P.G. Department of Computer Science & Applications

Interdisciplinary Courses Under Computer Science & Applications

Session 2024-25

Sr. No	Course Code	Program	Course Title
1.	BARM-1134 BCSM-1134 BECM-1134	B.A./B.Sc. Computer Science Semester I	Computer Fundamentals and PC Software
2.	BARM-2134 BCSM-2134 BECM-2134	B.A./B.Sc. Computer Science Semester II	Programming in C
3.	BARM-3134 BCSM-3134 BECM-3134	B.A./B.Sc. Computer Science Semester III	Computer Oriented Numerical and Statistical Methods
4.	BARM-4134 BCSM-4134 BECM-4134	B.A./B.Sc. Computer Science Semester IV	Data Structures
5.	BARM-5134 BCSM-5134 BECM-5134	B.A./B.Sc. Computer Science Semester V	Database Management System
6.	BARM-6134 BCSM-6134 BECM-6134	B.A./B.Sc. Computer Science Semester VI	Information Technology
7.	BARM-1124 BECM-1124	B.A./B.Sc. Computer Applications (VOCATIONAL) Semester I	Computer Fundamentals and PC Software
8.	BARM-2124 BECM-2124	B.A./B.Sc. Computer Applications (VOCATIONAL) Semester II	(Introduction to Programming using Python)
9.	BARM-3124 BECM-3124	B.A./B.Sc. Computer Applications (VOCATIONAL) Semester III	Operating System
10.	BARM-4124 BECM-4124	B.A./B.Sc. Computer Applications (VOCATIONAL) Semester IV	Relational Database Management Systems
11.	BARM-5124 BECM-5124	B.A./B.Sc. Computer Applications (VOCATIONAL) Semester V	Internet and Web Designing
12.	BARM-6124 BECM-6124	B.A./B.Sc. Computer Applications (VOCATIONAL) Semester VI	Business Data Processing

13.	BCRM1120	B.Com. (Pass) Semester I	Computer Applications in Business
14.	BBRM-1120 / BBMM-1120	BBA Hons. Semester I / BBA (Honours) – Airlines and Airport Management Semester I	Computer Applications for Business
15.	BHSM-1127	B.Sc. (Honours) Home Science Semester I	Computer Basics
16.	BHSM-2127	B.Sc. (Home Science) Semester II	Computer Applications for Home Scientists
17.	FMAM- 1130	Master of Science (Mathematics) FYIP - Semester I	Programming Language - I
18.	FMAM- 2135	Master of Science (Mathematics) FYIP - Semester II	Object Oriented Programming C++
19.	FMAM-3135	Master of Science (Mathematics) FYIP - Semester III	Python Programming
20.	FMAM-4135	Master of Science (Mathematics) FYIP - Semester IV	Foundation of Statistical Computing
21.	MCML - 4122	Master of Commerce Semester - IV	E - Commerce
22.	FCOM-1126	Master of Commerce FYIP Semester I	Digital Fluency
23.	FCOM-2126	Master of Commerce FYIP Semester II	Web Based Applications for Office Management
24.	MCHM-1135	M.Sc. (Chemistry) Semester I	Computer for Chemists
25.	MZOM-1135	M.Sc. (Zoology) Semester I	Computer Programming & Data Processing
26.		Master of Science (Economics) Semester – I	OPT-VI (Computer Applications for Economists-I)
27.		Master of Science (Economics) Semester – II	OPT-XIV Computer Applications for Economists-II
28.	BVAM-1113/ / BVRM-1126	Bachelor of Vocation (Animation) Semester-I Bachelor of Vocation (Retail Management) Semester-I	Computer Fundamentals
29.	BVHM-2663	Bachelor of Vocation (Hospitality and Tourism) Semester II	Applications of Computer in Hospitality and Tourism
30.	BMLM-2136	Bachelor of Science (Honours) Medical laboratory Technology) Semester II	Fundamentals of Data Analytics

31.	BVML-4121	Bachelor of Vocation (Management& Secretarial Practices) Semester-IV	Management Information System
32.	BVMM-5126	Bachelor of Vocation (Management & Secretarial Practices) (Semester-V)	Introduction to Python Programming
33.	BVNM-5125	Bachelor of Vocation (Nutrition, Exercise & Health Semester-V	Internet Applications

Session 2024-25
Course Code: BARM-1134
BCSM-1134
BECM-1134
COMPUTER SCIENCE
(COMPUTER FUNDAMENTALS AND PC SOFTWARE)

Course Outcomes:

After passing this course the student will be able to:

CO1: comprehend about computer hardware, operating system concepts and various system software.

CO2: Identify various input, output and memory devices.

CO3: Apply office automation software to create professional and academic documents.

CO4: Apply skills to make effective presentations using associated application software.

**Bachelor of Arts Hons. / Bachelor of Science (Computer Science) Hons. /
Bachelor of Science (Economics) Hons. Semester- I
Session 2024-25
Course Code:** BARM-1134
BCSM-1134
BECM-1134
**COMPUTER SCIENCE
(COMPUTER FUNDAMENTALS AND PC SOFTWARE)**

Examination Time: 3 Hrs.   **Max. Marks: 100**
                                                                     Theory: 40
L-T-P: 3-0-1   **Practical: 30**
Credits: 4   **CA: 30**

Instructions for Paper Setter -
Eight questions of equal marks (08 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT I

Fundamentals of Computer: Introduction to computer, Applications of computer, Components of computers (Input unit, Output Unit, Memory Unit & CPU), type of Software, Translators (compiler, interpreter, assembler), Booting a System.

UNIT II

Input and Output Devices: Keyboards, Mouse, Joystick, Track Ball, Light Pen and Data Scanning devices (scanner, OCR, OMR, MICR, Bar Code Reader, Card Reader), Monitor, Printers (laser printer, dot matrix printer, ink jet printer).
Memories: Primary Memory-RAM and ROM. Secondary Memory- Hard Disk.
Introduction to Windows based operating system and Desktop icons.

UNIT III

Word Processing: Introduction to word, Parts of window of word (Title bar, menu bar, status bar, and ruler), understanding the Ribbon, Use of Office Button and Quick Access Toolbar, Creation of new documents, opening document.
Page setup, margins, gutters, font properties, Alignment, page breaks, header & footer, deleting, moving, replace, editing text in document, saving a document, spell checker, printing a document.
Creating a table, entering and editing, Text in tables. Changing format of table, height, width of row/column. Editing, deleting Rows, columns in table. Adding picture, page colors and Watermarks, Borders and shading, Templates, Mail Merge.

UNIT IV

PowerPoint Presentation: Introduction to PowerPoint, starting a new slide, saving presentation, moving/rearranging slides, printing slides.

Applying theme to presentation, Views (slide View, slide sorter, notes view, outline view), Formatting & enhancing text formatting.

Creating a graph, displaying slide show, adding multimedia. Slide transitions, applying Animation, Timing slide display, adding movies & sounds.

References:

1. Anshuman Sharma, A book of Fundamentals of Information Technology, Lakhanpal Publishers, 5th Edition.
2. Prof. Satish Jain, M. Geetha, Kratika, BPB's Office 2010 Course Complete Book, BPB Publications, 2017.
3. Joyce Cox, Joan Lambert and Curtis Frye, Microsoft office Professional 2010 Step by Step, Microsoft Press, 2010.
4. V. Rajaraman, Neeharika Adabala, Fundamentals of Computers, PHI Learning, 2015.
5. P.K. Sinha, Computer Fundamentals, BPB Publications, 2004.

Note: The latest editions of the books should be followed.

**Bachelor of Arts Hons./ Bachelor of Science (Computer Science) Hons./
Bachelor of Science (Economics) Hons. Semester- I
Session 2024-25
Course Code:** BARM-1134
BCSM-1134
BECM-1134

**COMPUTER SCIENCE
(COMPUTER FUNDAMENTALS AND PC SOFTWARE)
(PRACTICAL)**

Examination Time: 3 Hrs.   **Max. Marks: 100**
                                                                               Theory: 40
L-T-P: 3-0-1   **Practical: 30**
Credits: 4   **CA: 30**

Practical based on PC Software - Office.

Bachelor of Arts Hons./ Bachelor of Science (Computer Science) Hons. /
Bachelor of Science (Economics) Hons. Semester- II
(Session 2024-25)
Course Code: BARM-2134
BCSM-2134
BECM-2134

COMPUTER SCIENCE
(PROGRAMMING IN C)

Course Outcomes:

After passing this course the student will be able to:

CO1: Comprehend the working of various programming constructs involved in C Programming.

CO2: Apply various operators and control sequence of program using various control statements.

CO3: Apply programming concepts such as arrays, functions and strings to provide solution in different problem domains.

CO4: Work with pointers, structures and union.

Bachelor of Arts Hons. / Bachelor of Science (Computer Science) Hons. /
Bachelor of Science (Economics) Hons. Semester- II
(Session 2024-25)
Course Code: BARM-2134
BCSM-2134
BECM-2134

COMPUTER SCIENCE
(PROGRAMMING IN C)
(Theory)

Examination Time: 3 Hrs.	**Max. Marks: 100**
	Theory: 40
L-T-P: 3-0-1	**Practical: 30**
Credits: 4	**CA: 30**

Instructions for Paper Setter -
Eight questions of equal marks (08 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT–I
Data Representation, Introduction to Number Systems and Character Set, Decision tables, Decision Trees, Flow Charts, pseudo codes and, algorithms.
Programming Using C: Introduction to C, Applications and Advantages of C, Tokens, Types of Errors Data Types: Basic & Derived Data Types, User Defined Data Types, Declaring and initializing variables.

UNIT–II
Operators and Expressions: Types of operators (Unary, Binary, Ternary), Precedence and Associativity.
Data I/O Functions: Types of I/O function, Formatted & Unformatted console I/O Functions.
Control Statements: Jumping, Branching and Looping–Entry controlled and exit controlled, difference between for, while and do–while.

UNIT–III
Arrays: Types of Arrays, One Dimensional and Two-Dimensional Arrays.
Strings: Introduction to Strings and String functions, array of strings.
Functions: User Defined & Library Function, Function (Prototype, Declaration, Definition), Methods of passing arguments, local and global functions, Recursion.

UNIT-IV
Storage Classes: Introduction to various storage classes, scope and lifetime of a variable, advantages and disadvantages.
Pointers: Introduction, Uses of pointers, Limitations of pointers, Difference between void pointer and Null pointer, Pointer arithmetic, operators not allowed on pointers, Types of Pointer, Passing Pointers to function, concept of pointer to pointer.
Structure and Union: Introduction to structure and union, pointers with structure.

References:

1. E. Balagurusamy, Programming in ANSI C, Tata McGraw-Hill (2002), 5th edition.

2. Stephen G. Kochan, Programming in C, Pearson Education (2015), 4th edition.

3. Rachhpal Singh K.S. Kahlon, Gurvinder Singh, Programming in C, Kalyani Publishers (2011).

4. YashwantKanetkar, Let us C, BPB Publications (2020), 17th edition.

5. R.S. Salari, Application Programming in C, Khanna Book Publishing (2012), 4th edition.

6. Anshuman Sharma, Learn programming in C, Lakhanpal Publishers (2016), 7th edition.

**Bachelor of Arts Hons./ Bachelor of Science (Computer Science) Hons./
Bachelor of Science (Economics) Hons. Semester- II
(Session 2024-25)
Course Code: BARM-2134
BCSM-2134
BECM-2134**

**COMPUTER SCIENCE
(PROGRAMMING IN C)
(PRACTICAL)**

Examination Time: 3 Hrs.   **Max. Marks: 100**
                                                                                  Theory: 40
L-T-P: 3-0-1   **Practical: 30**
Credits: 4   **CA: 30**

Lab based on Programming in C.

Bachelor of Arts / Bachelor of Science (Computer Science) /
Bachelor of Science (Economics) Semester- III
Session 2024-25
Course Code: BARM-3134
BCSM-3134
BECM-3134

COMPUTER SCIENCE
(COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS)

Course Outcomes:

After passing this course the student will be able to:

CO1: Solve non-linear and linear equations using different methods.
CO2: comprehend interpolation and numerical integration.
CO3: Calculate different means and deviations using statistical techniques.
CO4: Comprehend correlation, curve fitting and regression for finding solutions to various statistical problems.

