UNIVERSITY OF DELHI

CNC-II/093/1(22)/2022-23/225
Dated: 11.10.2022

N O T I F I C A T I O N

Sub: Amendment to Ordinance V

[E.C Resolution No. 18-1/ (18-1-12) dated 18.08.2022]

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

Add the following:

Syllabi of Semester-I of the following vocational courses based on Under Graduate Curriculum Framework -2022 to be implemented from the Academic Year 2022-23.

1. B.Voc. Retail Management & IT
2. B.Voc. Healthcare Management
3. B.Voc. Software Development
4. B.Voc. Banking, Financial Services & Insurance

B.Voc. (Retail Management & IT)

DSC-1

Evolution of Indian Retail System

Credit-4

Course Objectives:

Create awareness of trade and retail in ancient India and its evolution, Emerging retail sector in India.

Teaching and Learning Strategies

- Lectures, discussions, presentations, case discussions, exercises, practical and exposure to current practices. The pedagogy for the course is more students centric.
- Understanding of history of trade and retail in India.
- Basic knowledge of retailing and its evolution in India.
- Introduction of retail industry in India and role of globalization.

Course Contents:

Unit	Unit wise weightage of marks (in %)	C&K*	A&A**
Unit 1	**20**	√	√
Unit 2	**20**	√	√
Unit 3	**30**	√	√
Unit 4	**30**	√	√

*C&K- Comprehension & Knowledge **A&A – Analysis & Application

Unit -1

Economic history of India - Trade in ancient India, Evolving from Barter to Coins in India, Trade in pre and post colonial India.

Unit-2

Evolution of retail In India- Indian retail market, History of shops, Organized and unorganized retail sector.

Unit 3

Shift from manufacturing to pure retailing, Importance of retailing in Indian economy, Globalization and liberalization of Economy, Major players in retailing.

Unit 4

Indian Retail Industry-, Importance of retailing in India, trends in organized retailing, Current and Future trends of retail in India. Types of Retail Formats, FDI in Indian organized retail sector, Challenges faced by Indian retail sector.

Assessment & Evaluation

Student learning outcomes and competencies will be assessed using a combination of formative and summative methods including:

1. Objective/knowledge testing,
2. Competency based evaluation using validated assessment tools and practical skill demonstration.

Projects/assignments with a grading rubric/scale emphasizing module competencies

Suggested Readings-

1. Bajaj C, Tuli R. Shrivastava N.V. (2010) Retail Management, Oxford University Press.
2. K.V.S. Madaan, (2009) Fundamental of Retailing, Tata MC Graw Hill.
3. Michael Levy, Barton Weitz, AjayPandit (2017) Retailing Management, Tata McGrawHill.
4. Piyush Kumar Sinha and Dwarika Prasad Uniyal (2018) Managing Retailing 3rd edition,Oxford University Press (OUP).

DSC-2
Consumer Buying Behavior and Retail Sales

Credit -4

Course Objectives:

Create understanding of consumer behavior, its effects on retail sales.

Teaching and Learning Strategies

- Lectures, discussions, presentations, case discussions, exercises, practical and exposure to current practices. The pedagogy for the course is more students centric.
- understanding of market strategy, analysis and consumer behavior
- Proficiency in understanding shopper behavior
- Basic understanding of the process of buyers' decision making
- Understanding of consumer behavior in terms of perception and attitude.

Course Contents:

Unit	Unit wise weightage of marks (in %)	C&K*	A&A**
Unit 1	**20**	√	√
Unit 2	**20**	√	√
Unit 3	**30**	√	√
Unit 4	**30**	√	√

*C&K- Comprehension & Knowledge **A&A – Analysis & Application

Unit 1: Introduction

Concept of Consumer and consumer market, Importance of consumer behavior, Consumer Buying Process, Factors affecting buyer behavior, Types of buying decisions, Post-Purchase behavior.

Unit 2

Nature of markets: Liberalization and Globalization of the Indian Consumer Market, online and offline markets, Organized and unorganized market, Grey market Concept of price in retail and wholesale.

Unit 3

Different types of purchase situations, retailing and the purchase process, determinants of retail success or failure, point -of- purchase materials, consumer logistics, location based retailing, importance of customer satisfaction, factors affecting satisfaction level, motivating consumer.

Unit 4

Group and personal influences on individuals, reference group and its influence on individuals, word of mouth and opinion leaders in advertising and marketing strategy, reaching the consumer, gaining consumer's attention, shaping consumer's opinion; opinions change, product's and advertising's role in shaping consumer opinion, company's role in helping consumers to remember.

Assessment & Evaluation

Student learning outcomes and competencies will be assessed using a combination of formative and summative methods including:

1. Objective/knowledge testing,
2. Competency based evaluation using validated assessment tools and practical skill demonstration.

Projects/assignments with a grading rubric/scale emphasizing module competencies

Suggested Readings-

- Blackwell, Roger, Miniard, Paul & Engel, James; Consumer Behaviour; Thomson Learning; New Delhi
- Loudon, David J. &Dellabitta, Albert; Consumer Behaviour; Tata McGraw Hill; New Delhi
- Schiffman, Leon G. & Kanuk, Leslie Lazar; Consumer Behaviour; Pearson Education; New Delhi
- Soloman, Michael R.; Consumer Behaviour – Buying, Having and Being; Pearson Education; New Delhi

DSC-3
Customer Service and Customer Relationship Management

Credit- 4

Course Objectives:

Fundamental understanding of customer and customer relationship management (CRM)

Teaching and Learning Strategies

- Lectures, discussions, presentations, case discussions, exercises, practical and exposure to current practices. The pedagogy for the course is more students centric.
- Perspective on business intelligence and application service providers
- Ability to analyze Sales force automation and its implication for CRM
- Proficiency in skills evaluate CRM
- Skills involved in implementation of CRM

Course Contents:

Unit	Unit wise weightage of marks (in %)	C&K*	A&A**
Unit 1	**30**	√	√
Unit 2	**30**	√	√
Unit 3	**20**	√	√
Unit 4	**20**	√	√

*C&K- Comprehension & Knowledge **A&A – Analysis & Application

Unit 1: Introduction

Definition of customer and CRM, CRM technology components, customer life style, customer interaction, Difference between CRM and e-CRM, features of e-CRM, CRM Theory & Development and Relationship Marketing.

Unit 2:

CRM Evaluation: measurement of CRM effectiveness including CRM's impact on company efficiency, effectiveness, and employee behavior, Positive Image Building, Customer Relationship Management.

Unit 3:

Customer perception of services, Customer needs and expectations, Personalized and Post-Sales Service Support, Resolving customer concerns.

Unit 4:

Ethics and Future of CRM, Monitoring and Solving Customer Service Issues, Continuous Service improvement, Organizing Service Delivery.

Assessment & Evaluation

Student learning outcomes and competencies will be assessed using a combination of formative and summative methods including:

1. Objective/knowledge testing,
2. Competency based evaluation using validated assessment tools and practical skill demonstration.

Projects/assignments with a grading rubric/scale emphasizing module competencies

Suggested Readings-

- Kumar V. & Werner J. (2008) Customer relationship management, Willey India.
- Mukherjee Kaushik (2008) Customer relationship management, Prentice Hall of India Private Limted, New Delhi.
- Rai Kumar Alok (2011) Customer relationship management- Concept and Cases, Prentice Hall of India Private Limted, New Delhi. 2011
- S. Shanmugasundaram (2008) Customer relationship management, Prentice Hall of India Private Limted, New Delhi

GE-1
Computer Fundamentals

Credit- 4

Course Objectives:

Create basic understanding of computer fundamentals and its uses.

