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Department of Home Science  
Semester – VI

**B.A (Prog) with Nutrition and Health Education (NHE)**

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**B.A (Prog.) with Nutrition and Health Education (NHE) as Major**  
**Category-II**

**DISCIPLINE SPECIFIC CORE COURSE**  
**DSC-NHE 11: Nutrition During Emergencies and Disaster Management**

**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		
<b>Nutrition during Emergencies and Disaster Management</b>	4	3	1	0	XII Pass	NIL

**Learning Objectives**

- To acquaint the students about disasters resulting in emergency situations and associated nutritional concerns
- To familiarize the students with the knowledge of assessment and surveillance of nutritional status in emergency and disasters
- To equip the students with an understanding of the strategies for nutritional rehabilitation, relief and mitigation of emergency affected populations
- To impart knowledge regarding nutrition interventions and role of National/International agencies to tackle emergency situations

**Learning Outcomes**

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

- Familiarize with different types of disasters and understand the nutritional concerns in emergency situations
- Assess various methods of nutritional status of the emergency affected populations
- Differentiate between general feeding programme and selective feeding programme
- Recognize the role of government, non-government bodies and international organisations in the management of nutrition in emergencies.
- Analyze and understand strategies for prevention and mitigation for the emergency affected populations

**SYLLABUS OF DSC-11**

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

**UNIT I: Disasters, Emergencies and Associated Nutritional Concerns** **8 Hours**

This unit will introduce different types of disasters, factors effecting management of disasters and emergencies; nutritional concerns among vulnerable groups.

- Concept and types of disasters (natural/manmade)
- Factors to be considered for management of disasters and emergencies
- Nutritional concerns during disaster and emergencies among vulnerable populations – causes of malnutrition, macro/micro nutrient deficiencies

**UNIT II: Assessment and Surveillance of Nutritional Status in Emergency Affected Population** **12 Hours**

This unit will lay emphasis on assessment of nutritional status and food needs, food distribution strategies, nutrition monitoring and surveillance of emergency affected populations.

- Screening and assessment of nutritional status in emergency affected populations
- Assessment of food needs in emergency situations, identifying and reaching the vulnerable groups, food distribution strategies
- Nutrition monitoring and surveillance

**UNIT III: Nutrition Relief, Rehabilitation and Mitigation Strategies** **15 Hours**

This unit will acquaint the students with various aspects of nutritional relief, nutritional rehabilitation and mitigation strategies.

- Targeting food aid – food rations for nutritional relief and rehabilitation (special/fortified foods, local foods in rehabilitation, packed food)
- Transportation of food during emergencies, food storage and preventing food spoilage
- Household food and nutrition security – post emergency
- Importance of nutrition in post-emergency situations
- Disaster prevention and mitigation strategies, warning systems
- Role of government and non-government organisations, nutritionists in relief, rehabilitation and mitigation

**UNIT IV: Nutrition Interventions and Role of National/International Agencies to tackle Emergency Situations** **10 Hours**

This unit will acquaint the students about different feeding programmes as nutrition interventions and role of various authorities in managing nutrition in emergencies.

- General Feeding Programme
- Selective Feeding Programme
  - Supplementary feeding programme (blanket SFP: micronutrient interventions; and target SFP: Infant and Young Child Feeding – breastfeeding, age appropriate and safe complimentary feeding, interventions to treat undernutrition, MAM, SAM)
  - Therapeutic Feeding Programme

- Disaster Management Act 2005
- Disaster Management cell, the State Disaster Management Authority (SDMA) and the National Disaster Management Authority (NDMA) – structure and functions
- Role of FAO, WHO and UNICEF in the management of nutrition in major emergencies

## **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:**

- Vir, S. C. (2011). *Public health nutrition in developing countries – volume II*. Woodhead Publishing.
- Woodruff, B. A., & Duffield, A. (2000). *Adolescents: Assessment of Nutritional Status in Emergency affected populations*. Special supplement UN ACC/SCN sub-committee on nutrition.
- WHO. (2000). *The management of nutrition in major emergencies*. <https://www.who.int/publications/i/item/9241545208> (Accessed on 10 March 2023).
- UNICEF (2018). *Nutrition in emergencies. Saving lives today, strengthening systems for tomorrow*. <https://www.unicef.org/media/97011/file/Nutrition-in-emergencies-Saving-Lives-Today-Strengthening-Systems-for-Tomorrow.pdf> (Accessed on 10 March 2023).
- National Disaster Management Authority, Government of India. <https://ndma.gov.in/>
- WHO. *Nutrition in Emergencies. Planning, preparedness and management for development out of disaster*. [https://apps.who.int/disasters/repo/13849\\_files/i/nutrition\\_in\\_emergencies\\_ppt.pdf](https://apps.who.int/disasters/repo/13849_files/i/nutrition_in_emergencies_ppt.pdf) (Accessed on 10 March 2023).
- FAO. *Nutrition in Post-Emergency and Rehabilitation Interventions*. <https://www.fao.org/3/v5611e/V5611E03.htm> (Accessed on 10 March 2023).