Bachelor of Arts / Bachelor of Science (Computer Science) / Bachelor of Science (Economics) Semester- III
Session 2024-25
Course Code: BARM-3134
BCSM-3134
BECM-3134

COMPUTER SCIENCE
(COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS)
(THEORY)

Examination Time: 3 +3 Hrs.   Max. Marks: 100
                                                                    Theory: 50
L-T-P: 3-0-1   Practical:30
Credits: 4   CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. The students can use Non–programmable/ scientific & Non–storage type calculator.

Unit –I

Introduction: Numerical methods, Numerical methods versus numerical analysis, Errors and Measures of Errors. Bisection method, false position method and Newton Raphson method.

Simultaneous Solution of Equations: Gauss Elimination Method, Gauss Jordan method

Unit -II
Interpolation: Interpolation and Curve Fitting, Newtons Methods: Forward Difference Method, Backward Difference Method and Divided Difference Method.
Numerical Integration: Trapezoidal Rule, Simpson's 1/3 Rule Simpson's 3/8 Rule.

Unit -III
Measure of Central Tendency: Mean Arithmetic, Mean Geometric, Mean Harmonic, Mean, Median and Mode.
Measure of dispersion: Range, Mean deviation, Standard deviation, co-efficient of variation.

Unit –IV
Correlation: Meaning, Karl Pearson method, Rank correlation.

Regression: Meaning, Linear Regression and its coefficients.

References/ Textbooks:

1. B.S. Grewal, Numerical Methods in Engineering & Science: With Programs in C, C++ & MATLAB, Khanna Publisher, 2014.
2. V. Rajaraman, Computer Oriented Numerical Methods, Prentice Hall of India Private Ltd., 2009.

Note: The latest editions of the books should be followed.

**Bachelor of Arts / Bachelor of Science (Computer Science) /
Bachelor of Science (Economics) Semester- III
Session 2024-25
Course Code:** BARM-3134
BCSM-3134
BECM-3134

**COMPUTER SCIENCE
(COMPUTER ORIENTED NUMERICAL AND STATISTICAL METHODS)
PRACTICAL**

Examination Time: 3 +3 Hrs.   **Max. Marks: 100**
                                                                                         Theory: 50
L-T-P: 3-0-1   **Practical:30**
Credits: 4   **CA: 20**

Practical on Computer Oriented Numerical and Statistical Methods.

Bachelor of Arts / Bachelor of Science (Computer Science) /
Bachelor of Science (Economics) Semester- IV
(Session 2024-25)
Course Code: BARM-4134
BCSM-4134
BECM-4134

COMPUTER SCIENCE
(DATA STRUCTURES)

Course Outcomes:

After passing course the student will be able to:

CO1: Analyze complexity of algorithms to determine their efficiency.
CO2: Comprehend various hashing method, sorting and searching algorithms.
CO3: Comprehend various operations of stack and queue along with different scenarios.
CO4: Comprehend advanced data structures such as tree and graph.

**Bachelor of Arts / Bachelor of Science (Computer Science) /
Bachelor of Science (Economics) Semester- IV
(Session 2024-25)
Course Code:** BARM-4134
BCSM-4134
BECM-4134

**COMPUTER SCIENCE
(DATA STRUCTURES)
(THEORY)**

Examination Time: 3 +3 Hrs.	**Max. Marks: 100**
	Theory: 50
L-T-P: 3-0-1	**Practical:30**
Credits: 4	**CA: 20**

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. The students can use Non–programmable/ scientific & Non– storage type calculator.

UNIT–I

Data Structures: Introduction to elementary data organization, Common Operation on Data Structures, Algorithm Complexity, Big O Notation, Time-Space Tradeoff between Algorithms.
Arrays: Array defining, representing arrays in memory, various operations on linear arrays, Multi-Dimensional arrays.

UNIT–II

Linked Lists: Types of Linked Lists, representing linked list in memory, advantages of using linked lists over arrays, various operations of linked lists.
Stacks: Description of stack structure, Implementation of stack, using arrays and linked lists, application of stack-converting, arithmetic expression from infix notation to polish notation and their subsequent evaluation, quicksort technique.

UNIT–III

Queues: Description of queue structure, Implementation of queue using arrays and linked lists, description or priorities of queues, deques.
Sorting and Searching: Sorting Algorithms, bubble sort, selection sort, insertion sort, quick sort, merge sort, heap sort, searching Algorithms, linear search and binary search.

UNIT-IV

Trees: Description of Tree Structure and its Terminology, Binary Trees and Binary Search Trees and their representation in Memory, Heapsort.

Graphs: Description of Graph Structure, Implement Graphs in Memory using Adjacency Matrix, Path Matrix, graph traversal techniques - DFS, BFS.

References / Textbooks:

1. Seymour Lipschutz, Data Structures with C (Schaum's Outline Series), McGraw Hill Education (2017), 1st Edition
2. Reema Thareja, Data Structures Using C, Oxford Publication (2014), 2nd Edition
3. Sahni Horowitz, Fundamentals of Data Strucetures in C (2008), 2nd Edition
4. Narasimha Karumanchi, Data Structures and Algorithms made easy, Careermonk Publications (2016), 5th Edition
5. S.K. Srivastava and Deepali Srivastava, Data Structures through C, BPB Publications (2004)
6. Yedidyah Langsam, Augestein and Tanenbaum, Data Structures using C and C++, Pearson Education India (2015), 2nd Edition

**Bachelor of Arts / Bachelor of Science (Computer Science) /
Bachelor of Science (Economics) Semester- IV
(Session 2024-25)
Course Code:** BARM-4134
BCSM-4134
BECM-4134

**COMPUTER SCIENCE
(DATA STRUCTURES)
(PRACTICAL)**

Examination Time: 3 +3 Hrs.   **Max. Marks: 100**
                                                                                      Theory: 50
L-T-P: 3-0-1   **Practical:30**
Credits: 4   **CA: 20**

Practical on Data Structures.

Bachelor of Arts / Bachelor of Science (Computer Science) /

Bachelor of Science (Economics) - Semester–V

Session 2024-25

COURSE CODE: BARM-5134
BCSM-5134
BECM-5134

COMPUTER SCIENCE

(DATA BASE MANAGEMENT SYSTEM)

Course Outcomes:

After passing course the student will be able to:

CO1: Understand data, database and database models.
CO2: Gain knowledge of normalization, security and recovery of database.
CO3: Create, manage and access database using SQL.
CO4: Comprehend the application of programming language constructs in database access.

Bachelor of Arts / Bachelor of Science (Computer Science) /

Bachelor of Science (Economics) - Semester–V

Session 2024-25

COURSE CODE: BARM-5134

BCSM-5134

BECM-5134

COMPUTER SCIENCE

(DATA BASE MANAGEMENT SYSTEM)

(THEORY)

Examination Time: (3+3) Hrs.   **Max. Marks: 100**

Theory: 50

Practical: 30

CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT–I

DBMS: Introduction to database management system, Components of DBMS, Three Level Database System Architecture, ER. Diagrams. Data Models, Hierarchical Model, Network Model and Relational Model, Relational Databases, Relational Algebra and Calculus.

UNIT–II

Normalization: Introduction, Normal Forms: 1NF, 2NF, 3NF, BCNF, 4NF, 5NF.

Database Security: Protection, Integrity.

Recovery: Introduction, Recovery Techniques: Log Based Recovery and Shadow Paging.

Concurrency Control: Introduction, Concurrency control with locking methods, Two Phase locking, Precedence graph, Concurrency control based on timestamp ordering, Concurrency control based on optimistic scheduling.

UNIT–III

SQL * PLUS: Introduction to Oracle , Features of Oracle .

SQL Statements: DDL, DML, DCL, TCL, constraints, Join methods & Sub query, Union, Intersection, Built in Functions, View, and Security amongst users, Sequences, indexing object

UNIT–IV

PL/SQL: Introduction to PL/SQL. Cursors – Implicit & Explicit. Procedures, Functions & Packages, Database Triggers.

References/Textbooks:

1. C. J. Date, An Introduction to Database Systems, Pearson Education 2000.
2. F. Korth & Silverschatz, A., Database System Concepts, Tata McGraw Hill, 2010.
3. Elmasri & Navathe, Fundamentals of Database Systems, Addison-Wesley, 2011.
4. B.C.Desai, An Introduction to Database Management System, Galgotia Publication, 1991.
5. Ivan Bayross, SQL, PL/SQL - The Programming Language of Oracle, BPB Publications, 2010.
6. Gurvinder Singh, Parteek Bhatia, Simplified Approach to DBMS, Kalyani Publishers, 2016.
7. Anshuman Sharma, Fundamentals of DBMS, Lakhanpal Publications, 4th Edition.

Note: The latest editions of the books should be followed.

Bachelor of Arts / Bachelor of Science (Computer Science) /

Bachelor of Science (Economics) - Semester–V

Session 2024-25

COURSE CODE: BARM-5134
BCSM-5134
BECM-5134

COMPUTER SCIENCE

(DATA BASE MANAGEMENT SYSTEM)

(PRACTICAL)

Examination Time: (3+3) Hrs.   **Max. Marks: 100**
Theory: 50
Practical: 30
CA: 20

Lab on database management system.

Bachelor of Arts / Bachelor of Science (Computer Science) /

Bachelor of Science (Economics) - Semester–VI

(Session 2024-25)

COURSE CODE: BARM-6134
BCSM-6134
BECM-6134

COMPUTER SCIENCE

(INFORMATION TECHNOLOGY)

Course Outcomes:

After passing course the student will be able to:

CO1: Identify usage of various communication media and internet.

CO2: Acquaint with the usage of various information systems.

CO3: Comprehend digital marketing concepts and content.

CO4: Create and manage YouTube channel and blog.

Bachelor of Arts / Bachelor of Science (Computer Science) /

Bachelor of Science (Economics) Semester–VI

(Session 2024-25)

COURSE CODE: BARM-6134

BCSM-6134

BECM-6134

COMPUTER SCIENCE

(INFORMATION TECHNOLOGY)

(Theory)

Examination Time: (3+3) Hrs.

Max. Marks: 100
Theory: 50
Practical: 30
CA: 20

Instructions for Paper Setter -

Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section. The students can use only Non–programmable & Non–storage type calculator

UNIT-I

Data and Network Communication: Communication media: Twisted pair, Coaxial, Fiber optics, Wireless (Line of Sight and Satellite), Network Advantages, Typesand Topologies, Communication using Network protocol/Network Interface card (NP/NIC), Transmission & Communication protocol/protocol (TCP/IP)

Internet: Internet basics**,** its uses and applications. System Development Process and System development Tools.

UNIT-II

Information Technology: Introduction to IT and its components, Information systems, Components of Computer based information systems. Types of Information systems- TPS, MIS, and DSS.

UNIT-III

Introduction to Digital Marketing: Digital Strategy and Planning, Website marketing tools, Digital content – website, blogs, email, webinars, videos, podcasts, e-zines, PPC advertising.

Social Media and Social Bookmarking: Facebook, Twitter, Pinterest, Instagram,
Search Engine Marketing: Meaning, Working and Search Engine Optimization,

UNIT-IV

YouTube Studio: Navigating studio, Uploading videos, Edit Video settings, Analytics, Copyright and Monetization.

Blog Writing: Blog Domain, choice of CMS, Register a domain or subdomain with a website host.

References/Textbooks:

1. Peter Norton, Introduction to Computers, McGraw Hill (2017), 7th edition.
2. Patrick, G.Mckeown, Living with the Computers, Harcourt College Pub (1990) 3rd edition.
3. Hussain & Hussain, Computer: Technology, Applications & Social Implications, PHI Learning (2006)
4. Behrouz A. Forouzan, Data Communications & Networking, McGraw-Hill Education (2012), 5th edition.
5. Andrew S. Tanenbaum, Computer Network, Prentice Hall (2010), 5th edition.
6. Abraham Silberschatz, Greg Gagne, Peter B. Galvin, Operating System Concepts, Wiley Publishers (2018), 10th edition.
7. Yashavant Kanetkar, Unix Shell Programming, BPB Publications (2003), 1st edition.

Bachelor of Arts / Bachelor of Science (Computer Science) /

Bachelor of Science (Economics) - Semester–VI

Session 2024-25

COURSE CODE: BARM-6134

BCSM-6134

BECM-6134

COMPUTER SCIENCE

(INFORMATION TECHNOLOGY)

(PRACTICAL)

Examination Time: (3+3) Hrs.   **Max. Marks: 100**

Theory: 50

Practical: 30

CA: 20

Lab on Information Technology.