Teaching and Learning Strategies

1. Lectures, discussions, presentations, case discussions, exercises, practical and exposure to current practices. The pedagogy for the course is more students centric.
2. Basic knowledge of computer concepts and components
3. Understanding of the operating system, windows interface, control panel, system tools, and files
4. Proficiency in applications such as word, power point, and excel
5. Basic knowledge of information technology, Value Chain Reconstruction, IT Management, network and telecommunications

Course Contents:

Unit	Unit wise weightage of marks (in %)	C&K*	A&A**
Unit 1: Introduction	**20**	√	√
Unit 2 Devices: Input and output devices	**30**	√	√
Unit 3: Computer Organisation and Architecture	**30**	√	√
Unit 4: Overview of Emerging Technologies	**20**	√	√

*C&K- Comprehension & Knowledge **A&A – Analysis & Application

Unit 1:

- Introduction: Introduction to computer system,uses, types.
- Data Representation: Number systems and character representation, binary arithmetic
- Human Computer Interface: Types of software, Operating system as user interface, utility programs

Unit 2:

Devices: Input and output devices (with connections and practical demo),keyboard, mouse, joystick, scanner, OCR, OMR, bar code reader, web camera, monitor, printer,plotter

Memory: Primary, secondary, auxiliary memory, RAM, ROM, cache memory, hard disks, optical disks

Unit 3:

Computer Organisationand Architecture: C.P.U., registers, system bus, main memory unit, cache memory, Inside a computer, SMPS, Motherboard, Ports and Interfaces, expansion cards, ribbon cables, memory chips, processors.

Unit 4:

Overview of Emerging Technologies: Bluetooth, cloud computing, big data, data mining, mobile computing and embedded systems, Orientation to POS software(s).

Practical :The practical assignment must include connecting parts of a computer and assembling it to an extent, media formatting and installation of software

Assessment & Evaluation

Student learning outcomes and competencies will be assessed using a combination of formative and summative methods including:

1. Objective/knowledge testing,
2. Competency based evaluation using validated assessment tools and practical skill demonstration.

Projects/assignments with a grading rubric/scale emphasizing module competencies

Suggested Readings-

- Goel, Computer Fundamentals, Pearson Education,2010.
- P. Aksoy, L. DeNardis, Introduction to Information Technology, Cengage Learning,2006.
- P. K.Sinha, P. Sinha, Fundamentals of Computers, BPB Publishers,2007.

GE-1
Principles of Management

Credit- 4

Course Objectives:

The course aims to equip learners with essential management related knowledge and skills and their applicability in real world.

Teaching and Learning Strategies

- Understand the evolution of management and its significance
- Comprehend and analyze applicability of managerial functions
- Recognize the role of decision-making in business
- Analyze the role of directing in management
- Appreciate the function of controlling and contemporary issues in management

Course Contents:

Unit	Unit wise weightage of marks (in %)	C&K*	A&A**
Unit 1: Principles of management	**25**	√	√
Unit 2 Management functions	**25**	√	√
Unit 3: Planning	**25**	√	√
Unit 4: Directing	**25**	√	√

*C&K- Comprehension & Knowledge **A&A – Analysis & Application

Unit 1:

Principles of management - concept, nature and significance; Evolution of Management thought: Classical (Fayol‘s principles of management; Taylor‘s scientific management), Neoclassical (Hawthorne Experiments), Modern approach (Systems Approach; Contingency Approach).

Unit 2:

Management functions and their relationship- planning, organizing, staffing, directing and controlling; Functional areas of management – an overview; Coordination - concept, characteristics and importance.

Unit 3:

Planning- meaning, strategic and operations planning; Decision-making- concept, importance and bounded rationality; Organizing- division of labour& specialization; Organisational structures; Factors affecting organisational design.

Unit 4:

Directing- concept and importance; Concept and theories of Motivation- Maslow‘s need hierarchy, Herzberg‘s two-factor theory, Theory X&Y; Leadership-meaning and importance; Communication-meaning and importance; Staffing- concept, importance and process.

Assessment & Evaluation

Student learning outcomes and competencies will be assessed using a combination of formative and summative methods including:

1. Objective/knowledge testing,

2. Competency based evaluation using validated assessment tools and practical skill demonstration. Projects/assignments with a grading rubric/scale emphasizing module competencies

Suggested Readings-

- Drucker, P. F. (1954). The Practice of Management. Newyork: Harper & Row.
- Drucker, P. F. (1999). Management Challenges for the 21st Century. Harper Collins Publishers Inc.
- Griffin. Management Principles and Application. Cengage.
- Koontz, H., &Weihrich, H. (2012). Essentials of Management: An International and

Leadership Perspective. McGraw Hill Publications
- Kumar, Pardeep. Management: Principles and Applications. JSR Publication House LP, Delhi.

Bachelor of Vocation (Health Care management)

DSC-1

Evolution of Indian Healthcare

Credits: 4

Course Objectives:

- Create basic awareness of evolution of Indian Healthcare, indigenous system of medicine, historical development of hospitals in India and different systems of Medicine available.

Teaching and Learning Strategies

- Lectures, discussions, presentations, case discussions, exercises, practical and exposure to current practices. The pedagogy for the course is more student centric; Visit to healthcare facilities.
- Lectures would be delivered by experts drawn from the fields of both management and healthcare

Content of the Module

Unit	**Unit wise weightage of marks (in %)**	**C&K***	**A&A****
Unit 1: History of Indian Healthcare	**25**	√	√
Unit 2: Evolution of Hospitals in India-	**25**	√	√
Unit 3: Introduction to Healthcare Delivery System in India	**20**	√	√
Unit 4: Introduction to Hospital Departments	**15**	√	√
Unit 5: Current Trends in Healthcare Industry	**15**	√	√

*C&K- Comprehension & Knowledge **A&A – Analysis & Application

Unit-1-History of Indian Healthcare-Healthcare in Ancient Period & Medieval Period , history and introduction of Ayurveda, Yoga, Naturopathy, Unani, Siddha & homeopathy, role of AYUSH-integration of 6 indigenous systems of medicines practiced in India

Unit 2- Evolution of Hospitals in India-hospitals in ancient India, historical development of hospitals, Systems of medicine, Modern medicine, changing concept of hospitals, present status of hospitals (public & private) in India, Classification of Hospitals, Hospital as System, Hospital Organization, Overview on Healthcare facilities

Unit 3- Introduction to Healthcare Delivery System in India-Definition of Health, healthcare delivery system in India, Importance of Voluntary health agencies and health programs in delivering healthcare in India, Dimension of health, Spectrum of health, Determination of health and Indicators of Health, Levels of prevention, and modes of intervention for diseases and condition **Unit-4-** Introduction to Hospital Departments :-Detailed Clinical services Detailed Support Services, Detailed Utility Services.

Unit-5-Current Trends in Healthcare Industry

1. Healthcare Industry – An Overview
2. Changing Healthcare - Determinants
3. Current Trends
    - Medical Tourism or, Medical Value Travel
    - Public private partnership (PPP)

- Information Technology and Health Care, Telemedicine, Video Conferencing, Bioinformatics, Robotic Surgery
- Health Insurance and TPA's

Assessment & Evaluation

Student learning outcomes and competencies will be assessed using a combination of formative and summative methods including:

1. Objective/knowledge testing,
2. Competency based evaluation using validated assessment tools and practical skill demonstration in clinical settings.

Projects/assignments with a grading scale emphasizing module competencies

Resource Materials

Business Journals, Healthcare status reports

Books-

1. Public Healthcare in India-Historical background & Current Realities by Sanjay Kumar & Jugal Kishore
2. History of Indian Medicine by Girindranath Mukhopadhyaya
3. Hospital Management by K.V.Ramani
4. Management of Hospital (4 Vols), S.L Goel & R. Kumar, Deep & Deep Publications Pvt. Ltd.