### **SUGGESTED READINGS:**

- Singh, S. N. (2010). Nutrition in emergencies: Issues involved in ensuring proper nutrition in post-chemical, biological, radiological, and nuclear disaster. *Journal of Pharmacy and Bioallied Sciences*, 2(3), 248–52.
- Gupta, H. K. (2003). *Disaster Management*. Indian National Science Academy. Orient Blackswan.
- United Nations World Food Programme (WFP). (2005). *Emergency Food Security Assessment Handbook*. (1<sup>st</sup> edn.).

**DISCIPLINE SPECIFIC CORE COURSE**  
**DSC-NHE-12: Preventive and Promotive 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		
<b>Preventive and Promotive Nutrition</b>	4	3	0	1	XII Pass	NIL

**Learning Objectives**

- To make students aware about the prevalence of chronic diseases and correlate it with food consumption pattern
- To explain the role of nutraceuticals and functional foods in prevention of chronic diseases and promotion of good health
- To familiarize with types of dietary supplements and their health benefits

**Learning Outcomes**

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

- Understand the relation between food consumption pattern and prevalence of chronic disease
- Describe the types and health benefits of nutraceuticals and functional foods
- Gain knowledge about the types, health benefits and adverse effects of dietary supplements

**SYLLABUS OF DSC-NHE-12**

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

**UNIT I: Relation between Diet, Nutrition and Prevalence of Disease** **7 Hours**

This unit will familiarize the students with the correlation of chronic diseases and food consumption pattern.

- Global burden of chronic diseases
- Food consumption patterns and trends
- Oxidative stress and free radicals-Basic concept, mechanism of free radical formation, biological effects of free radicals

**UNIT II: Nutraceuticals and their Role in Prevention of Diseases and Promotion of Health** **15 Hours**

This unit will introduce definition, classification and health benefits of nutraceuticals.

- Definition of nutraceuticals
- Classification of nutraceuticals on the basis of chemical structure and their health benefits
  - Phytochemicals- isoprenoids, polyphenolics, phytosterols
  - Carbohydrates and their derivatives

- Lipids- conjugated linoleic acid, omega-3 fatty acids
- Proteins and peptides
- Vitamins
- Minerals
- Microbial
- FSSAI regulations of nutraceuticals

### **UNIT III: Functional Foods and their Role in Prevention of Diseases and Promotion of Health** **15 Hours**

This unit will introduce definition, types and health benefits of various functional foods.

- Definition of functional foods
- Types of functional foods and their health benefits
  - Cereal and cereal products
  - Milk and milk products
  - Egg
  - Oils
  - Meat and meat products
  - Herbs and spices
  - Fruits and vegetables
  - Beverages (tea, wine)
  - Fermented foods

### **UNIT IV: Dietary Supplements** **8 Hours**

This unit will introduce definition, types, benefits and safety issues of dietary supplements.

- Definition of dietary supplements
- Types of dietary supplements- vitamins, minerals, protein and amino acids, essential fatty acids, natural products
- Benefits and safety issues

### **PRACTICAL** **(Credit 1; 30 Hours)**

1. Survey of available nutraceuticals/dietary supplement in the market.
2. Survey regarding the awareness of availability and health benefits of dietary supplements among college going students and high fat, salt or sugar foods (HFSS).
3. Design a label for nutraceutical food/dietary supplement
4. Development of teaching aids for creating awareness of preventive and promotive nutrition

### **ESSENTIAL/RECOMMENDED READINGS**

- Bagchi, D., Preuss, H. G., & Swaroop, A. (Eds.). (2015). *Nutraceuticals and functional foods in human health and disease prevention*. CRC Press.
- Wildman, R. E. and Bruno, R.S. (2021). *Handbook of nutraceuticals and functional foods*. (3<sup>rd</sup> edn.). CRC press.
- Food safety and Standards Authority of India, Government of India

[https://www.fssai.gov.in/upload/uploadfiles/files/Compendium\\_Nutra\\_29\\_09\\_2021.pdf](https://www.fssai.gov.in/upload/uploadfiles/files/Compendium_Nutra_29_09_2021.pdf)

(Accessed on 10 March 2023).