Bachelor of Arts / Bachelor of Science(Economics) Semester I
Session 2024-25
COURSE CODE: BARM-1124
BECM-1124

COMPUTER APPLICATIONS (VOCATIONAL)
(COMPUTER FUNDAMENTALS ANDPC SOFTWARE)

Course Outcomes:

After passing this course the student will be able to:
CO1: comprehend about computer hardware, operating system concepts and various system software.
CO2: Identify various input, output and memory devices.
CO3: Apply office automation software to create professional and academic documents.
CO4: Apply skills to make effective presentations using associated application software.

Bachelor of Arts / Bachelor of Science(Economics) Semester I
Session 2024-25
COURSE CODE: BARM-1124
BECM-1124

COMPUTER APPLICATIONS (VOCATIONAL)
(COMPUTER FUNDAMENTALS AND PC SOFTWARE)
(THEORY)

Examination Time: 3 Hrs.   Max. Marks: 100
                                                                         Theory: 40
L-T-P: 3-0-1   Practical: 30
Credits: 4   CA: 30

Instructions for Paper Setter -
Eight questions of equal marks (08 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT I
Fundamentals of Computer: Introduction to computer, Applications of computer, Components of computers (Input unit, Output Unit, Memory Unit & CPU), type of Software, Translators (compiler, interpreter, assembler), Booting a System.

UNIT II
Input and Output Devices: Keyboards, Mouse, Joystick, Track Ball, Light Pen and Data Scanning devices (scanner, OCR, OMR, MICR, Bar Code Reader, Card Reader), Monitor, Printers (laser printer, dotmatrix printer, ink jet printer).
Memories: Primary Memory-RAM and ROM. **Secondary Memory** - Hard Disk, CD, DVD. Introduction to Windows based operating system and Desktop icons.

UNIT III
Word Processing: Introduction to word, Parts of window of word (Title bar, menu bar, status bar, and ruler), Understanding the Ribbon, Use of Office Button and Quick Access Toolbar, Creation of new documents, opening document, insert a document into another document. Page setup, margins, gutters, font properties, Alignment, page breaks, header & footer, deleting, moving, replace, editing text in document, saving a document, spell checker, printing a document. Creating a table, entering and editing, Text in tables. Changing format of table, height, width of row/column. Editing, deleting Rows, columns in table. Adding picture, page colors and Watermarks, Borders and shading, Templates, wizards, Mail Merge.

UNIT IV

PowerPoint: Introduction to PowerPoint, Exploring menus, starting a new slide, saving presentation, moving/rearranging slides, printing slides. Applying theme to presentation, Views (slide View, slide sorter, notes view, outline view), Formatting & enhancing text formatting. Creating a graph, displaying slide show, adding multimedia. Slide transitions, applying Animation, Timing slide display, adding movies & sounds. Using a pick look Wizards

to change format.

References:

1.   Anshuman Sharma, A book of Fundamentals of Information Technology, Lakhanpal Publishers, 5th Edition.
2.   Prof. Satish Jain, M. Geetha, Kratika, BPB's Office 2010 Course Complete Book, BPB Publications, 2017.
3.   Joyce Cox, Joan Lambert and Curtis Frye, Microsoft office Professional 2010 Step by Step, Microsoft Press, 2010.
4.   V. Rajaraman, NeeharikaAdabala, Fundamentals of Computers, PHI Learning, 2015.
5.   P.K. Sinha, Computer Fundamentals, BPB Publications, 2004.

Note: The latest editions of the books should be followed.

COMPUTER APPLICATIONS (VOCATIONAL)
(COMPUTER FUNDAMENTALS AND PC SOFTWARE)
(PRACTICAL)

Examination Time: 3 Hrs.	**Max. Marks: 100**
	Theory: 40
L-T-P: 3-0-1	**Practical: 30**
Credits: 4	**CA: 30**

Instructions for the examiners: - Two questions of equal marks strictly as per the syllabus and based on the practical exercises covered in the semester. Questions may be subdivided into parts (not exceeding four). Candidates will attempt ONE question, explain their answer by writing on the answer sheet, and then implement the same on the computer. Examiner will evaluate both the answers (theory as well as practical). The viva should also be conducted alongside, and the student is asked viva questions related to the question and the solution he/she is working on during the exam.

Students will prepare a report after analyzing print and social media advertisements along with the local market survey to understand the desktop/laptop vendors and prices. Arrange the options available as per price/performance preferences.

Lab exercises based on:
- Practice the Windows Operating System command line and the GUI for user interaction, personalization, and file management
- Document preparation with Word using the features mentioned in the syllabus
- Presentation preparation with PowerPoint using the features mentioned in the syllabus

Bachelor of Arts / Bachelor of Science (Economicsi) Semester II
(Session 2024-25)
COURSE CODE: BARM-2124
BECM-2124

COMPUTER APPLICATIONS (VOCATIONAL)
(INTRODUCTION TO PROGRAMMING USING PYTHON)

Course Outcomes:

After passing this course the student will be able to:

CO1: Comprehend the working of various programming constructs involved in Python Programming.

CO2: Apply various operators and control sequence of program using various control statements.

CO3: Apply programming concepts such as list, tuples, dictionaries, functions and strings to provide solution in different problem domains.

CO4: Perform debugging and exception handling.

Bachelor of Arts / Bachelor of Science(Economics) Semester II
Session 2024-25
COURSE CODE: BARM-2124
BECM-2124

COMPUTER APPLICATIONS (VOCATIONAL)
(INTRODUCTION TO PROGRAMMING USING PYTHON)

Examination Time: 3 Hrs.   Max. Marks: 100
                                                                                                        Theory: 40
L-T-P: 3-0-1   Practical: 30
Credits: 4   CA: 30

Instructions for Paper Setter -
Eight questions of equal marks (08 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT I

Problem Solving, Problem Analysis, Concept of writing an algorithm, drawing a flowchart, developing a program.
Introduction to Python: Python's features, Story behind the name, Python versions, Execution environments: the Python Interpreter and IDEs (e.g. PyCharm or VSCode), Getting and Setting up Python.
Python program structure: Writing your first "Hello World" program; creating, saving and executing a program; comments, Indentation.

UNIT II

Data and Expressions: Literal Constants, numbers, strings – immutable strings, quotes, the escape sequence, the format methods. Variables and Identifiers, data-types, object,

Operators & Expressions: shortcuts, evaluation order, Boolean Expressions (Conditions), Logical Operators. User Input/output.

Control Flow: Selection Control, Nested conditions, Loops, break and Continue Statements, Data Structures: list, tuple, dictionary and set; basic operations e.g. creating, indexing, slicing, membership

UNIT III

Functions: defining and calling functions, passing and returning values, local and global variables, recursive functions, Iteration vs. Recursion.
Modules: purpose and usage, the import statement, from – import statement, the __main__ attribute, creating a module and importing, the dir() function.
Handling Exceptions: try..catch and with statements, errors, debugging.

UNIT IV

Files and Strings: Opening Files, Using Text Files, Reading files, Writing files, Understanding read functions, Understanding write functions.
Introduction to numpy and pandas for data processing.

References:

1. Yashavant Kanetkar, Aditya Kanetkar, Let Us Python-6th Edition, BPB Publications.
2. Charles Dierbach, Introduction to Computer Science Using Python: A Computational Problem-Solving Focus, Wiley Publications.
3. Martin C. Brown, Python: The Complete Reference, Indian Edition, McGraw Hill Education (India) Private Limited
4. Mark J. Guzdial, Introduction to Computing and Programming in Python, Pearson Education.

Note: The latest editions of the books should be followed.

Bachelor of Arts / Bachelor of Science(Economics) Semester II
Session 2024-25
COURSE CODE: BARM-2124
BECM-2124

COMPUTER APPLICATIONS (VOCATIONAL)
(INTRODUCTION TO PROGRAMMING USING PYTHON) (PRACTICAL)

Examination Time: 3 Hrs.	**Max. Marks: 100**
	Theory: 40
L-T-P: 3-0-1	**Practical: 30**
Credits: 4	**CA: 30**

Instructions for the examiners: - Two questions of equal marks strictly as per the syllabus and based on the practical exercises covered in the semester. Questions may be subdivided into parts (not exceeding four). Candidates will attempt ONE question, explain their answer by writing on the answer sheet, and then implement the same on the computer. Examiner will evaluate both the answers (theory as well as practical). The viva should also be conducted alongside, and the student is asked viva questions related to the question and the solution he/she is working on during the exam.

Programming exercises based on:

- Use the Python interactive interpreter
- Getting familiar with a Python IDE
- Python fundamentals, data types, operators
- Operators, flow control using if, else and elif, While statement, loops using For, Loop Patterns
- Implementation of different collections like list, tuple and dictionary and their various functions
- Demonstrating creation of functions, passing parameters and return values
- Working with modules
- Handling Exceptions
- Implementation of reading, writing and organizing files
- Basic numpy and pandas functions

Bachelor of Arts / Bachelor of Science(Economics) Semester III
Session 2024-25
COURSE CODE: BARM-3124
BECM-3124

COMPUTER APPLICATIONS (VOCATIONAL)
(OPERATING SYSTEM)

Course Outcomes:
After passing this course the student will be able to:
CO1: Describe, contrast and compare different types of Operating System.
CO2: Analyze CPU scheduling and memory management policies.
CO3: Comprehend about deadlock along with its prevention and detection.
CO4: Apply commands to perform various tasks in Linux operating system.

Bachelor of Arts / Bachelor of Science(Economics) Semester III
Session 2024-25
COURSE CODE: BARM-3124
BECM-3124

COMPUTER APPLICATIONS (VOCATIONAL)
(OPERATING SYSTEM)
(THEORY)

Examination Time: 3 +3 Hrs.	**Max. Marks: 100**
	Theory: 50
L-T-P: 3-0-1	**Practical:30**
Credits: 4	**CA: 20**

Instructions for Paper Setter -
Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT–I

Introduction to Operating System, Types of Operating systems: Multiuser, Multitasking and Multiprogramming, Functions of Operating System, Booting a System, Language Processors: Compiler, Assembler, Interpreter, Linker and Loader.

UNIT-II

CPU Scheduling: Basic concepts, Scheduling Algorithms, Evaluation: Turnaround Time, Waiting Time.

Memory Management: Logical address space and physical address space, schemes.

Introduction to File Management, I/O Device Management, Data Management.

UNIT-III

Deadlocks: System Model, Deadlock characterization, Methods for handing deadlocks, Deadlocks Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock, Approach to Deadlock handling.

UNIT–IV

Linux: Introduction, Features, Architecture of linux (Kernel, Shell)
Linux Commands: cat, cd, chmod, chown,cp, ls, mkdir, mv, rmdir, rm,mv, sort, ln,df, echo, exit, find, free, whoami, grep ,cal, who, pwd.
Introduction to Vi Editor, **commands:** opening, inserting, modifying, deleting and saving files.
References:
1. AviSilberschatz, Peter Baer Galvin, Greg Gagne, Operating System Concepts, Wiley, 2013.

2. Charles Crowley, Operating Systems: A Design-Oriented Approach, Tata McGraw Hill, 2001.

3. Deitel, An Introduction to Operating Systems, Second Edition, Addison Wesley, 1990.

4. William Stallings, Operating Systems: Internals and Design Principles, Pearson Education Limited, 2014.

5. Anshuman Sharma, Fundamentals of Operating System, Lakhanpal Publishers, 2nd Edition.

Note: The latest editions of the books should be followed.

Bachelor of Arts / Bachelor of Science(Economics) Semester III
Session 2024-25
COURSE CODE: BARM-3124
BECM-3124

COMPUTER APPLICATIONS (VOCATIONAL)
(OPERATING SYSTEM)
(PRACTICAL)

Examination Time: 3 +3 Hrs.   **Max. Marks: 100**
                                                                                                Theory: 50
L-T-P: 3-0-1   **Practical:30**
Credits: 4   **CA: 20**

Practical based on Operating System.

Bachelor of Arts / Bachelor of Science(Economics) Semester IV
(Session 2024-25)
COURSE CODE: BARM-4124
BECM-4124

COMPUTER APPLICATIONS (VOCATIONAL)
(RELATIONAL DATA BASE MANAGEMENT SYSTEMS)

Course Outcomes:

After passing this course the student will be able to:

CO1: Illustrate the concept of data models, database normalization along with its various forms.

CO2: Apply SQL to design basic to intermediate level of databases.