DSC-2
Human Body-Basics-Anatomy and Physiology

Credits: 4

Course Objectives:
Demonstrate skilled, safe, effective and sensitive practice in the care of patients approaching front office

Teaching and Learning Strategies:-
Class room sessions, interactive learning, Models, Simulation

Content of the Module

Unit	**Unit wise weightage of marks (in %)**	**C&K***	**A&A****
Unit 1: Introduction to Human Biology	**20**	√	√
Unit 2: Organ Systems-1	**40**	√	√
Unit 3: Organ Systems-2	**40**	√	√

*C&K- Comprehension & Knowledge **A&A – Analysis & Application

Basic structure, function & common associated diseases of the following:

Unit-1 - Introduction to Human Biology: – Cell, Tissues and Organs (10 hours)
Unit-2 - Organ Systems-1

- Skeletal System - Bones, cartilage, tendons and ligaments
- Muscular System - Skeletal muscles and smooth muscles throughout the body
- Circulatory System - Heart, blood vessels and blood
- Nervous System - Brain, spinal cord and peripheral nerves
- Respiratory System - Nose, trachea and lungs

Unit-3-Organ Systems-2

- Digestive System - Mouth, esophagus, stomach, small and large intestines
- Excretory System: - Kidneys, ureters, bladder and urethra
- Endocrine System: - hypothalamus, pituitary, thyroid, pancreas and adrenal glands, etc
- Reproductive System: Male & Female Reproductive System
- Lymphatic/Immune System - Lymph, lymph nodes and vessels, White blood cells, T- and B-cells.

Assessment & Evaluation
Student learning outcomes and competencies will be assessed using a combination of formative and summative methods including:
- Objective/knowledge testing,
- Competency based evaluation using validated assessment tools and practical skill demonstration in both lab and clinical settings.

Projects/assignments with a grading rubric/scale emphasizing module competencies

Resource Materials
Textbooks, and on-line reference and training materials
Books:-Human Anatomy and Physiology by Dr.A.K.Jain
Basic Anatomy & Physiology by N.Murugesh

DSC-3
Medical Terminology-1

Credits: 4

Course Objectives:
Includes structure, recognition, analysis, definition, spelling, pronunciation, and combination of medical terms from prefixes, suffixes, roots, and combining forms.

Teaching and Learning Strategies:-
Class room sessions, interactive learning, Role plays

Content of the Module

Unit	Unit wise weightage of marks (in %)	C&K*	A&A**
Unit 1: Building Blocks of Medical Terminologies	**30**	√	√
Unit 2: General Body Terminology	**40**	√	√
Unit 3: Pharmacology	**30**	√	√

*C&K- Comprehension & Knowledge **A&A – Analysis & Application

Unit-1-Building Blocks of Medical Terminologies (10 hours)
- Roots
- Prefixes
- Suffixes
- Pronunciation rules

Unit-2-General Body Terminology (10 hours)
- Medical Terms related to different organ systems

Unit-3-Pharmacology (10 hours)
- Prescriptions and OTC medications
- Routes of Administration
- Medication actions and effects
- Abbreviations

Assessment & Evaluation
Student learning outcomes and competencies will be assessed using a combination of formative and summative methods including:
1. Objective/knowledge testing,
2. Competency based evaluation using validated assessment tools and practical skill demonstration.

Projects/assignments with a grading rubric/scale emphasizing module competencies

Resource Materials
Reference texts and online material
Books:-STEDMAN'S Medical Dictionary
Medical Terminology For Dummies by Beverley Henderson, Jennifer lee Dorsey
Introduction to Medical Terminology by Linda Stanhope, Kimberly Turnbull

GE-1
Computer Fundamentals

Credit- 4

Course Objectives:
Create basic understanding of computer fundamentals and its uses.

Teaching and Learning Strategies

- Lectures, discussions, presentations, case discussions, exercises, practical and exposure to current practices. The pedagogy for the course is more students centric.

Content of the Module

Unit	Unit wise weightage of marks (in %)	C&K*	A&A**
Unit 1: Introduction	**20**	√	√
Unit 2 Devices: Input and output devices	**30**	√	√
Unit 3: Computer Organization and Architecture	**30**	√	√
Unit 4: Overview of Emerging Technologies	**20**	√	√

*C&K- Comprehension & Knowledge **A&A – Analysis & Application

Unit 1:

- Introduction: Introduction to computer system,uses, types.
- Data Representation: Number systems and character representation, binary arithmetic
- Human Computer Interface: Types of software, Operating system as user interface, utility programs

Unit 2:
Devices: Input and output devices (with connections and practical demo),keyboard, mouse, joystick, scanner, OCR, OMR, bar code reader, web camera, monitor, printer,plotter
Memory: Primary, secondary, auxiliary memory, RAM, ROM, cache memory, hard disks, optical disks

Unit 3:
Computer Organisation and Architecture: C.P.U., registers, system bus, main memory unit, cache memory, Inside a computer, SMPS, Motherboard, Ports and Interfaces, expansion cards, ribbon cables, memory chips, processors.

Unit 4:
Overview of Emerging Technologies: Bluetooth, cloud computing, big data, data mining, mobile computing and embedded systems, Orientation to POS software(s).

Practical :The practical assignment must include connecting parts of a computer and assembling it to an extent, media formatting and installation of software

Assessment & Evaluation
Student learning outcomes and competencies will be assessed using a combination of formative and

summative methods including:
1. Objective/knowledge testing,
2. Competency based evaluation using validated assessment tools and practical skill demonstration.
Projects/assignments with a grading rubric/scale emphasizing module competencies

Suggested Readings-

- Goel, Computer Fundamentals, Pearson Education,2010.
- P. Aksoy, L. De Nardis, Introduction to Information Technology, Cengage Learning,2006
- P. K.Sinha, P. Sinha, Fundamentals of Computers, BPB Publishers,2007

GE-1
Principles of Management

Credit- 4

Course Objectives:
The course aims to equip learners with essential management related knowledge and skills and their applicability in real world.

Teaching and Learning Strategies

1. Understand the evolution of management and its significance
2. Comprehend and analyze applicability of managerial functions
3. Recognize the role of decision-making in business
4. Analyze the role of directing in management
5. Appreciate the function of controlling and contemporary issues in management

Content of the Module

Unit	Unit wise weightage of marks (in %)	C&K*	A&A**
Unit 1: Principles of management	**25**	√	√
Unit 2 Management functions	**25**	√	√
Unit 3: Planning	**25**	√	√
Unit 4: Directing	**25**	√	√

*C&K- Comprehension & Knowledge **A&A – Analysis & Application

Unit 1:
Principles of management - concept, nature and significance; Evolution of Management thought: Classical (Fayol‘s principles of management; Taylor‘s scientific management), Neoclassical (Hawthorne Experiments), Modern approach (Systems Approach; Contingency Approach).

Unit 2:
Management functions and their relationship- planning, organizing, staffing, directing and controlling; Functional areas of management – an overview; Coordination - concept, characteristics and importance.

Unit 3:
Planning- meaning, strategic and operations planning; Decision-making- concept, importance and bounded rationality; Organizing- division of labour & specialization; Organisational structures; Factors affecting organisational design.

Unit 4:
Directing- concept and importance; Concept and theories of Motivation- Maslow‘s need hierarchy, Herzberg‘s two-factor theory, Theory X&Y; Leadership-meaning and importance; Communication-meaning and importance; Staffing- concept, importance and process.

Assessment & Evaluation
Student learning outcomes and competencies will be assessed using a combination of formative and summative methods including:
1. Objective/knowledge testing,

2. Competency based evaluation using validated assessment tools and practical skill demonstration. Projects/assignments with a grading rubric/scale emphasizing module competencies

Suggested Readings-

1. Drucker, P. F. (1954). The Practice of Management. Newyork: Harper & Row.
2. Drucker, P. F. (1999). Management Challenges for the 21st Century. Harper Collins Publishers Inc.
3. Griffin. Management Principles and Application. Cengage.
4. Koontz, H., & Weihrich, H. (2012). Essentials of Management: An International and Leadership Perspective. McGraw Hill Publications
5. Kumar, Pardeep. Management: Principles and Applications. JSR Publication House LP, Delhi.

