processing Technology, 2nd Edition. Woodhead Publishing Limited and CRC Press LLC
- James A (2013) The supply chain handbook, distribution group.
- Singh, R. P., & Heldman, D. R. (2014). Introduction to food engineering (5th ed.). Academic Press.

Suggested Readings

- Forsythe, S.J. and Hayes, P.R. (1998). Food Hygiene, Microbiology and HACCP. Gaitersburg, Maryland: Aspen.
- Hui, Y.H., Bruinsma, B., Gorham, R., Nip, W.-K. (2003). Food Plant Sanitation. New York: Marcel Dekker.
- Rees, N. and D. Watson. (2000). International Standards for Food Safety. Gaitersburg, Maryland: Aspen
- Saravacos, G. D., & Kostaropoulos, A. E. (2016). Handbook of food processing equipment (2nd ed.). Springer.
- Ghosh, P. (2015). Cold chain: Principles and practices. Tata McGraw-Hill.
- Fick, R. J. (2005). Environmental management of wastewater treatment plants. John Wiley & Sons

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DISCIPLINE SPECIFIC CORE COURSE

DSE FT10: FOOD TOXICOLOGY

CREDIT DISTRIBUTION, ELIGIBILITY AND PRE-REQUISITE OF THE COURSE

Course Title & Code Credit		Credit Distribution of the Course			Eligibility Criteria Pre-requisite of the Course (if any)	
		Lecture	Tutorial	Practical		
Food Toxicology DSE FT10	4	2	0	2	XII Pass	Nil

Learning Objectives

- To understand the principles of food toxicology.
- To learn about the various toxins found in food.
- To understand the effect of toxins on human health.
- To comprehend the management of risks associated with common food toxicants and contaminants.

Learning Outcomes

- Recognise different types of food toxicants of biological origin.

- Understand the chemical contaminants introduced/ produced during food processing.
- Comprehend the principles and techniques of toxicological testing of food.
- Evaluation of food toxicity and management of related risks

SYLLABUS OF DSE FT 10

THEORY **(Credit 3; Hours 30)**

UNIT I: Principles of Food Toxicology

9 Hours

In this unit students will learn the definition, scope and general principles of food toxicology; manifestation of toxic effects; classification of food toxicants; factors affecting toxicity of compounds; experimental design

- Classification of food toxicants according to source
- Factors affecting toxicity of compounds (nature, chemical structure, dose)
- Characteristics of exposure (frequency-acute and chronic, route)
- Spectrum of undesirable effects- (carcinogenicity, mutagenicity, reproductive toxicity, acute and chronic effects on metabolism)
- Definitions of LD50, TD50, NOAEL, LOAEL, ADI, TUL, ALARA, Benchmark Dose
- Basics of experimental design and evaluation of toxicity (in vitro and in vivo studies)

UNIT II: Toxins of Biological Origin

9 Hours

In this unit, the students will be able to understand about toxicity and management of biological toxins and food allergens.

- Common plant toxins
- Microbial toxins (e.g., bacterial toxins and fungal toxins)
- Marine toxins
- Algal toxins
- Food allergens

UNIT III: Toxins of Chemical Origin

8 Hours

The students will understand adverse effects of different chemical contaminants, associated risks and their regulation.

- Environmental contaminants (pesticide residues, heavy metals, dioxins and furans; persistent organic pollutants, radionuclides, microplastics)
- Veterinary drug residues in food

UNIT IV: Toxins and Food processing

4 Hours

This unit will focus on the food toxicants which are generated during the processing at various stages

- Toxicants generated during food processing (heterocyclic amines, polycyclic aromatic hydrocarbons, acrylamides and trans fats)
- Food contact material
- Toxicity of common food adulterants, food additives and dietary supplements

PRACTICAL
(Credit 2; Hours 45)

1. Sampling for detection and quantification of toxicants in food.
2. Sample preparation and extraction of toxic substances from food samples for toxin analysis.
3. Detection of fungal toxins from food.
4. Instrumental techniques used in the analysis of toxins present in foods (HPLC, AAS and LCMS)
5. Exposure assessment of common chemical contaminants found in food.
6. Designing animal experiments to study toxicity of microbial toxins in food.
7. Antibiotic sensitivity pattern and MIC for different food pathogens.
8. Understanding a Material Safety Data Sheet and a risk assessment form.

Essential Readings

- Helferich, W., and Winter, C.K “Food Toxicology”, CRC Press, LLC. Boca Raton, FL. 2007.
- Shibamoto, T., and Bjeldanes, L. “Introduction to Food Toxicology”, 2009, 2nd Edition. Elsevier Inc., Burlington, MA. 3. Watson, D.H. “Natural Toxicants in Food”, CRC Press, LLC. Boca Raton, FL 1998.
- Mathur, P. (2018). Food Safety and Quality Control. Hyderabad: Orient BlackSwan Pvt. Ltd.
- Lawley, R., Curtis, L. and Davis, J (2012) The Food Safety Hazard Guidebook, The Royal Society of Chemistry, Cambridge, CB4 0WF, UK

Suggested Readings

- Duffus, J.H., and Worth, H.G. J. “Fundamental Toxicology”, The Royal Society of Chemistry. 2006.
- Stine, K.E., and Brown, T.M. “Principles of Toxicology”, 2nd Edition. CRC Press. 2006.
- Tönu, P. “Principles of Food Toxicology”. CRC Press, LLC. Boca Raton, FL. 2007.
- A.W. Hayes. CRC Press, Press, New York, Principles and Methods in Toxicology. 2008.
- T. Shibamoto, L. F. Bjeldanes. Essentials of Environmental Toxicology (Third edition, 2009

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