CO3: Apply various built-in functions for formatting of data.

CO4: Comprehend the concept of PL/SQL and its relationship with SQL.

Bachelor of Arts / Bachelor of Science(Economics) Semester IV
(Session 2024-25)
COURSE CODE: BARM-4124
BECM-4124

COMPUTER APPLICATIONS (VOCATIONAL)
(RELATIONAL DATA BASE MANAGEMENT SYSTEMS)
(THEORY)

Examination Time: 3 +3 Hrs.	**Max. Marks: 100**
	Theory: 50
L-T-P: 3-0-1	**Practical:30**
Credits: 4	**CA: 20**

Instructions for Paper Setter -
Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT–I
Basic Concepts: An overview of Database Management, (database, database system, why database). An architecture for a database system (levels of the architecture, mapping, data independence), DBA, Definition of CODD's Rules.
Normalization of Data: First, Second and Third Normal form, **Database Models:** Hierarchical, Network, Relational, Introduction to Relational database systems.
UNIT II

ORACLE: Introduction to Oracle, **Data Types:** Char, numbers, varchar, varchar2, date, long.

DDL Commands of SQL: Create Tables, Constraints, Alter Table, Drop Table, Rename.

Data Manipulation Language: Insert Into, Update Statement, Delete Statement, Select statement (Select distinct, Select from where, Select from where order by, Select group by clause, Select Group by having clause).

Transaction Control Language: Rollback, Savepoint, Commit.

UNIT III

Built in Functions- Aggregate Functions (Sum, Avg, max, min, count), Character Functions (Lower, Upper, Length, Substr, RPAD, LPAD), Arithmetic Functions (Round, Trunc, Sqrt, Mod, Abs, Sine) Date and Time Functions and Other Miscellaneous Functions (Add-months, Month-between, NVL, NVL2, decode) & Conversion Functions (to-char,to-number, to-date).

Join methods and Sub query, Union, Intersection, Minus, Views.

UNIT IV
PL/SQL: Introduction to PL/SQL, Relationship between SQL & PL/SQL, Advantages, block

structure, Valuable and Constant declaration, Declaration using variable attributes - %type, %rowtype, control statements.

References:

1.   Silberschatz, Korth&Sudarshan, Database Systems Concepts, McGraw-Hill Inc.(2020), 7th edition.
2.   C.J. Date, An Introduction of Database System, Addison-Wesley Publishing co. (2003), 8th edition.
3.   Anshuman Sharma, Fundamentals of DBMS, Lakhanpal Publishers (2016), 4th edition.
4.   Ivan Bayross, SQL/PL/SQL. The Programming Language of Oracle, BPB Publications(2010), 4th edition.
5.   RamezElmasri and ShamkantNavathe, Fundamentals of Database Systems, Pearson Education (2015), 7th edition.
6.   P.S. Gill, Database Management Systems, Dreamtech Press (2019), 2th edition.

Bachelor of Arts / Bachelor of Science(Economics) Semester IV
(Session 2024-25)
COURSE CODE: BARM-4124
BECM-4124
COMPUTER APPLICATIONS (VOCATIONAL)
(RELATIONAL DATA BASE MANAGEMENT SYSTEMS)
(PRACTICAL)

Examination Time: 3 +3 Hrs.   **Max. Marks: 100**
                                                                              Theory: 50
L-T-P: 3-0-1   **Practical:30**
Credits: 4   **CA: 20**

Practical on Relational Data Base Management System .

Bachelor of Arts / Bachelor of Science(Economics) Semester V
Session 2024-25
COURSE CODE: BARM-5124
BECM-5124

COMPUTER APPLICATIONS (VOCATIONAL)
(INTERNET AND WEB DESIGNING)

Course Outcomes:
After passing course the student will be able to:
CO1: Comprehend basics of internet and email along with their effective use.
CO2: Apply HTML for development of static webpages.
CO3: Implement styling in webpages through the use of CSS.
CO4: Apply JavaScript code for interaction with content of webpages.

Bachelor of Arts / Bachelor of Science(Economics) Semester V
Session 2024-25
COURSE CODE: BARM-5124
BECM-5124

COMPUTER APPLICATIONS (VOCATIONAL)
(INTERNET AND WEB DESIGNING)
(THEORY)

Examination Time: (3+3) Hrs.

Max. Marks: 100
Theory: 50
Practical: 30
CA: 20

Instructions for the Paper Setters: –
Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT – I
Internet: Introduction, its evolution, working, IP Address, DNS and its classification, working of DNS, Advantages, Disadvantages and Uses of Internet.
E–Mail: Introduction, its working, E-mail protocols: SMTP, POP, IMAP, Structure of E-mail.
HTTP: HTTP Protocol and its structure. **WWW:** Introduction and its working, **TCP/IP,** Browser Architecture. **FTP:** Introduction and its working**.**

UNIT – II
HTML: Introduction, Features, Advantages and Limitations, Program Structure, Headings, Paragraph, Styling, Formatting, Hyperlink, Image, Table, List, Frame, Entities, Form, Form elements.

UNIT-III
CSS: Introduction, Advantages and Limitations, types, selector, colors, background, box model, text, font, display, position, z-index, float, clear, rounded corners.

UNIT-IV
JavaScript: Basics, Features, Advantages, Limitations, Types, Basics, Functions, Control Statement, Arrays, JavaScript objects, Host objects.
DOM: Introduction, Methods, Accessing HTML and CSS, Events, Event Listener, Nodes and Collection.
BOM: Window, Screen, History, Navigation.

References / Textbooks:

1. Anshuman Sharma, Fundamentals of Internaet Applications, Lakhanpal Publications, 2016.

2. Ikvinderpal Singh, Internet Applications, Khanna Book Publishing Company, 1st Edition, 2011

3. P. Rizwan Ahmed, Internet & its Applications, Margham Publications, 2013.

4. Douglas E. Corner, Computer Networks and Internet with Internet Applications, Pearson, 4th Edition, 2008.

5. Satish Jain/Vineeta Pillai, Wireless Communication & Networking made Simple, BPB Publishers, 2007.

6. Laura Lerney, Rafe Colburn, Jennifer Kyrnin, Mastering HTML, CSS & Javascript Web Publishing, BPB Publishers, 1st Edition, 2016.

Note: The latest editions of the books should be followed.

Bachelor of Arts / Bachelor of Science(Economics) Semester V
Session 2024-25
COURSE CODE: BARM-5124
BECM-5124

COMPUTER APPLICATIONS (VOCATIONAL)
(INTERNET AND WEB DESIGNING)
(PRACTICAL)

Examination Time: (3+3) Hrs.   **Max. Marks: 100**
Theory: 50
Practical: 30
CA: 20

Practical on Internet and Web Designing.

Bachelor of Arts / Bachelor of Science(Economics) Semester VI
(Session 2024-25)
COURSE CODE: BARM-6124
BECM-6124

COMPUTER APPLICATIONS (VOCATIONAL)
(BUSINESS DATA PROCESSING)

Course Outcomes:
After passing course the student will be able to:
CO1: Identify the impact of data and information on working of various organizations.
CO2: Comprehend different types of Data Processing Methods and File Processing techniques.
CO3: Create, edit, save, format and print spreadsheets.
CO4: Apply function and formulas in spreadsheets for data processing.

Bachelor of Arts / Bachelor of Science(Economics) Semester VI
(Session 2024-25)
COURSE CODE: BARM-6124
BECM-6124

COMPUTER APPLICATIONS (VOCATIONAL)
(BUSINESS DATA PROCESSING)

Examination Time: (3+3) Hrs.   Max. Marks: 100
                                                                                                    Theory: 50
                                                                                                    Practical: 30
                                                                                                    CA: 20

Instructions for the Paper Setters:–
Eight questions of equal marks (10 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT–I
Introduction to Data Processing, Need of Computers in Business.
Characteristics of Business Organization and Use of computers in various work areas of business like: Payroll System, Inventory Control, Online Reservation, Computer in Banks and Computer Application in Educational Institutions.

UNIT–II
Data Processing Methods: Batch Processing, Online Systems, Time Sharing, Real Time Systems and Distributed Processing.
File Organization: Types of Files (Master, Transaction, Work, Backup, Audit Files), File Organization (Serial, Sequential, Indexed Sequential, Direct Assess Files).

UNIT–III
Spreadsheets : Introduction, Worksheet, Data Entry, Editing, Cell Addressing Range, Copying and Moving Cell Content, Inserting and Deleting Rows and Column, Column Formats, Printing, Creating, displaying charts, Create, manage, and format pivot tables and pivot charts. Printing the Worksheet.

UNIT–IV

Working with functions - Date and time function, Statistical function, Mathematical and Trigonometric functions, Text function, Logical functions, other computations, using data analytics tools and what if analysis- data sort, fill, query, filter etc.

References / Textbooks:

1. Murdick& Ross, Introduction to Management Information Systems, Prentice Hall (1977).

2. Muneesh Kumar, Business Information Systems, Vikas Publishing (1998), 1st edition.

3. Silberschatz, Korth&Sudarshan, Database Systems Concepts, McGraw-Hill Inc.(2020), 7th edition.

4. Anshuman Sharma, Fundamentals of DBMS, Lakhanpal Publishers (2016), 4th edition.

5. Rachhpal Singh, Gurvinder Singh, Windows based computer courses, Kalyani Publishers (2011).

6. Peter Norton, Introduction to Computers, McGraw Hill Education (2017), 7th edition.

Bachelor of Arts / Bachelor of Science(Economics) Semester VI
Session 2024-25
COURSE CODE: BARM-6124
BECM-6124

COMPUTER APPLICATIONS (VOCATIONAL)
(BUSINESS DATA PROCESSING)

Examination Time: (3+3) Hrs.   **Max. Marks: 100**
                                                      Theory: 50
                                                    Practical: 30
                                                         CA: 20

Practical on business data processing.

Bachelor of Commerce Semester – I
(Session 2024-25)
Course Code: BCRM–1120
COMPUTER APPLICATIONS IN BUSINESS

COURSE OUTCOMES:

After passing this course the student will be able to:

CO1: Comprehend about storage devices used in computer along with applications of computer.

CO2: Create, open, edit, format, save and print documents.

CO3: Manage tables in document and apply formulae in a spreadsheet.

CO4: Utilize spreadsheet application for data organization and manipulation through features like sort, filter, graphs, etc.

Bachelor of Commerce Semester – I
(Session 2024-25)
Course Code: BCRM–1120
COMPUTER APPLICATIONS IN BUSINESS
(Theory)

Examination Time: (3+3) Hours   **Max. Marks: 100**
                                                              Theory: 40
L-T-P: 2-0-1   **Practical: 30**
Credit: 3   **CA: 30**

Instructions for the Paper Setters:-
Eight questions of equal marks (08 Marks) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

Section A

Basic Concepts: Characteristics of a Computer; Advantages of Computers; Limitation of Computers; Types of Computers; Applications of computers, Hardware, Firmware, Liveware; Software; System Software: Operating system, Translators, interpreter, compiler; Overview of operating system, function of operating system; Application software: General Purpose PackagedSoftware and tailor-made software.

Section B

Word Processing: Introduction to word-Processing, Word-processing concepts, Use of Templatesand styles, working with word document: Editing text, Find and replace text, Formatting, spell check, Autocorrect, Auto-text; Bullets and numbering, Tabs, Paragraph Formatting, Indent, Page Formatting, Header and footer, page break, table of contents
Tables: Inserting, filling and formatting a table; Inserting Pictures and Video; Mail Merge (including linking with spreadsheet files as data source); Printing documents; Citations, referencesand Footnotes.

Section C

Preparing Presentations: Basics of presentations: Slides, Fonts, Drawing, editing; Inserting: Tables, Images, texts, Symbols, hyperlinking, Media; Design; Transition; Animation; and Slideshow, exporting presentations as pdf handouts and videos.

Section D

Spreadsheet basics: Spreadsheet concepts; Creating a work book, saving a work book, editing a work book, inserting, deleting work sheets, entering data in a cell, formula Copying, moving data from selected cells, Handling operators in formulae: Inserting Charts- LINE, PIE, BAR, Organizing Charts and graphs; Spreadsheet functions: Mathematical, Statistical, Financial, Logical, Date and Time.