Bachelor in Vocation - Software Development

Category-I

DISCIPLINE SPECIFIC CORE COURSE – 1: Programming using Python

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		
Programming using Python	**4**	**2**	**0**	**2**	**Class XII pass with Mathematics**	**NIL**

Learning Objectives

1. *To introduce the programming concepts using Python.*
2. *The course focuses on the development of Python programming to solve problems of different domains.*
3. *To introduce the concept of object- oriented programming.*

Learning outcomes

1. *Understand the basics of programming language*
2. *Develop, document, and debug modular Python programs.*
3. *Apply suitable programming constructs and built-in data structures to solve a problem.*
4. *Use and apply various data objects in Python.*
5. *Use classes and objects in application programs and handle files.*

Unit I **(6 hours)**

Introduction to Programming: Problem solving strategies; Structure of a Python program; Syntax and semantics; executing simple programs in Python.

Unit II **(6 hours)**

Creating Python Programs: Identifiers and keywords; Literals, numbers, and strings; Operators; Expressions; Input/output statements; Defining functions; Control structures (conditional statements, loop control statements, break, continue and pass, exit function), default arguments.

Unit III **(6 hours)**

Built-in data structures: Mutable and immutable objects; Strings, built-in functions for string, string traversal, string operators and operations; Lists creation, traversal, slicing and splitting operations,

passing list to a function; Tuples, sets, dictionaries and their operations.

Unit IV **(6 hours)**
Object Oriented Programming: Introduction to classes, objects and methods; Standard libraries.

Unit V **(6 hours)**
File and exception handling: File handling through libraries; Errors and exception handling.
Essential/Recommended readings

1. *Liang, Y. D. (2013). Introduction to Programming using Python. Pearson Education.*
2. *Kamthane, A. N., & Kamthane, A.A. (2017) Programming and Problem Solving with Python, McGraw Hill Education*

Practical Component (60 hours)

1. WAP to find the roots of a quadratic equation.
2. WAP to accept a number 'n' to compute the following:
   a. Check if 'n' is prime
   b. Generate all prime numbers till 'n'
   c. Generate first 'n' prime numbers
   d. Calculate sum of first 'n' natural numbers
3. WAP to create a pyramid of the character '*' and a reverse pyramid

```
        *
       ***
      *****
     *******
    *********
     *******
      *****
       ***
        *
```

4. WAP that accepts a character and performs the following:
   a. print whether the character is a letter or numeric digit or a special character
   b. if the character is a letter, print whether the letter is uppercase or lowercase
   c. if the character is a numeric digit, prints its name in text (e.g., if input is 9, output is NINE)
5. WAP to perform the following operations on a string
   a. Find the frequency of a character in a string.
   b. Replace a character by another character in a string.
   c. Remove the first occurrence of a character from a string.
   d. Remove all occurrences of a character from a string.
6. WAP to swap the first n characters of two strings.
7. Write a function that accepts two strings and returns the indices of all the occurrences of the second string in the first string as a list. If the second string is not present in the first string then it should return -1.
8. WAP to create a list of the cubes of only the even integers appearing in the input list (may have elements of other types also) using for loop and list comprehension.

9. WAP to read a file and
   a. Print the total number of characters, words and lines in the file.
   b. Calculate the frequency of each character in the file. Use a variable of dictionary type to maintain the count.
   c. Print the words in reverse order.
   d. Copy even lines of the file to a file named 'File1' and odd lines to another file named 'File2'.
10. WAP to define a class Point with coordinates x and y as attributes. Create relevant methods and print the objects. Also define a method distance to calculate the distance between any two point objects.
11. Write a function that prints a dictionary where the keys are numbers between 1 and 5 and the values are cubes of the keys.
12. Consider a tuple t1=(1, 2, 5, 7, 9, 2, 4, 6, 8, 10). WAP to perform following operations:
   a. Print half the values of the tuple in one line and the other half in the next line.
   b. Print another tuple whose values are even numbers in the given tuple.
   c. Concatenate a tuple t2=(11,13,15) with t1.
   d. Return maximum and minimum value from this tuple
13. WAP to accept a name from a user. Raise and handle appropriate exception(s) if the text entered by the user contains digits and/or special characters.

DISCIPLINE SPECIFIC CORE COURSE – 2: Computer Fundamentals

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		
Computer Fundamentals	**4**	**2**	**0**	**2**	**Class XII pass with Mathematics**	**NIL**

Learning Objectives:

1. To introduce the fundamentals of computing devices.
2. To understand the use of computer hardware and software, the Internet, networking and mobile computing.
3. To focus on computer literacy that prepares students for life-long learning of computer concepts and skills.

Learning Outcomes:

1. Bridge the fundamental concepts of computers with the present level of knowledge of the students.

2. Familiarize operating systems, programming languages, peripheral devices, networking, multimedia and internet.
3. Understand binary number system.
4. Understand use of computers in education and research.

UNIT-I **(6 hours)**

Computer Fundamentals: Generations of Computers, Definition, Block Diagram along with its components, characteristics & classification of computers, Limitations of Computers, Applications of computers in various Fields.

UNIT- II **(6 hours)**

Data Representation: Number systems and character representation, binary arithmetic, definition of software, types of software, operating systems as user interface, utility programs.

UNIT-III **(6 hours)**

Devices: Input-Output Devices (with connections and practical demo), memory, primary, secondary, auxiliary memory, RAM, ROM, cache memory, hard disk, optical disk.

UNIT-IV **(6 hours)**

Computer Organization and Architecture: CPU, registers, system bus, main memory unit(MMU),cache memory, inside a computer, SMPS, motherboard, ports and interfaces, expansion code, ribbon cables, memory chips, processors, overview of emerging technology

UNIT-V **(6 hours)**

Use of Computers in Education and Research: Data analysis, heterogeneous storage, e-Library, Google scholar, Domain specific packages such as SPSS, Mathematica etc.

Essential/Recommended readings:

1. *Balagurusamy E, Computing Fundamentals and C Programming, Tata McGraw Hill.*
2. *Norton, Peter, Introduction to Computer, McGraw-Hill*
3. *Leon, Alexis & Leon, Mathews, Introduction to Computers, Leon Tech World*

Practical Component (60 hours)

The practical assignment must include connecting parts of a computer and assembling it to an extent, media formatting and installation of some software. Practical exercises based on Open Office tools using document preparation and spreadsheethandling packages.

A. Text Editor

1. Prepare **a grocery list** having four columns (Serial number, the name of the product,quantity and price) for the month of April, 06.

- Font specifications for Title (Grocery List): 14-point Arial font in bold and italics.
- The headings of the columns should be in 12-point and bold.
- The rest of the document should be in 10-point Times New Roman.
- Leave a gap of 12-points after the title.

2. Design a **time-table form** for your college.

- The first line should mention the name of the college in 16-point Arial Font andshould be bold.
- The second line should give the course name/teacher's name and the department in14-point Arial.
- Leave a gap of 12-points.
- The rest of the document should use 10-point Times New Roman font.
- The footer should contain your specifications as the designer and date of creation.

3. Create the following **one page documents**.

a. Compose a note inviting friends to a get-together at your house, including a list ofthings to bring with them.

b. Design a certificate in landscape orientation with a border around the document.

c. Design a Garage Sale sign.

d. Make a sign outlining your rules for your bedroom at home, using a numbered list.

4. Create the following documents:

(a) A newsletter with a headline and 2 columns in portrait orientation, including at least one image surrounded by text.

(b) Use a newsletter format to promote upcoming projects or events in your classroom or college.