- World Health Organization. (2003). *Diet, nutrition, and the prevention of chronic diseases: report of a joint WHO/FAO expert consultation* (Vol. 916).

## **SUGGESTED READINGS**

- Egbuna, C., & Dable-Tupas, G. (2020). Functional foods and nutraceuticals. *Springer Nature, 1*, 1-632.
- Mahan, L. K., & Raymond, J. L. (2016). *Krause's Food & the nutrition care process, Iranian Edition E-Book*. Elsevier Health Sciences.
- Rani, V., & Yadav, U. C. (Eds.). (2018). *Functional food and human health*. Springer.
- Noomhorm, A., Ahmad, I., & Anal, A. K. (Eds.). (2014). *Functional foods and dietary supplements: processing effects and health benefits*. John Wiley & Sons.

**B.A (Prog.) with Nutrition and Health Education (NHE) as Non-Major  
Category-III**

**DISCIPLINE SPECIFIC CORE COURSE  
DSC-12-NHE: Preventive and Promotive Nutrition**

Course Title and Code	Credits	Credit distribution of the course			Eligibility Criteria	Prerequisite of the course
		Lecture	Tutorial	Practical/ Practice		
<b>Preventive and Promotive Nutrition</b>	4	3	0	1	XII Pass	NIL

**Learning Objectives**

- To make students aware about the prevalence of chronic diseases and correlate it with food consumption pattern
- To explain the role of nutraceuticals and functional foods in prevention of chronic diseases and promotion of good health
- To familiarize with types of dietary supplements and their health benefits

**Learning Outcomes**

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

- Understand the relation between food consumption pattern and prevalence of chronic disease
- Describe the types and health benefits of nutraceuticals and functional foods
- Gain knowledge about the types, health benefits and adverse effects of dietary supplements

**SYLLABUS OF DSC-NHE-12**

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

**UNIT I: Relation between Diet, Nutrition and Prevalence of Disease 7 Hours**

This unit will familiarize the students with the correlation of chronic diseases and food consumption pattern.

- Global burden of chronic diseases
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This unit will introduce definition, classification and health benefits of nutraceuticals.

- Definition of nutraceuticals



- Classification of nutraceuticals on the basis of chemical structure and their health benefits
  - Phytochemicals- isoprenoids, polyphenolics, phytosterols
  - Carbohydrates and their derivatives
  - Lipids- conjugated linoleic acid, omega-3 fatty acids
  - Proteins and peptides
  - Vitamins
  - Minerals
  - Microbial
- FSSAI regulations of nutraceuticals

### **UNIT III: Functional Foods and their Role in Prevention of Diseases and Promotion of Health** **15 Hours**

This unit will introduce definition, types and health benefits of various functional foods.

- Definition of functional foods
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  - Cereal and cereal products
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  - Egg
  - Oils
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  - Herbs and spices
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  - Beverages (tea, wine)
  - Fermented foods

### **UNIT IV: Dietary Supplements** **8 Hours**

This unit will introduce definition, types, benefits and safety issues of dietary supplements.

- Definition of dietary supplements
- Types of dietary supplements- vitamins, minerals, protein and amino acids, essential fatty acids, natural products
- Benefits and safety issues

### **PRACTICAL** **(Credit 1; 30 Hours)**

5. Survey of available nutraceuticals/dietary supplement in the market.
6. Survey regarding the awareness of availability and health benefits of dietary supplements among college going students and high fat, salt or sugar foods (HFSS).
7. Design a label for nutraceutical food/dietary supplement
8. Development of teaching aids for creating awareness of preventive and promotive nutrition

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*foods in human health and disease prevention*. CRC Press.

- Wildman, R. E. and Bruno, R.S. (2021). *Handbook of nutraceuticals and functional foods*. (3<sup>rd</sup> edn.). CRC press.
- Food safety and Standards Authority of India, Government of India [https://www.fssai.gov.in/upload/uploadfiles/files/Compendium\\_Nutra\\_29\\_09\\_2021.pdf](https://www.fssai.gov.in/upload/uploadfiles/files/Compendium_Nutra_29_09_2021.pdf) (Accessed on 10 March 2023).
- World Health Organization. (2003). *Diet, nutrition, and the prevention of chronic diseases: report of a joint WHO/FAO expert consultation* (Vol. 916).

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- Noomhorm, A., Ahmad, I., & Anal, A. K. (Eds.). (2014). *Functional foods and dietary supplements: processing effects and health benefits*. John Wiley & Sons.