Suggested Readings:
1. Jain, H. C. & Tiwari, H. N. ―Computer Applications in Business‖ Taxmann, Delhi.
2. Joseph, P.T., S.J. E-Commerce: An Indian Perspective, 6th ed. PHI Learning
3. Mathur, S. & Jain, P. ―Computer Applications in Business‖ Galgotia Publishing Company
4. Madan, S. ―Computer Applications in Business‖ Scholar Tech Press, Delhi.
5. Sharma, S.K. & Bansal, M. ―Computer Applications in Business‖ Taxmann, Delhi.
6. Thareja R (2019). Fundamentals of Computers. Oxford University Press.
7. Thareja R (2018). IT & Its Business Application. Oxford University Press.

Note: Latest edition of text books to be followed.

Bachelor of Business Administration Hons. (Semester – I) /
Bachelor of Business Administration (Honours) – Airlines and Airport Management Semester
I
(Session 2024-25)
COURSE CODE: BBRM-1120/ BBMM-1120
COMPUTER APPLICATIONS FOR BUSINESS

COURSE OUTCOMES

After passing this course the student will be able to:

CO1: Comprehend the basic knowledge of computer, its components, Input/Output and memory devices of computer.

CO2: Articulate various internal and external commands used in Disk Operating System.

CO3: Apply word processing software to create, edit and format documents.

CO4: Manage spreadsheets and presentations using associated application software.

Examination Time: 3+3 Hours   **Max. Marks: 100**
                                                                                          Theory:40
L-T-P   **Practical: 30**
2-0-1   **CA:30**

Instructions for Paper Setter -
Eight questions of equal marks (08 Marks) are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT- I
Computer Fundamentals: Definition of computer, Components of a computer system,
Brief history of evolution of computers and generation of computers.
Internal and External Memory Storage: RAM, ROM, PROM, EPROM. Commonly used
Input / Output/Memory storage devices: Punched Card, VDU, CRT. Difference between Hardware & Software. Types of software system. Software & Application software, Interpreter.

UNIT-II
Operating System: Definition, Types of operating on the Basis of processing. Introduction to various types of operating system such as windows & DOS Overview and Anatomy of windows, Working with files and folder in windows. Basic Commands of Internal & External commands in DOS.

UNIT-III
Word Processor: Overview, Creating, Saving, Opening, Importing, Exporting and Inserting files. Formatting pages, paragraphs and sections. Indents and outdates. Creating lists and numbering. Heading Styles, Fonts and size editing, positioning& viewing text. Finding and replacing text, inserting page breaks, page numbers, book marks, symbols & dates. Using tabs and tables Header, Footer & Printings.

UNIT-IV
Spreadsheet: Worksheet overview. Entering information. Worksheet. Opening and saving workbook. Formatting number and texts. Protecting cells. Producing Charges and printing operations graphs.

Presentation: Presentation Basics Menus and Toolbars, Opening and saving and existing presentation creating and saving a presentation using auto content wizard. Design Template Blank Presentation. The slides sorter view. Insert slides from another presentation. Inserting pictures and graphics. Slide

show, printing, slides.

References:

1. Peter Norton, Introduction to Computers, Tata McGraw-Hill, 2006.
2. Sanjay Sexana, A First Course in Computers, Vikas Publishing House, New Delhi, 2015.
3. V. Rajaraman, Neeharika Adabala, Fundamentals of Computers, PHI Learning, 2015.
4. Dr. S.S Srivastava., MS-Office, Firewal Media, New Delhi, 2008.
5. Anshuman Sharma, A book of Fundamentals of Information Technology, Lakhanpal Publishers, 5th Edition.

Note: The latest editions of the books should be followed.

Bachelor of Science (Honours) Home Science Semester I
Session 2024-25
Course Code: BHSM - 1127
COMPUTER BASICS
(Theory)

Course Outcomes:
After passing this course the students will be able to:
CO1: Identify and manage software, hardware and graphical user interface of a computer system.
CO2: Comprehend basic word processing skills such as text input formatting, editing, cut, copy, paste, spell check, margin, tab controls, keyboard shortcuts, printing, charts etc.
CO3: Apply skills to make effective presentations using associated application software.
CO4: Operate an email account.

Bachelor of Science (Honours) Home Science Semester I
Session 2024-25
COURSE CODE: BHSM - 1127
COMPUTER BASICS
(Theory)

Examination Time: (3+3) Hours   **Max. Marks: 100**
L-T-P: 2-0-1   **Theory: 40**
Credit: 3   **Practical: 30**
                                                                                      CA: 30

Instructions for Paper Setter -
- Eight questions of equal marks (8 marks each) are to be set, two in each of the four Sections (A-D).
- Questions of Sections A-D should be set from Units I-IV of the syllabus respectively.
- Questions may be subdivided into parts (not exceeding four).
- Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT -I

Introduction to computer and its characteristic:
Introduction to computer, Applications of computer, Types of Computers, Components of computers (Input unit, Output Unit, Memory Unit & CPU), input devices (Keyboard, Mouse, Joystick), output devices (Monitor, Printers), memory devices -RAM & ROM, software and its types, working with windows, features, desktop, using context menu, creating shortcut, working with dialog box, arranging windows, setting properties of desktop.

UNIT -II
Word Processing: Opening document, editing, formatting, use of fonts, styles and colors, exiting document. Inserting pictures from a file, inserting a Table or a chart. Copying from one document to other, using headers and footers on a document.

UNIT- III
Presentation: Presentation and its features, components, viewing a slide show using blank presentation adding text, saving, closing, opening the presentation, viewing presentation, normal view, Outline view, slide sorter view, slide show, creating a wizard using presentation, editing presentations, adding new slide, changing the new slides, editing text type, deleting the text object, interesting text boxes, formatting text, modifying slides, working with slide outlines, moving objects , copying objects, searching text, replacing text, spell check, using clip art, word Art, auto shapes.

UNIT-IV
Internet and E-mail: What is Internet, types of internet connectivity, internet service provider (ISP), Surfing Net, moving about the Web, WWW and its working, E-Mail, its features, creating and E-Mail message, Reading Mail, replying mail, draft message, sending mail.

References / Textbooks:

1. Anshuman Sharma, Fundamentals of Information Technology, Lakhanpal Publishers, 5th Edition.
2. Rachhpal Singh & Gurvinder Singh, Windows based computer courses, Kalyani Publisher, 2014.
3. Peter Norton, Introduction to Computers, Tata McGraw-Hill, 2006.
4. P.K. Sinha, Computer Fundamentals, BPB Publications, 2004.
5. Prof. Satish Jain, M. Geetha, Kratika, BPB's Office 2010 Course Complete Book, BPB Publications, 2017.

Note: The latest editions of the books should be followed.

Bachelor of Science (Honours) Home Science Semester I
Session 2024-25

COURSE CODE: BHSM - 1127

COMPUTER BASICS (PRACTICAL)

Examination Time: (3+3) Hours   **Max. Marks: 100**
L-T-P: 2-0-1   **Theory: 40**
Credit: 3   **Practical: 30**
                                                                   CA: 30

Practical on Computer Basics.

Bachelor of Science (Honours) Home Science Semester II
(Session 2024-25)

COURSE CODE: BHSM - 2127
COMPUTER APPLICATIONS FOR HOME SCIENTISTS

Course Outcomes:
After passing this course the students will able to:
CO1: Apply features of spreadsheet software for data manipulation, data entry, worksheet formatting, functions and formulae.
CO2: Comprehend the basics of E-Commerce and World Wide Web.
CO3: Comprehend abut different electronic payment methods and multimedia devices.
CO4: Create and manage YouTube channel and blog.

Bachelor of Science (Honours) Home Science Semester II
(Session 2024-25)
COURSE CODE: BHSM - 2127
COMPUTER APPLICATIONS FOR HOME SCIENTISTS
(Theory)

Examination Time: (3+3) Hours	**Max. Marks: 100**
L-T-P: 2-0-1	**Theory: 40**
Credit: 3	**Practical: 30**
	CA: 30

Instructions for Paper Setter -

Eight questions of equal marks (8 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT-I
Spreadsheet Software: Workbook and worksheet, entering data, editing cell contents, Inserting and deleting rows, column, using auto-fill, creating list, formatting data, using formula
Internet: Introduction to internet, searching information on internet.

UNIT-II
WWW: Introduction, working of WWW, Web browsing (opening, viewing, saving and printing a web page and bookmark).

E-Commerce: Basics, Architecture, Types, Applications.

UNIT-III
Payment gateway: Popular payment methods (Net-banking, m-Banking, UPI, Debit/Credit Card, Mobile Wallets)
Multimedia & its Applications: Introduction to Multimedia and its usage, record sound using devices, using scanner, Web Camera.

UNIT IV
YouTube Studio: Navigating studio, Uploading videos, Edit Video settings, Analytics, Copyright and Monetization.
Blog Writing: Blog Domain, choice of CMS, Register a domain or subdomain with a website host.
Social Media Marketing: Social Media, Importance of Social Media, SMO Strategy for Business, Business Profile Creation, Viral Marketing, Application of Facebook and Twitter for social media marketing.

References/Textbooks:

1. Prof. Satish Jain, M. Geetha, Kratika, BPB's Office 2010 Course Complete Book, BPB Publications (2017).

2. Rachhpal Singh, Gurvinder Singh, Windows based computer courses, Kalyani Publishers (2011).
3. Anshuman Sharma, A book of Fundamentals of Information Technology, Lakhanpal Publishers (2016), 5th ed.
4. Ramesh Bangia, Introduction To Multimedia, Laxmi Publications Pvt. Ltd.(2015).
5. Laudon, E-Commerce, Pearson Education India (2016), 10th ed.
6. https://www.tutorialspoint.com/social_media_marketing/
7. https://blog.hubspot.com/marketing/how-to-start-a-blog

Bachelor of Science (Honours) Home Science Semester II
(Session 2024-25)
Course Code: BHSM - 2127
COMPUTER APPLICATIONS FOR HOME SCIENTISTS
(Practical)

Examination Time: (3+3) Hours   **Max. Marks: 100**
 L-T-P: 2-0-1   **Theory: 40**
 Credit: 3   **Practical: 30**
                                                                           CA: 30

Note: Paper will be set on the spot by the examiner.
1) Microsoft Excel
2) Searching on Internet
3) Multimedia Usage
4) YouTube and Blog

MASTER OF SCIENCE (MATHEMATICS) – FYIP SEMESTER–I

Session 2024-25
Course Code: FMAM-1130
Programming Language - I

Course Outcome:

After passing course the student will be able to:
CO1: Articulate various kind of software and hardware used in computers.
CO2: Work with different set of operations in C programming.
CO3: Apply various control statements of C Programming Language for designing solutions to different real world problems.
CO4: Implement single and multidimensional arrays for representing complex data collections.

MASTER OF SCIENCE (MATHEMATICS) – FYIP SEMESTER–I

Session 2024-25
Course Code: FMAM-1130
Programming Language - I

Examination Time: 3 Hours	**Max. Marks: 100**
	Theory: 40
L-T-P: 3-0-1	**Practical: 30**
Credit: 4	**CA: 30**

Instructions for the Paper Setters:
Eight questions of equal marks (08 Marks each) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

UNIT-I

Introduction to Computer Programming, Program Development life cycle, algorithms, flow chart, decision table & pseudo code.

UNIT-II

Introduction to C language, data types, Operators and Expression, Input/output Functions, Structured programming elements, Control statements: Branching, Jumping, Looping Arrays.

UNIT-III

Pointers, Functions: Inbuilt Functions, User defined Functions, Recursion, Storage Classes in C, dynamic memory management.

UNIT-IV

Strings, Structure and union, Reference variables, basics of searching and sorting techniques, file handling in C

References / Textbooks:

1. E. Balagurusamy, Programming in ANSI C, Tata McGraw-Hill (2002), 5th edition.
2. Stephen G. Kochan, Programming in C, Pearson Education (2015), 4th edition.
3. R.S. Salari, Application Programming in C, Khanna Book Publishing (2012), 4th edition.
4. Anshuman Sharma, Learn programming in C, Lakhanpal Publishers (2016), 7th edition.

MASTER OF SCIENCE (MATHEMATICS) – FYIP SEMESTER–I

Session 2024-25
Course Code: FMAM-1130
Programming Laboratory - I

Examination Time: 3 Hours   **Max. Marks: 100**
                                                        Theory: 40
L-T-P: 3-0-1   **Practical: 30**
Credit: 4   **CA: 30**

Development of Computer Programs using C language for:

- Separation of odd and even numbers
- Summation of N Natural numbers
- Generating Fibonacci series
- Roots of quadratic and Cubic equations
- Evaluating various mathematical functions: $\exp(x)$, $\log(x)$, $\sin(x)$, $\cos(x)$ etc using Taylor series expansion
- Arranging numbers in ascending and descending orders
- Finding maximum/minimum of numbers, for matrix operations, determinants, and inverse of 3x3 matrix, elementary numerical methods and statistical methods.