5. Convert **following text to a table**, using comma as delimiterType the following as shown

Color, Style, Item Blue, A980, Van Red, X023, Car
Green, YL724, Truck Name, Age, Sex
Bob, 23, M
Linda, 46, F
Tom, 29, M

B. Spreadsheet

1. Enter the Following data in Excel Sheet

REGIONAL SALES PROJECTION

State	Qtr1	Qtr2	Qtr3	QTR4	QTR Total	Rate	Amount
Delhi	2020	2400	2100	3000		15	
Punjab	1100	1300	1500	1400		20	
U.P.	3000	3200	2600	2800		17	
Haryana	1800	2000	2200	2700		15	
Rajasthan	2100	2000	1800	2200		20	
TOTAL AVERAGE							

(a) Apply Formatting as follow:

i. Title in TIMES NEW ROMAN

ii. Font Size - 14

iii. Remaining text - ARIAL, Font Size -10

iv. State names and Qtr. Heading Bold, Italic with Gray Fill Color.

v. Numbers in two decimal places.
vi. Qtr. Heading in center Alignment.
vii. Apply Border to whole data.
(b) Calculate State and Qtr. Total
(c) Calculate Average for each quarter
(d) Calculate Amount = Rate * Total.

2. Given the following worksheet

	A	B	C	D
1	Roll No.	Name	Marks	Grade
2	1001	Sachin	99	
3	1002	Sehwag	65	
4	1003	Rahul	41	
5	1004	Sourav	89	
6	1005	Harbhajan	56	

Calculate the grade of these students on the basis of following guidelines:

If Marks	Then Grade
>= 80	A+
>= 60 < 80	A
>= 50 < 60	B
< 50	

3. Given the following worksheet

	A	B	C	D	E	F	G
1	**Salesman**	**Sales in (Rs.)**					
2	No.	Qtr1	Qtr2	Qtr3	Qtr4	Total	Commission
3	S001	5000	8500	12000	9000		
4	S002	7000	4000	7500	11000		
5	S003	4000	9000	6500	8200		
6	S004	5500	6900	4500	10500		
7	S005	7400	8500	9200	8300		
8	S006	5300	7600	9800	6100		

Calculate the commission earned by the salesmen on the basis of following Candidates:

If Total Sales	Commission
< 20000	0% of sales
> 20000 and < 25000	4% of sales
> 25000 and < 30000	5.5% of sales
> 30000 and < 35000	8% of sales
>= 35000	11% of sales

The total sales is sum of sales of all the four quarters.

4. A company XYZ Ltd. pays a monthly salary to its employees which consists of basic salary, allowances & deductions. The details of allowances and deductions are as follows:

Allowances

- HRA Dependent on Basic :
  30% of Basic if Basic <=1000
  25% of Basic if Basic>1000 & Basic<=300020% of Basic if Basic >3000
- DA Fixed for all employees :
  30% of Basic
- Conveyance Allowance :
  Rs. 50/- if Basic is <=1000
  Rs. 75/- if Basic >1000 & Basic<=2000
  Rs. 100 if Basic >2000
- Entertainment Allowance :
  NIL if Basic is <=1000
  Rs. 100/- if Basic > 1000

Deductions

- Provident Fund :
  6% of Basic
- Group Insurance Premium :
  Rs. 40/- if Basic is <=1500
  Rs. 60/- if Basic > 1500 & Basic<=3000
  Rs. 80/- if Basic >3000

Calculate the following:
Gross Salary = Basic + HRA + DA + Conveyance + Entertainment
Total deduction = Provident Fund + Group Insurance Premium
Net Salary = Gross Salary – Total Deduction

5. The following table gives year wise sale figure of five salesmen in Rs.

Salesman	2000	2001	2002	2003
S1	10000	12000	20000	50000
S2	15000	18000	50000	60000
S3	20000	22000	70000	70000
S4	30000	30000	100000	80000
S5	40000	45000	125000	90000

(a) Calculate total sale year wise.
(b) Calculate the net sale made by each salesman
(c) Calculate the maximum sale made by the salesman
(d) Calculate the commission for each salesman under the condition.
(i) If total sales > 4, 00,000 give 5% commission on total sale made by the salesman.
(ii) Otherwise give 2% commission.
(e) Draw a bar graph representing the sale made by each salesman.
(f) Draw a pie graph representing the sale made by salesman in 2000.

DISCIPLINE SPECIFIC CORE COURSE – 3: Mathematics for Computing - I

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		
Mathematics for Computing - I	**4**	**3**	**1**	**0**	**Class XII pass with Mathematics**	**NIL**

Learning Objectives:

1. *To introduce the fundamental concepts and topics of linear algebra and vector calculus.*
2. *To build the foundation for some of the core courses in later semesters.*

Learning Outcomes:

1. *Perform operations on matrices and sparse matrices.*
2. *Compute the determinant, rank and eigenvalues of a matrix.*
3. *Perform operations on vectors, the dot product and cross product.*
4. *Represent vectors geometrically and calculate the gradient, divergence, curl.*
5. *Apply linear algebra and vector calculus to solve problems in sub-disciplines of computer science.*

Unit I **(12 hours)**

Introduction to Matrix Algebra: Echelon form of a Matrix, Rank of a Matrix, Determinant and Inverse of a matrix, Solution of System of Homogeneous & Non-Homogeneous Equations: Gauss elimination and Solution of System of Homogeneous Equations: Gauss Jordan Method.

Unit II **(16 hours)**

Vector Space and Linear Transformation: Vector Space, Sub-spaces, Linear Combinations, Linear Span, Convex Sets, Linear Independence/Dependence, Basis & Dimension, Linear transformation on finite dimensional vector spaces, Inner Product Space, Schwarz Inequality, Orthonormal Basis, Gram-Schmidt Orthogonalization Process.

Unit III **(16 hours)**

EigenValue and EigenVector: Characteristic Polynomial, Cayley Hamilton Theorem, Eigen Value and Eigen Vector of a matrix, Eigenspaces, Diagonalization, Positive Definite Matrices, Applications to Markov Matrices

Unit IV **(16 hours)**

Vector Calculus: Vector Algebra, Laws of Vector Algebra, Dot Product, Cross Product, Vector and Scalar Fields, Ordinary Derivative of Vectors, Space Curves, Partial Derivatives, Del Operator, Gradient of a Scalar Field, Directional Derivative, Gradient of Matrices, Divergence of a Vector Field, Laplacian

Operator, Curl of a Vector Field.

Essential/Recommended readings:

1. Gilbert Strang, Introduction to Linear Algebra, 5th Edition, Wellesley-Cambridge Press, 2021.

2. Erwin Kreyszig, Advanced Engineering Mathematics, 10th Edition, Wiley, 2015.

3. Gilbert Strang, Linear Algebra and Learning from Data, 1st Edition, Wellesley-Cambridge Press, 2019.

4. R. K. Jain, S. R. K. Iyengar, Advanced Engineering Mathematics, 5th Edition, Narosa, 2016.

COMMON POOL OF GENERIC ELECTIVES COURSES

GENERIC ELECTIVE – 1: Web Designing (HTML, CSS and PHP)

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)	Department offering the course
		Lecture	Tutorial	Practical/ Practice			
Web Designing (HTML, CSS and PHP)	**4**	**2**	**0**	**2**	**12th Pass**	**NIL**	

Learning Objectives

1. The course aims at introducing the basic concepts and techniques of client side web programming.
2. The student shall be able to develop simple websites using HTML, CSS and JavaScript.

Learning Outcomes:

1. Understanding of the principles of creating an effective web page, including an in-depth consideration of information architecture.
2. Apply intermediate and advanced web development practices.
3. Implement basic JavaScript.
4. Create webpages that function using external data.
5. Basic understanding of PHP.

Unit 1: Introduction to Internet **(6 hours)**

Concept of WWW, internet and WWW, protocols and programs, secure connections, application and development tools, web browser, URL, web server, web site designing principles, Domain Name.

Unit-2: Introduction to HTML **(6 hours)**

Development process, HTML Tags and Attributes, HTML Basic Tags, forms and website structure, HTML Color Coding, Div and Span Tags, hyperlinks, lists, tables, images, URL, character entities, frames and frame sets, overview and features of HTML5.

Unit-3: Cascading Style Sheets (CSS) **(6 hours)**

Introduction to CSS, Features and benefits of CSS, basics, CSS syntax and structure, using and linking CSS, using selectors, background images, colors and properties, manipulating texts, using fonts, borders and boxes, margins, padding lists, positioning using CSS and CSS2, overview and features of CSS3.

Unit-4: Introduction to JavaScript **(6 hours)**

JavaScript Introduction, JavaScript Output, JavaScript Variables, JavaScript Operators, JavaScript

Arithmetic, JavaScript Data Types, JavaScript Assignment, JavaScript Functions, JavaScript Objects, JavaScript Scope, JavaScript Events, JavaScript Strings and String Methods, JavaScript Numbers and Number Methods, JavaScript Math, JavaScript Dates: Formats and Methods, JavaScript Booleans , JavaScript Comparisons, JavaScript Conditions, JavaScript Switch, JavaScript Loops, JavaScript Break, JavaScript Type, JavaScript Forms (API and Validation), JavaScript Objects, JavaScript Functions, JavaScript DOM, JavaScript Browser BOM, JavaScript Frameworks

Unit-5: Introduction to PHP (6 hours)

Introduction and basic syntax of PHP, Installing PHP, PHP Variables, PHP Data Types, PHP Strings, PHP Constants, PHP Operators, PHP Programming Loops, PHP Functions, PHP Arrays, PHP Forms and PHP Form Handling, PHP Form Validation.

Essential/recommended readings:

1. Robin Nixon, Learning PHP, MYSQL, JavaScript, CSS & HTML5 3ed: A Step-by-Step Guide to Creating Dynamic Websites, O'Reilly

2. Jon Duckett, HTML and CSS: Design and Build Websites, Wiley.

3. Jon Duckett, JavaScript and Jquery: Interactive Front-End Web Development, Wiley.

4. Jennifer Niederst Robbins, Learning Web Design: A Beginner's Guide to HTML, CSS, JavaScript, and Web Graphics, O'reilly.

5. Dt Editorial Services, Html 5 Black Book - Covers CSS 3, JavaScript, XML, XHTML, AJAX, PHP and Jquery, DreamTech Press Publication.

Practical Component: (60 hours)

1. Design a home page which displays information about your college department using headings, HTML entities and paragraphs.
2. Implement different types of list tags, hyperlinks, marquee tag and HTML formatting tags in the college department homepage.
3. Create a web page having two frames, Frame 1 containing links and another with contents of the link. When a link is clicked appropriate contents should be displayed on Frame 2. Also, insert an iframe in the same page.
4. Design your course timetable and display it in tabular format.
5. Design an admission form for any course in your college with text, password fields, drop-down list, check-boxes, and radio buttons, submit and reset button etc. with proper CSS formatting.
6. Create a website for online book stores with Home, Login, Catalogue, Registration page with links to all these pages in a menu on top of every page. Embed heading, paragraph, images, video, .iframe, form controls, table, and list in this website. Use both Internal and external CSS in this.
7. Write a JavaScript program to display the current day and time.
8. Write a JavaScript program to
    a) Remove a character at the specified position of a given string and return the new string.
    b) Change the case of a string. (I.e. upper case to lower case and vice-versa).
9. Write a JavaScript program to compute the sum of elements of a given array of integers.
10. Develop and demonstrate a HTML file that includes JavaScript script for taking full name in a text field and display first, middle, last name *in 3 different labels. Middle and last name may be optional, thus messages like "NA" should be displayed in corresponding labels. If input contains 2 words, then they should be considered as first and last names.

11. Design HTML form for keeping student record, apply JavaScript validation for restriction of mandatory fields, numeric field, email-address field, specific value in a field etc.
12. Write a JavaScript code that displays text "Bigger Text" with increasing font size in the interval of 10ms in red color, when the font size reaches 50 pt. it displays "Smaller Text" in green color. Then the font size should decrease to 5pt and then stop.
13. Write a PHP script that removes the whitespaces from a string.
14. Create a login page having user name and password. On clicking submit, a welcome message should be displayed if the user is already registered (i.e.name is present in the database) otherwise error message should be displayed.
15. Create a simple 'birthday countdown' script, the script will count the number of days between current day and birth day.

GENERIC ELECTIVE – 2: Database Management Systems

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)	Department offering the course
		Lecture	Tutorial	Practical/ Practice			
Database Management Systems	**4**	**2**	**0**	**2**	**12th Pass**	**NIL**	

Learning Objectives:

1. *To introduce the fundamentals of database management system and its architecture.*
2. *Students will learn about the importance of database structure and it's designing using conceptual approach using Entity Relationship Model and formal approach using Normalization.*
3. *The course would give students hands-on practice of structured query language in a relational database management system.*

Learning Outcomes

1. Identify the basic concepts and various data model used in database design.
2. Use relational database management software to create and manipulate the database.
3. ER modelling concepts and architecture use and design queries using SQL.
4. Create conceptual data models using entity relationship diagrams for modelling real-life situations and map it to corresponding relational database schema.
5. Use the concept of functional dependencies to remove redundancy and update anomalies.
6. Implement relational databases and formulate queries for data retrieval and data update problems using SQL.
7. Use of PHP to connect with database and understand how to design web applications.

Unit-1: **(6 hours)**

Introduction and applications of DBMS, Basic Concepts: DBMS Architecture, Data Independence, Data modelling for a database, abstraction and data integration, three level architecture of a DBMS, Database users and DBA.

Unit-2: **(6 hours)**

Database Design: Entities and attributes, Entity types, Entity set, Attribute and keys, Defining the E-R diagram, Concept of Generalization, Aggregation and Specialization.

Unit-3: **(6 hours)**

Relational Model: Relational Data Manipulations: Relation, conversion of ER diagrams to relations, integrity constraints, Functional dependencies and Normalization.

Unit-4: **(6 hours)**

Structured Query Language: DDL, DML, DDL queries like create database, drop database, create table, drop table, alter table.

DML Queries like inserting into a table, update a table, delete data from table, and filter data. Create relationships between tables, SQL sub queries, SQL clauses, SQL aggregate functions, SQL Joins.

Unit-5: **(6 hours)**

PHP with MYSQL: PHP MYSQL Database, PHP Connecting to Database, PHP Creating Records, PHP Selecting Records, PHP Deleting Records, PHP Updating Records, PHP Limit Data, PHP Insert Multiple.

Essential/recommended readings:

1. R. Elmasri, S.B. Navathe Database Systems Models, Languages, Design and application Programming, 7th Edition, Pearson Education.

2. R. Ramakrishnan and J. Gehrke, Database Management Systems, 3rd Edition, McGraw Hill, 2014.

3. A. Silberschatz, H. Korth and S. Sudarshan, Database System Concepts, 6th Edition, McGraw Hill, 2014.

4. Robin Nixon, Learning PHP, MYSQL, JavaScript, CSS & HTML5 3ed: A Step-by-Step Guide to Creating Dynamic Websites, O'Reilly.

Practical component: (60 hours)

1. Create a database having two tables with the specified fields, to computerize a library system of a Delhi University College.