MASTER OF SCIENCE (MATHEMATICS) – FYIP SEMESTER–II

Session 2024-25
Course Code: FMAM-2135
Object Oriented Programming C++

Course Outcomes:

After the completion of this course, the student will be able to:

CO1: Comprehend the concepts of Object-Oriented Programming Paradigm.

CO2: Identify the use of access specifiers and different types of constructors in class.

CO3: Apply function and operator overloading.

CO4: Comprehend different types of inheritance and polymorphism.

MASTER OF SCIENCE (MATHEMATICS) – FYIP SEMESTER–II

Session 2024-25
Course Code: FMAM-2135
Object Oriented Programming C++

Examination Time: 3 Hours   **Max. Marks: 100**
                                                                Theory: 40
L-T-P: 3-0-1   **Practical: 30**
Credit: 4   **CA: 30**

Instructions for the Paper Setters:
Eight questions of equal marks (08 Marks each) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

UNIT–I

Getting Started: Introduction. A brief history of C++, Variable, Constant, Expression, Statements, Comments and keywords of C++.

Operator: Arithmetic, Relational, Logical, Assignment, Increment/Decrement, Conditional, Precedence of Operators. Data type, Type conversion, library function.

Input/ Output Statements: Inputting using cin and out putting using cout statements, Preprocessor directives.

Basic Program construction: A complete C++ program: invoking Turbo C++, naming your program, usingthe editor, saving your program, compiling and linking, running the program Errors: Compiler, linker and runtime.

Other IDE features: Compiling and linking, shortcut exiting from IDE, examining files, opening an existing file, DOS shell.

UNIT–II

Programming Paradigms: Introduction to the object oriented approach towards programming by discussing Traditional, Structured Programming methodology.

Objects & Classes: Object Definition, Instance, Encapsulation, Data Hiding, Abstraction, Inheritance, Messages, Method, Polymorphism, Classes.

Object Oriented Programming using C++: Characteristics of OOP, Overview of C++, Objects and Classes, Member functions and data, private & public, constructor & destructor, Constructor Overloading, Types of Constructors.

UNIT-III

Operator Overloading: Overloading unary operators, Overloading binary operators, Data conversion, Pit-falls operator overloading and conversion.

Function Overloading: Function Overloading, Default Arguments, Ambiguity in Function Overloading.

UNIT–IV

Inheritance: Concept of inheritance, Base & derived classes, Access Specifiers, Class Hierarchies, Types of Inheritance with examples.

Polymorphism: Virtual functions, friend functions, static function, this pointer, polymorphism, Types of Polymorphism with examples, Templates

References / Textbooks:

1. Herbertt Schildt, C++: The Complete Reference, Tata McGraw-Hill Education India, 4th Edition.
2. Bjarne Stroustrup, The C++ Programming Language, Addison – Wesley Professional (2013), 4th Edition
3. G.S. Baluja, C++ Program Design (w/CD), Khanna Book Publishing Company (2015), 2nd edition.
4. Stanley Lippman, Josee Lajoie, Barbara Moo, C++ Primer, Addison-Wesley Professional (2012), 5th edition.
5. Richard Johnsonbaugh and Martin Kalin, Object Oriented Programming in C++, Pearson Education (1999), 2nd Edition

MASTER OF SCIENCE (MATHEMATICS) – FYIP SEMESTER–I

Session 2024-25
Course Code: FMAM-2135
Programming Laboratory - II

Examination Time: 3 Hours   **Max. Marks: 100**
                                                                                    Theory: 40
L-T-P: 3-0-1   **Practical: 30**
Credit: 4   **CA: 30**

Lab based on Object Oriented Programming C++ (FMAL-2135)

MASTER OF SCIENCE (MATHEMATICS) – FYIP
SEMESTER III
Session 2024-25
PYTHON PROGRAMMING
Course Code: FMAM- 3135

Course Outcomes:

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

CO1: Comprehend basics of Python programming like operators, data types, I/O, etc.
CO2: Apply various control statements of Python Programming Language for designing solutions to different real world problems.
CO3: Implement various built-in and user defined function, packages and modules to solve mathematical problems.
CO4: Apply different matrix operations using NumPy and perform file manipulations.

MASTER OF SCIENCE (MATHEMATICS) – FYIP
SEMESTER III
Session 2024-25
PYTHON PROGRAMMING
Course Code: FMAM- 3135

Examination Time: (3+3) Hours

L   T   P
3   0   1

Max. Marks: 100
Theory: 50
Practical: 30
CA: 20

Instructions for the Paper Setters:

Eight questions of equal marks (10 marks each), (Specified in the syllabus) are to be set, two in each of the four Sections (A-D). Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each Section. The fifth question may be attempted from any Section.

UNIT I

Introduction to python and Setting up the Python development Environment, Basic syntax, interactive shell, editing, saving, and running a script, Concept of data types, Declaring and using Numeric data types: int, float, complex Lists and Tuples and their basic operations, Python console Input / Output. Arithmetic operators and expressions, Conditions, Comparison operators, Logical Operators, Is and In operators.

UNIT II

Calculation of area, surface area and volume of geometrical objects. String Handling, Unicode strings, Strings Manipulation: - compare strings, concatenation of strings, slicing strings in python, converting strings to numbers and vice versa. Dictionaries Control statements: if-else, Nested If-Else, Loops (for, while) Loop manipulation using pass, continue, break and else.

UNIT III

Built in function and modules in python, user defined functions, passing parameters, arguments and return values; formal vs actual arguments, Lamda function in python, Recursion, organizing python codes using functions, modules and external packages.

Math Module: Constants, Arithmetic functions, Power functions, Logarithmic functions, Trigonometric and Angular functions.

UNIT IV

Matrix operations using NumPy array (Multiplication. Addition, matrix multiplication, inverse, determinant, adjoint, Eigenvalues, etc).
Files: manipulating files and directories, OS and Sys modules; creating and reading a geometric file (csv or tab separated) understanding read functions, read(), readline() and readlines(), Understanding write functions, write() and writelines(), Manipulating file pointer using seek. Introduction to graphic. **Plotting graphs and objects.**

References / Textbooks:

1. Mark Lutz, Learning Python, O'Reilly Media, 2013.
2. David Beazley, Python cookbook, O'Reilly Media, 2013.
3. David Beazley, Python Essential Reference, Addison-Wesley Professional, 2009.
4. John Zelle, Python programming: An Introduction to Computer Science, Franklin, Beedle & Associates Inc, 2004.
5. Alex Mortelli, Python in a Nutshell, O'Reilly Media, 2006.

Note: The latest editions of the books should be followed.

MASTER OF SCIENCE (MATHEMATICS) – FYIP
SEMESTER IV
Session 2024-25
COURSE CODE: FMAM-4135
FOUNDATION OF STATISTICAL COMPUTING

Course Outcomes:

After passing this course the student will be able to:
CO1: Comprehend basics of Statistical Computing and managing data structures like vector, matrix, etc.
CO2: Create, operate and manage lists and data frames.
CO3: Apply control and I/O statements for generating outputs.
CO4: Simulate various descriptive and analytical algorithms using R language along with their visualization.

MASTER OF SCIENCE (MATHEMATICS) – FYIP
SEMESTER IV
Session 2024-25
COURSE CODE: FMAM-4135
FOUNDATION OF STATISTICAL COMPUTING

Examination Time: (3+3) Hrs.   **L   T   P**

3   0   1

Max. Marks: 100
Theory: 50
Practical: 30
CA: 20

Instructions for Paper Setter -
Eight questions of equal marks (10 marks each) are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section

UNIT - I

Data Statistics: Sampling, Cumulative statistics, Statistics for Data frames, matrix objects and lists. Introduction to R, Help functions in R, Vectors, Common Vector Operations, Using all and any function, subletting of vector. Creating matrices, Matrix operations, Applying Functions to Matrix Rows and Columns, Adding and deleting rows and columns, lists, Creating lists, general list operations, Accessing list components and values, applying functions to lists, recursive lists

UNIT - II

Creating Data Frames – Matrix-like operations in frames , Merging Data Frames, Applying functions to Data frames, Factors and Tables , factors and levels , Common functions used with factors , string operations

UNIT - III

Input/ Ouput: scan() , readline() Function, Printing to the Screen Reading and writing CSV and text file. Control statements: Loops, Looping Over Nonvector, Sets, if-else , writing user defined function, scope of the variable, R script file

UNIT - IV

Graphics in R: Graph Syntax ((title, xlabel, ylabel, pch, lty, col.), Simple graphics (Bar, Multiple Bar, Histogram, Pie, Box-Plot, Scatter plot, qqplot), Low-level and High-Level plot functions, par() command to generate multiple plots.

Note:
Practical: Based on simple mathematical problems and based on syllabus of Statistical Methods for descriptive Statistics.

References / Textbooks:

1. Andrie de Vries and Joris Meys, R Programming for Dummies, Wiley (2016), 2nd Edition.
2. Sandip Rakshit, R Programming for Beginners, McGraw Hill Education (2017), 1st Edition.
3. Sandip Rakhsit, Statistics with R Programming, McGraw Hill Education (2018), 1st Edition.
4. Garrett Grolemund, Hands on Programming with R, O'Reilly (2014), 1st Edition
5. Mark Gardener, Beginning R: The Statistical Programming Language, Wiley (2013)
6. Tilman M. Davies, The Book of R: A first Course in Programming and Statistics, No Strach Press (2016), 1st Edition

Course Outcomes:

After passing course the student will be able to:

CO1: Comprehend the basic terms of E-Commerce, aims, benefits and E-Commerce models.

CO2: Acquaint about the working and components of EDI.

CO3: Identify Electronic Payment systems, various issues involved in relation to secure electronic transactions and various E-Payment options.

CO4: Comprehend BPR and Case Studies of E-Business related applications.

L-T-P: 4-0-0	**Max. Marks: 100**
Credits: 4	**Theory: 80**
Examination Time: 3 Hrs.	**CA: 20**

Instructions for Paper Setter -
Eight questions of equal marks (16 marks each) are to be set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section

UNIT-I

Introduction to E – Commerce: Meaning and Concept, Features, Benefits, E-Commerce v/s. Traditional Commerce. E-Commerce Framework, VAN and EDI as Promoters. E-Commerce Models.

Steps involved in opening your own online business, Role of Website and the technologies needed to build a website.

UNIT-II

Electronic Data Interchange: EDI Vs Traditional Systems, components and working of EDI system, EDI implementation issues, Factors for successful EDI Implementation, EDI service providers in India.

UNIT-III

Concerns for E – Commerce: Legal and regulatory issues, Laws for E – Commerce, E-Commerce in India, Sections of IT Act for E-Commerce transactions.

Electronic Payment Systems: Various Methods of Electronic Payments – Google pay, Paytm, Debit and Credit Cards, UPI. E-Commerce security Issues and Measures.

UNIT-IV

Re – Engineering for Change: Business process re – engineering (BPR), Methodology and Planning Methods for change.

Case Studies: To demonstrate usefulness of E – Commerce in various business areas like Banks, Reservations, E–Governance and E-Retailing.

References/Textbooks:
1. Laudon, Kenneth C and Guercio: E-Commerce,Pearson Education India (2016), 10th edition.

2. David Whiteley, E - Commerce: Strategy, Technologies and Applications, McGraw Hill Education (2017).

3. Kamlesh Bajaj, Debjani Nag, E-Commerce: The Cutting Edge of Business, McGraw Hill Education (2017), 2nd edition.

4. Nidhi Dhawan, A Handbook of E-commerce, Sun India Publications (2017).

5. Janice Reynolds, The Complete E-Commerce Book: Design, Build & Maintain a Successful Web-based Business, CRC Press (2004), 2ndedition.

6. SyamalesMaiti, SweetySadhukhan, E-commerce and business communication, McGraw-Hill (2019), 1st edition.

M.Com (FYIP) Semester I
(Session 2024-25)
COURSE CODE: FCOM-1126
DIGITAL FLUENCY

Course Outcomes:

After passing course the student will be able to:

CO1: The course will help students examine document creation for report making and communication.