- LibraryBooks (Accession number, Title, Author, Department, PurchaseDate, Price)
- IssuedBooks (Accession number, Borrower)

a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
b) Delete the record of a book titled "Database System Concepts".
c) Change the Department of the book titled "Discrete Maths" to "BVoc".
d) List all books that belong to the "BVoc" department.
e) List all books that belong to the "BVoc" department and are written by author "Navathe".
f) List all computers (Department = "BVoc") that have been issued.
g) List all books which have a price less than 500 or purchased between "01/01/2022" and "31/12/2022".

2. Create a database having three tables to store the details of students of Computer Department in your college, as per the given schema.

- Personal information about Student (College roll number, Name of student, Date of birth, Address, Marks(rounded off to whole number) in percentage at 10 + 2, Phone number)
- Paper Details (Paper code, Name of the Paper)
- Student's Academic and Attendance details (College roll number, Paper code, Attendance, Marks in home examination).

a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
b) Design a query that will return the records (from the second table) along with the name of student from the first table, related to students who have more than 75% attendance and more than 60% marks in paper 2.
c) List all students who live in "Delhi" and have marks greater than 60 in paper 1.
d) Find the total attendance and total marks obtained by each student.
e) List the name of student who has got the highest marks in paper 2

3. Create the following tables and answer the queries given below:

- Customer (CustID, email, Name, Phone, ReferrerID)
- Bicycle (BicycleID, DatePurchased, Color, CustID, ModelNo) BicycleModel (ModelNo, Manufacturer, Style)
- Service (StartDate, BicycleID, EndDate)

a) Identify primary and foreign keys. Create the tables and insert at least 5 records in each table.
b) List all the customers who have the bicycles manufactured by manufacturer "Honda".
c) List the bicycles purchased by the customers who have been referred by customer "C1".
d) List the manufacturer of red colour bicycles.
e) List the models of the bicycles given for service.

4. Create the following tables, enter at least 5 records in each table and answer the queries given below.

- EMPLOYEE (Person_Name, Street, City) WORKS (Person_Name, Company_Name, Salary)
- COMPANY (Company_Name, City)
- MANAGES (Person_Name, Manager_Name)

a) Identify primary and foreign keys.
b) Alter table employee, add a column "email" of type varchar (20).
c) Find the name of all managers who work for both Samba Bank and NCB Bank.
d) Find the names, street address and cities of residence and salary of all employees who work for "Samba Bank" and earn more than $10,000.
e) Find the names of all employees who live in the same city as the company for which they work.
f) Find the highest salary, lowest salary and average salary paid by each company.
g) Find the sum of salary and number of employees in each company.
h) Find the name of the company that pays the highest salary.

5. Create the following tables, enter at least 5 records in each table and answer the queries given below.

- Suppliers (SNo, Sname, Status, SCity)
- Parts (PNo, Pname, Colour, Weight, City)
- Project (JNo, Jname, Jcity)
- Shipment (Sno, Pno, Jno, Quantity)

a) Identify primary and foreign keys.

b) Get supplier numbers for suppliers in Paris with status>20.
c) Get supplier details for suppliers who supply part P2. Display the supplier list in increasing order of supplier numbers.
d) Get suppliers names for suppliers who do not supply part P2.
e) For each shipment get full shipment details, including total shipment weights.
f) Get all the shipments where the quantity is in the range 300 to 750 inclusive.
g) Get part nos. for parts that either weigh more than 16 pounds or are supplied by suppliers S2, or both.
h) Get the names of cities that store more than five red parts.
i) Get full details of parts supplied by a supplier in London.
j) Get part numbers for parts supplied by a supplier in London to a project in London. k) Get the total number of projects supplied by a supplier (say, S1).
k) Get the total quantity of a part (say, P1) supplied by a supplier (say, S1)

BVOC –Banking, Financial Services and Insurance

Category-I

BVOC –Banking, Financial Services and Insurance course for Undergraduate Programme of study with Banking, Financial Services and Insurance as a Single Core Discipline

DISCIPLINE SPECIFIC CORE COURSE – 1: Basics of Financial Accounting

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		
Basics of Financial Accounting	**4**	**3**	**0**	**1**	**Class XII pass**	**NIL**

Learning Objective

The basic purpose of this course is to develop an insight of postulates, principles and techniques of accounting and application of financial and accounting information for planning, decision-making and control.

Learning Outcomes

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

1. Describe various accounting concepts and principles while recording transactions and preparing financial statements;
2. Measure business income applying relevant Accounting Standards;
3. Prepare cash book and other accounts necessary while running a business;
4. Prepare financial statements of sole proprietors and partnership firms; and
5. Understand and analyse financial statements from the perspective of different stakeholders using ratio analysis.

SYLLABUS OF DSC-1

Unit I **(9 hours)**

Introduction to Financial Accounting: Accounting as an Information System. Importance, Scope, and Limitations. Users of Accounting Information. Need for Generally Accepted Accounting Principles. Basic Concepts and Conventions: Business Entity, Dual Aspect, Going Concern, Accounting Period, Money Measurement, Accrual, Disclosure, Materiality, Consistency, and Conservatism. The Accounting Equation. Understanding Assets, Liabilities, Revenues, and Expenses. Understanding Capital Expenditure, Revenue Expenditure, Deferred Revenue

Expenditure, Capital Receipts, and Revenue Receipts. Nature of Accounts and Rules of Debit and Credit. Recording Transactions in General Journal. Journal entries passed for accounting of transitions including GST. Preparation of Ledger Accounts. Opening and Closing Entries. Preparation of Trial Balance. Recording Transactions in three-column Cash Book.

Unit II **(9 hours)**

Bank Reconciliation Statement, Need for Bank Reconciliation; Causes of Differences; Preparation of Bank Reconciliation Statement; How to prepare a Bank Reconciliation Statement when Extracts of Cash Book and Pass Book are given; adjusting the Cash Book Balance; Advantages of Bank Reconciliation Statement. Preparation of Financial Statements: Preparing Trading Account, Profit & Loss Account and Balance.

Unit III **(9 hours)**

Accounting standards: Concept, benefits and Process of formulation of Accounting Standards including Ind AS (IFRS converged standards) and IFRSs; convergence vs. adoption; Application of accounting standards (AS and Ind AS) on various entities in India. International Financial Accounting Standards (IFRS) – meaning, need and scope; Process of issuing IFRS. Understanding of financial Statements of a Joint Stock Company as per Companies Act 2013. Understanding the contents of a Corporate Annual General Report.

Unit IV **(9 hours)**

Analysing Financial Statement : Objectives of Financial Statement Analysis; Sources of information; Standards of Comparison; Techniques of financial statement Analysis- Horizontal Analysis and Vertical Analysis; Meaning and usefulness of Financial Rations; Analysis of financial ratios from the perspective of different Stakeholders like investors, Lenders, Short-term creditors: Profitability ratios, Solvency Ratios, Liquidity Ratios and turnover Ratios; Limitations of Ratio Analysis; Concept of Earning Management and its Detection.

Unit V **(9 hours)**

Computerized Accounting Systems: Computerized Accounts by using any popular accounting software Creating a Company; Configure and Features settings; Creating Accounting Ledgers and Groups; Creating Stock Items and Groups; Vouchers Entry; Generating Reports - Cash Book, Ledger Accounts, Trial Balance, Profit and Loss Account, Balance Sheet, and Cash Flow Statement. Selecting and shutting a Company; Backup, and Restore data of a Company.

Practical component- (30 hours)

Students will perform practical problems based upon the concepts given in theory and practice the same on any accounting software.

Suggested Readings:

- Anthony, R. N., Hawkins, D., & Merchant, K. A. “Accounting: Text and Cases” McGrawHill Education India.
- Dam, B. B., & Gautam, H. C. “Financial Accounting” Gayatri Publications, Guwahati.

- Goldwin, N., Alderman, W., &Sanyal, D. “Financial Accounting” Cengage Learning, Boston.
- Kumar, A. “Financial Accounting” Singhal Publication.
- Lal, J., Srivastava, S. &Abrol. Shivani. “Financial Accounting Text & Problems” Himalaya Publishing House, Mumbai.
- Maheshwari, S. N., Maheshwari, S. K., &Maheshwari, S. K. “Financial Accounting” Vikas Publishing House Pvt. Ltd., New Delhi.
- Monga, J. R. &Bahadur, R. “Financial Accounting: Concepts and Applications” Scholar Tech Press, New Delhi.
- Sehgal, A. & Sehgal D. “Fundamentals of Financial Accounting” Taxmann.
- Sehgal, D. “Financial Accounting” Vikas Publishing House Pvt. Ltd., New Delhi.
- Tulsian, P. C. “Financial Accounting” S CHAND LTD., New Delhi.

Additional Resources:

- Accounting Standards at the Website of the Institute of Chartered Accountants of India
- Indian Accounting Standards at the Website of the Ministry of Corporate Affairs.

Teaching Learning Process:
Class room lecture, Numerical Problem solving, Case study discussion, Class presentation on the assigned topic by students individually or in group, Workshop, Tutorials, Role play.

Assessment
Total Marks: 100
Internal Assessment: 25 Marks
End Semester University Exam: 75 Marks (including practical of 20 marks)
The Internal Assessment for the course may include Class participation, Assignments, Class test Projects, Field Work, Presentations, amongst others as decided by the faculty.

Keywords: Accounting, Financial Statements, Final Accounts, Computerized Accounting, IFRS
Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC CORE COURSE – 2: Business Organisation and 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		
Business Organisation and Management	**4**	**3**	**1**	**0**	**Class XII pass**	**NIL**

Learning Objective

The basic purpose of this course is to acquaint learners with the basics of business concepts and functions, forms of business organization, and Dimensions & Modes of management.

Learning Outcomes

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

1. Distinguish and explain each form of business.
2. Understand issues of business organization.
3. Understand and explain the basics of management.
4. Explain dimensions and mode of management implemented in the organization.

SYLLABUS OF DSC-2

UNIT-I: Introduction to Business Organisation and Management (12 hours)

Meaning and role of organisations and management in our lives; Relationship between organisation and management; Overview of functions of management; Multiple perspectives of business organisations- Consumers, Employees, Entrepreneurs, Community/Society at large; Perspective as a student & researcher- underlying disciplines; Ownership forms; Business formats- Brick & Mortar; Click; Brick & Click; Franchising location & scale- local, national, global; Micro, small, medium and large.

UNIT-II: Business Environment and Entrepreneurship (12 hours)

Meaning, layers (micro/immediate, meso/intermediate, macro and international), characteristics of business friendly environment; Ideals of business ethics, social responsibility and conscientious commerce; Business and social entrepreneurship as a process of opportunity/problem recognition and their realization/resolution.

UNIT-III: Planning and Organizing (12 hours)

Planning- meaning of project, strategic and operations planning; Decision-making process and techniques; Organizing- orderly division of labour & specialization; Organisational structures and organograms- staffed/manned structures-traditional and modern.

UNIT-IV: Directing and Controlling (12 hours)
Motivation- needs (including Maslow's theory), incentives, rewards, equity and two factor theory (Herzberg); Leadership and followership- meaning and importance; Organisation-wide leadership; Communication- meaning and importance; determinants of effectiveness; Principles of controlling; Relationship between planning, organizing, directing & controlling; Financial, quality and operating standards/controls.

UNIT-V: Salient Development and Contemporary Issues in Management (12 hours)
Subaltern management ideas from India; Diversity & inclusion, democracy and sociocracy at work; Freelancing; Flexi-time and work from home; Co-sharing/coworking.

Suggested Readings:

- Basu, C. (2017). Business Organisation and Management. McGraw Hill Education.
- Drucker, P. F. (1954). The Practice of Management. Newyork: Harper & Row.
- Kaul, V. K. (2012). Business Organisation Management. Pearson Education .
- Koontz, H., & Weihrich, H. (2012). Essentials of Management: An International and Leadership
- Perspective. Paperback.

Assessment
Total Marks: 100
Internal Assessment: 25 Marks
End Semester University Exam: 75 Marks
The Internal Assessment for the course may include Class participation, Assignments, Class test Projects, Field Work, Presentations, amongst others as decided by the faculty.

Keywords: Business organization, Decision Making, Management, Sociocracy.
Note: Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.

DISCIPLINE SPECIFIC CORE COURSE – 3: Business Economics

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		
Business Economics	**4**	**3**	**1**	**0**	**Class XII pass**	**NIL**

Learning Objective

The objective of this course is to acquaint the students with the concepts and techniques used in the field of economics and to enable them to apply this knowledge in business decision-making.

Learning Outcomes

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

1. Explain different theories of managerial economics.
2. Evaluate the effectiveness of various models and theories of managerial economics in demand, supply, production and costs related decision making procedures.
3. Understand the choices made by a rational consumer.
4. Explain relationships between production and costs.
5. Define key characteristics and consequences of different forms of markets.

SYLLABUS OF DSC-3

Unit I (12 hours)

Scope and Importance of Business Economics - basic tools- Opportunity Cost principle Incremental and Marginal Concepts. Basic economic relations – functional relations: equations- Total, Average and Marginal relations- use of Marginal analysis in decision making, The basics of market demand, market supply and equilibrium price- shifts in the demand and supply curves and equilibrium.

Unit II (16 hours)

Demand Analysis: Demand Function - nature of demand curve under different markets Meaning, significance, types and measurement of elasticity of demand (Price, income cross and promotional) - relationship between elasticity of demand and revenue concepts. Demand estimation and forecasting: Meaning and significance - methods of demand estimation: survey and statistical methods (numerical illustrations on trend analysis and simple linear regression).

Unit III (16 hours)

Supply and Production Decisions and Cost of Production: Production function: short run analysis with Law of Variable Proportions- Production function with two variable inputs- 22 isoquants, ridge lines and least cost combination of inputs- Long run production function and Laws of

Returns to Scale - expansion path -Economies and diseconomies of Scale. Cost concepts: Accounting cost and economic cost, implicit and explicit cost, fixed and variable cost - total, average and marginal cost - Cost Output Relationship in the Short Run and Long Run LAC and Learning curve - Break even analysis (with business applications).

Unit IV **(16 hours)**

Pricing & Market Theory of pricing- cost plus pricing, target pricing, marginal cost pricing, going rate pricing; Objective of business firm, Concept of Market, classification of market-perfect competition, monopoly, monopolistic competition and oligopoly. Price determination and equilibrium of firm in different market situations; Factor pricing. Macro Aspect of Business Economics National Income and it's measurement, Gross National Product, Net National Product, Net National Income. Business Cycle phases and causes; Inflation and Deflation causes and remedial action; Consumption, Income, Savings and investment.

Suggested Readings:

- Ahuja, H. L. (2019). Theory of Micro Economics. New Delhi: Sultan Chand Publishing House.
- Koutsoyannis, A. (1975). Modern Microeconomics. London: Palgrave Macmillan.
- Chaturvedi, D. D., & Gupta, S. L. (2010). Business Economics Theory & Applications. New Delhi: International Book House Pvt. Ltd.
- Adhikari, M. (2000). Business Economics. New Delhi: Excel Books.
- Kennedy, M. J. (2010). Micro Economics. Mumbai: Himalaya Publishing House.
- Seth, M. L. (2017). Micro Economics. Agra: Lakshmi Narain Agarwal Educational Publishers.

Assessment

Total Marks: 100
Internal Assessment: 25 Marks
End Semester University Exam: 75 Marks
The Internal Assessment for the course may include Class participation, Assignments, Class test Projects, Field Work, Presentations, amongst others as decided by the faculty.
Note: **Examination scheme and mode shall be as prescribed by the Examination Branch, University of Delhi, from time to time.**

REGISTRAR