CO2: Good presentation skills will be inculcated in students.

CO3: Develop analytical skills for better understanding of the business environment and decision making.

CO4: The spreadsheet knowledge acquired through this paper will assist students in solving real life problems that help in decision making.

M.Com (FYIP) Semester I
(Session 2024-25)
COURSE CODE: FCOM-1126
DIGITAL FLUENCY

Examination Time: 3 Hrs.   Max. Marks: 100
                                                                                      Theory: 40
L-T-P: 2-0-1   Practical: 30
Credit: 3   CA: 30

Instructions for the Paper Setter:

Eight questions of equal marks (8 marks each) are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT-I
Word Processing:
- Shortcuts for navigation, insertion, deletion, and selection
- Formatting fonts with bolding, bullets and numbers
- Creative use of cut, copy and paste
- Format painter
- Find and Replace Text
- Tables
- Graphics, Smart Art, watermarks, hyperlinks, print screen function and Word art
- Page numbering
- Borders and shading
- Headers/footers
- Shortcut features like AutoCorrect, quick sections, find and replace
- Page breaks, drop caps
- Spelling, grammar, thesaurus
- Citations, references and Footnotes.

UNIT-II
Spreadsheets:
- Navigation and keyboard shortcuts
- Text, number and date shortcuts
- Add columns, rows (Autosum, auto-calculate)
- Manual math formulas (average, count,etc.)
- Use "cell references" with formulas
- Copy formulas (fill handle)
- Cut, copy, paste spreadsheets, range, and formulas
- Delete/insert rows and columns
- AutoCorrect
- Print options (orientation, margins, gridlines, header/footer)

UNIT-III

- Create charts to illustrate your spreadsheets; revise and format charts
- Create, sort and filter lists
- Apply formatting options, including conditional formatting
- Protecting worksheets
- Organizing Charts and graphs
- Flash-fill

Presentations:

- Slide content: planning, opening slides, sequencing
- Bullet/number slides(variations, sequencing, layout)
- Graphics, shapes(alternatives to bullets; use color to influence mood; use images to reinforce messages)
- Smart art(effective use of diagrams)

UNIT-IV

- Photos and internet photos(formatting options)
- Copy/paste shortcuts(from other programs; linking)
- Create/import org charts, graphs and tables
- Hyperlinks to others programs and the internet
- Insert media clips, movies, sounds
- Views: Slide sorter, Outline, Notes as editing and presentation tools
- Presenting: transitions, animation, hiding slides, pausing and highlighting
- Automatic presentations (narrations, timing)
- Presentation methods to connect with individuals and groups

References:

1. Anshuman Sharma, A book of Fundamentals of Information Technology, Lakhanpal Publishers, 5th Edition.
2. Jain, H. C., & Tiwari, H. N. (2021). Computer Applications in Business. Taxmann, Delhi.
3. Mathur, S., & Jain, P. (2016). Computer Applications in Business. Galgotia Publishing Company
4. Madan, S. (2020). Computer Applications in Business. Scholar Tech Press, Delhi.
5. Sharma, S. K., & Bansal, M. (2017). Computer Applications in Business. Taxmann, Delhi.
6. Thareja, R. (2019). Fundamentals of Computers. Oxford University Press.
7. Thareja, R. (2018). IT & It's Business Application. Oxford University Press.
8. Walkenbach, J. (2016). MS Excel. Bible. John Wiley & Sons, USA.

Note: The latest editions of the books should be followed.

M.Com (FYIP) Semester II
(Session 2024-25)
COURSE CODE: FCOM-2126
WEB BASED APPLICATIONS FOR OFFICE MANAGEMENT

Course Outcomes:

After studying this course, students will be able to:

CO1: use internet and mange email effectively

CO2: learn about WWW and search engine.

CO3: create google document, google form and scheduling of meeting through google calendar.

CO4: hold and manage various online virtual meetings

M.Com (FYIP) Semester II
(Session 2024-25)
COURSE CODE: FCOM-2126
WEB BASED APPLICATIONS FOR OFFICE MANAGEMENT

Examination Time: 3 Hrs.   **Max. Marks: 100**
                                                                             Theory: 40
L-T-P: 2-0-1   **Practical: 30**
Credit: 3   **CA: 30**

Instructions for the Paper Setter:

Eight questions of equal marks (8 marks each) are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT - I
Introduction: About internet and its working, business use of internet, services offered by internet, evaluation of internet, internet service provider (ISP), internet addressing (DNS) and IP addresses).
E–Mail: Basic Introduction; Advantage and disadvantage, structure of an e–mail message, working of e–mail (sending and receiving messages), managing e–mail (creating new folder, deleting messages, forwarding messages, filtering messages) Implementation of outlook express.

UNIT – II
Internet Protocol: Introduction, file transfer protocol (FTP), Gopher, Telnet, other protocols like HTTP and TCP IP.
WWW: Introduction, working of WWW, Web browsing (opening, viewing, saving and printing a web page and bookmark)
Search Engine: About search engine, Components of search engine, working of search engine, difference between search engine and web directory

UNIT – III
Introduction to Web based tools for Office Management:
Google Docs: Creating documents, uploading files to Google Drive, managing files and sharing files on Google Drive, Editing Documents, sharing documents, changing ownership of the document.
Google Forms: Creating a Questionnaire/ Quiz using Google Forms Using Google Calendar to organize and track online meeting, Using Telegram, WhatsApp Web to communicate and share documents online.

UNIT – IV
Online Platforms for Virtual Meeting: Google Meet, Microsoft Teams, Zoom Online meeting, Cisco Webex., Scheduling and conducting Online Meetings
Online Payment Methods: Internet banking, UPI, Debit and Credit Cards, Mobile Wallets.

References:
1. Internet & web page designing by V.K.Jain BPB publications.
2. Alexis Leon and Mathews le on,Internet for everyone - Vikas publications.
3. Internet for dummies - Pustakmahal, New Delhi a beginner's guide to html
4. "Understanding the Internet", Kieth Sutherland, Buterworth–Heineman; 1st Edition
5. S. K. Bansal, "Internet Technologies", APH Publishing Corporation.
6. Behrouz A. Forouzan, "Data Communications and Networking", 3rdEditon.

COMPUTER FOR CHEMISTS
Course code: MCHM – 1135

COURSE OUTCOME

After passing this course the student will be able to:

CO1: Comprehend various programming constructs like variables, data-types, operators, etc of C programming language.

CO2: Apply various control statements of C Programming Language for designing solutions to different real-world problems.

CO3: Comprehend signature, declaration, definition and calling of functions in C for modularization of problem.

CO4: Implement single and multidimensional arrays for representing complex data collections.

COMPUTER FOR CHEMISTS
COURSE CODE: MCHM - 1135

Examination Time: (3+3) Hours   **Max. Marks: 50**
                                                        Theory: 20
L-T-P: 1-0-1   **Practical: 15**
Credits: 2   **CA: 15**

Note: The students are allowed to use Non-Programmable Calculator.
Instructions for Paper Setter -
Eight questions of equal marks (04 marks each) are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

1. Computer Programming in C language (30 Hrs.)

UNIT-I

Introduction to programming, algorithms and flowcharts.
Elementary programming, a typical C program, print function.
Introduction of declarations, assignments and variables: concept of an integer, concept of a variable, rules for naming variables, Data Types, assignment statement, arithmetic operators.
Integer arithmetic expressions, relative priority of arithmetic operators, use of parenthesis, modulus operator.

UNIT-II

Input/Output Functions, Decision making in C, relational operators, logical operators, if statement, if else statement, nesting of if statement.

UNIT-III

The while loop, do while loop, for loop, nesting of for loop.
Type char and ASCII code, character strings and how to print them, octal and hexadecimal notation.
User defined functions, returning value from a function, functions with more than one parameters.

UNIT-IV

Arrays, declaring an array, initializing an array, break statement, strings and character arrays, sorting an array, finding maximum and minimum in an array, multidimensional arrays. Input and output.

2.Computer programs in Chemistry (15 Hrs.)

(To be done in the practical class)

Development of small computer codes involving simple formulae in chemistry:

UNIT - I

1. Calculation of mean, median, mode.

2. Solution of a quadratic equation.

3. Calculation of linear regression.

4. Calculation of curve linear regression.

UNIT - II

5. Calculation of Bohr orbit from de Broglie Lambda for electron.

6. Calculation of wave number and frequency from value of wavelength.

7. Calculation of van der Waals radii.

8. Radioactive decay.

9. Rate constant of a 1st order reaction, 2nd order reaction.

10. Determination

11. Calculation of lattice energy using Born Lande equation.

UNIT - III

12. Addition, multiplication and solution of inverse of 3 X 3matrix.

13. Calculation of average molecular weight of a polymer containing n1 molecules of molecular weight m1, n2 molecules of molecular weight M2 and soon.

14. Program for calculation of molecular weight of organic compound containing C, H, N, O and S.

15. Calculation of reduced mass of diatomic molecule.

16. Calculate the RMS and most probable velocity of agas.

UNIT - IV

17. Calculate the ionic mobility from ionic conductance values.

18. Determine the thermodynamic parameters for isothermal expansion of monoatomic ideal gas.

19. Calculation of value of g- factor from value of J and S.

20. Calculate the bond length and bond angles using crystal structure data.

References / Textbooks:

1. K.V. Raman, Computers in Chemistry, Tata McGraw Hill, 1993.
2. Henry Mullish, Herbert L. Cooper, The Spirit of C: An Introduction to Modern Programming, Jaico Publications, 1987.
3. Anshuman Sharma, Learn Programming in C, Lakhanpal Publishers,7th Edition.
4. E Balagurusamy, Programming in ANSI C, Tata McGraw-Hill, 2002.
5. Yashvant Kanetkar, Let Us C, BPB Publications, 2016.
6. Byron Gottfried, Schaum's Outline Programming with C, McGraw Hill, 1996.

Note: The latest editions of the books should be followed.

COURSE OUTCOME

After passing this course the student will be able to:

CO1: Comprehend computer fundamentals, operating system concepts and office automation software.

CO2: Work with complete office suite for making spreadsheets, documents and presentations.

CO3: Comprehend basics of C Programming Language.

CO4: Apply various control statements and arrays of C Programming Language for designing solutions to different real-world problems.

Master of Science (Zoology) Semester–I
Session 2024-25

COMPUTER PROGRAMMING AND DATA PROCESSING
COURSE CODE: MZOM-1135

Examination Time: (3+3) Hours	**Max. Marks: 100**
	Theory: 40
L-T-P: 2-0-1	**Practical: 30**
Credits: 3	**CA: 30**

Instructions for Paper Setter -
Eight questions of equal marks (8 marks each) are to set, two in each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT - I
Introduction to Computer capabilities, Classifications.
Computer components, Introduction to hardware and software concepts, operating systems, peripherals, I/O devices, Limitations of computer.

UNIT - II
Basic Features and usage of:
Word Processing Software: Creating, Editing, Formatting and Printing document
Spreadsheet Software: Creating, Editing, Formatting and Printing a sheet
Presentation Software: Creating, Editing, Formatting and Printing a presentation

UNIT- III
Introduction to C Programming language.
Program structure, elements, character set, constants, variables, data types, identifiers, operators and expressions.
I/O Statements: printf and scanf statement.

UNIT - IV
Control statements: if, if else, else if ladder, nesting, switch, Looping statements: do while, while, for
Arrays: Basic usage, Declaration, Initialization and Types.

References / Textbooks:

1. Anshuman Sharma, Learn Programming in C, Lakhanpal Publishers, 7th Edition.

2. E Balagurusamy, Programming in ANSI C, Tata McGraw-Hill, 2002.

3. Yashvant Kanetkar, Let Us C, BPB Publications, 2016.

4. Gurwinder Singh, Rachhpal Singh, Fundamentals of Computer and PC Software, Kalyani Publishers, 2015.

5. Anshuman Sharma, Fundamentals of Information Technology, Lakhanpal Publishers, 5th Edition.

6. Byron Gottfried, Schaum's Outline Programming with C, McGraw Hill, 1996.

Note: The latest editions of the books should be followed.

Master of Science (Economics)
Session 2024-2025
OPT-VI (Computer Applications for Economists–I)

Time: 3+3 Hours   Max. Marks: 100

L-T-P (Credits):3-0-1   Theory: 40

Practical: 30

CA: 30

Note: Instructions for the Paper–Setter:

Two questions, each carrying 08 marks, from each of the Units I-IV (i.e. a total of eight questions) are to be set. Candidates are required to attempt five questions, selecting at least one from each unit. The fifth question may be attempted from any unit.

UNIT-I

Introduction to Computer: Computer System Characteristics, Hardware–CPU, Memory, Input, Output and Storage devices, Organization of Secondary Storage Media, Software – System and Application.

Programming Paradigms and Development Tools: Problem Analysis, Program Constructs (Sequential, Decision, Loop), Algorithms, Flowcharts.

Operating System Concepts: Role of an Operating System, Types of operating systems, Batch processing, Multiprogramming, timesharing, real-time, mobile etc., Booting procedure and its types, components and functions of operating system.

UNIT-II

Data Communication and Internet: Introduction to Data Communication, Types of Networks, Transmission Media, Internet and its applications, working knowledge of Search engines and use of electronic mail, Introduction to threats and Virus, Classification of threats, Prevention Mechanism: Anti -Viruses, Firewalls.

Introduction to Cloud Computing: Overview of distributed computing: Trends of computing, introduction to parallel/distributed computing, Introduction to Cloud Computing including benefits, challenges, and risks, Different types of clouds, Security and Privacy issues in the Cloud.

UNIT-III

Introduction to Program Development: Problem Analysis, Designing a solution.

Overview of C: Brief history of C, General Structure of a C program, stages in the development of a C program.

Data Types, Operators and Expressions: Constants and variables, data types, declaring variables, storage classes, different types of expressions and their evaluation, Operators and different types, conditional expression, assignment statement.

Input/Output Functions: unformatted input/output functions (character I/O functions and string I/O functions), formatted input/output functions (*scanf*() function and *printf*() function.

Control Statements: Decision making using if, if-else, else if and switch statements, Looping using for, while and do–while statements, transferring program control using break and continue statements.

UNIT-IV

Arrays and Strings: Introduction to arrays, declaring arrays, initializing arrays, processing of arrays, introduction to strings.

Structures and Unions: Introduction to structures, declaring structures, initializing structures, accessing elements of structure, array of structures, nested structures, passing structures as arguments to a function, introduction to unions.

Suggested Readings:

1.   Kernigean, B.W.& Ritchie, P.M.: The C ProgrammingLanguage,PrenticeHall,2000

2.   Kaicker,S.: Programming in C, BPB Publications,2003

3.   Subramaniam, N.: Introduction to computer; Fundamentals of Computer Science, TataMcGrawHill,2005

4.   GurvinderSinghandRachhpalSingh:WindowsBasedComputerSystem,KalyaniPublications,2016

5.   P.K.Sinha,PreetiSinha:ComputerFundamentals,BPBPublications2010

6.   E.Balagursamy:ProgramminginAnsiC,IndiaHigherEducations,2000

7.   YashwantKanetkar:LetUsC,BPBPublications2017

Time: 3+3 Hours   **Max. Marks: 100**

L-T-P (Credits):3-0-1   **Theory: 40**

Practical: 30

CA: 30

Note: Instructions for the Paper–Setter:

Two questions, each carrying 08 marks, from each of the Units I-IV (i.e. a total of eight questions) are to be set. Candidates are required to attempt five questions, selecting at least one from each unit. The fifth question may be attempted from any unit.

UNIT-I

Introduction: Concept of data, database, DBMS and data science. Its advantages and applications. Three level architecture of DBMS, data independence, Relational Data model. Working knowledge of DDL, DML and DCL.

Relational Database Design: Concepts of functional dependencies, multivalued dependencies, 1NF, 2NF, 3NF normal form. Introduction to SQL, data types, operators and functions. Implementation of queries in SQL: create, insert, delete, modify and alter, constraints in SQL.

UNIT-II

Data Analysis: Sources, acquisition and interpretation of data, primary and secondary data, quantitative and qualitative data, graphical representation of data with histogram, piechart, bar chart, column chart and line chart.

Data Visualization and Report Writing: Ideas and tools for data visualization, different steps in report writing, layout of the research report, types of reports, APA, MLA and Chicago reference styles.

UNIT-III

Introduction to Big Data: Structured and Unstructured data, Data Analytics, Big data management and big data analytics techniques of data management, storage and analysis of data, extraction of relevant information.

Exploring the Use of Big Data: Use of big data in detecting fraudulent activities in financial transactions, e-commerce and in insurance sector, Use of big data in social networking. Use of big

data in retail industry, health care industry and Government sector.

UNIT-IV

Cloud Computing Architecture: Service Models, Deployment Models, Cloud Entities, Cloud Clients, Service Level Agreement (SLA) and Quality of Service (QoS) in Cloud Computing.

Cloud Security: Infrastructure security, data security, identity and access management, privacy management, Security as a Service in cloud, cloud forensics.

Text Books:

1.   C.J. Date, "An Introduction of Database System", The Systems Programming Series,6/Ed, Addison–Wesley Publishing Company, Inc., 2016

2.   Silberscatz, Korth and Sudarshan, "Database System Concepts", Third Ed., McGraw Hill International Editions, Computer Science Series. McGraw Hill 2013

3.   Desai.Bipin C, "An Introduction to Database Systems", West Publishing Company, St.Paul, Minnesota, USA.

4.   Michael Minelli, Michele Chambers, Ambiga Dhiraj, "Big Data. Big Analytics", JohnWiley.

5.   Cathy O'Neil and Rachel Schutt. Doing Data Science, Straight Talk from The Frontline. O'Reilly, 2017

6.   Barrie Sosinsky, Cloud Computing Bible, Wiley India Pvt. Ltd., ISBN–13: 978–8–12–652980–3, NewDelhi,India2016

7.   Dr. Saurabh Kumar, Cloud Computing: Insights into New–Era Infrastructure, Wiley India Pvt. Ltd, ISBN–13:978–8–12–652883–7, New Delhi, India, 2011.

8.   Fern Halper, Hurwitz, Robin Bloor, Marcia Kaufman, Cloud Computing for Dummies, Wiley India Pvt. Ltd, ISBN–13:978–0–47–059742–2, New Delhi, India, 2011.

9.   Cloud Computing: Principles and Paradigms–2013 by Rajkumar Buyya, James Broberg, Andrzej Goscinski.

Bachelor of Vocation (Animation) Semester-I
Bachelor of Vocation (Retail Management) Semester-I

Course Code: BVAM-1113/ BVRM-1126
Course Title: Computer Fundamentals
Session: 2024-25

Course Outcomes:
On Completion of this course, the student will be able to:

CO1: To understand the basic functionality of various parts of computer and terminologies related to computers and peripherals

CO2: To work with Word documents and apply various formatting techniques, page setup, creation of tables and other functions required in day-to-day word processing tasks.

CO3: To be able to make presentations, adding graphics, charts, audio, video and applying various themes and transition effects required for making an effective PowerPoint presentation.

CO4: to understand internet terms like URL, browser, search engines, and using an email account.

Course Code: BVAM-1113/ BVRM-1126
Course Title: Computer Fundamentals
Session: 2024-25

L - T – P   **Max. Marks: 50**

1 – 0 –1   **Theory: 20**
                                                                  Practical: 15
Time: 3+3 Hours   **CA: 15**

Instructions for Paper Setter –
Eight questions of equal marks (04 marks each) to be set, two from each of the four sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be divided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

UNIT- I
INTRODUCTION TO COMPUTERS: Concept of Data and Information, Data Processing, Computer: Definition, Components of Computer System, and functions of each component, Classification of computers, Applications of Computers in various fields, Hardware and software, Basic Input and output devices, Memory - Primary & Secondary, commonly used secondary Storage devices.

UNIT- II
Word processing: Opening & saving files, editing word documents, converting files to different format and printing documents.

Formatting Documents:
Text Formatting- Font styles, Font selection- style, size, color etc, Type face- Bold, Italic, Underline, Case settings, Highlighting, Special symbols,
Paragraph Formatting: Alignments, Indents, Line Spacing, Margins, Bullets & Numbers
Page Setup: Setting margins, layout, and orientation.
Creation of table: Table settings, Borders, Alignments, Insertion, deletion, Merging, Splitting

Spelling & Grammer, Headers and Footers, Page numbering, Table of Contents and Mail Merge.

UNIT- III
Introduction to presentation – Opening new presentation, Different presentation templates, setting backgrounds, selecting presentation layouts.
Different power point views: Normal, Outline, Slide sorter, Notes and Reading view.
Creating a presentation Setting Presentation style, Selecting Slide layout, and adding content to the Presentation

Formatting a presentation - Adding style, Color, gradient fills, arranging objects, Adding Header & Footer, Slide Background.

Adding graphics and animation to the presentation- Inserting pictures, graphics, and videos into presentation, applying transition and animation.

Slide Show: Custom Slide show, Setup Slide show: use timing, rehearse timing and recording a presentation.

UNIT- IV

Internet: Definition, Uses of Internet-Definition of Web Addressing-URL, Web Browsers.

E-mail: Anatomy of E-mail, managing an e-mail account

Note for the Practical Examiner:
   a) Practical Exam is based on the syllabus covered in the subject.
   b) The question paper will be set on the spot by the examiner.

Suggested Readings:
   1. Sinha P.K., "Computer Fundamentals", BPB Publications
   2. Norton Peter, "Introduction to Computers", McGraw Hill Education
   3. Rajaraman V (Author), Adabala N, "Fundamentals of Computers", Prentice Hall India Learning Private Limited
   4. Peter Weverka, "Microsoft Office 2016 All-In-One for Dummies", Wiley
   5. Joan Lambert Curtis Frye,"Microsoft Office 2016 Step by Step", Microsoft Press
   6. Office Complete, BPB Publications

Bachelor of Vocation (Hospitality and Tourism) Semester II
Session 2024-25
Applications of Computer in Hospitality and Tourism
Course Code: BVHM-2663

Course Outcomes (CO): Upon successful completion of the course, the students should be able to:

CO1: Manage files by using tools such as archiving, storage folders and message rules.

CO2: Create a word document and excel workbook and navigate your way around the basic applications

CO3: Create and present a basic PowerPoint presentation complete with headings, bullet points and pictures

CO4: Recognize basics application of computer in tourism field

Bachelor of Vocation (Hospitality and Tourism) Semester II

Session 2024-25

Course Code: BVHM-2663

Applications of Computer in Hospitality and Tourism

(Theory)

Time: (3+3) Hours   Maximum Marks: 50

L-T-P: Theory Marks: 20

1-0-1   Practical Marks: 15

                                                                        CA-15

INSTRUCTIONS FOR THE PAPER SETTER:

Eight questions of equal marks are to be set, two in each of the four sections (A-D). Questions of sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any section.

Contents:

UNIT – I

Introduction to Computers: Introduction to Computer: Classification, Generations, Organization, Capabilities Characteristics & Limitations, Application of Computer in Hotels, Familiarisation with Components of Computers – Hardware: Hardware elements – input, storage, processing & output devices. Block diagram of computer.

Unit II

Introduction to Computers Software: Types of Software, System Software, Application Software, Utility Software's, Use of MS- Office: Basics of MS- Word. MS- Excel and MS- Power Point

Unit III

Internet & Applications: Introduction to Internet: Definition of networks, concepts of web page, website and web searching (browsing). Benefits, Application, Working, Hardware and Software requirements, World Wide Web, Web Browser, URL, Search Engines, Email

Unit IV

Social Media Applications and Hospitality: Introduction to Social Media, Its Role in Hospitality Promotion, Facebook – Creating Pages and Profiles, Merits/Demerits of Social Media, Linked In, Twitter and Other Social Media Applications.

References:

1) Alexis Leon & Mathews Leon, Vikas Introduction to Computers - Leon, 1/e Publishing.

2) Pradeep K. Sinha, PritiSinha Computer Fundamentals (Sixth Edition), , Published by BPB Publications, 2007

3) Sanjay Saxena, introduction to Computers & MS Office, Vikas Publishing.

4) Pradeep K. Sinha, PritiSinha Computer Fundamentals (Sixth Edition), , Published by BPB Publications, 2007

5) Leon & Lion, Introduction to Computers, Vikas Publishing House, New Delhi

6) June Jamrich Parsons, Computer Concepts 7th Edition, Thomson Learning, Bombay.

7) White, Date Communications & Compute4r Network, Thomson Learning, Bombay.

8) Computers in Hotels – Concepts & Applications : Partho P Seal Oxford University Press

9) Gini Courter & Annette Marquis Ms-Office 2007 by BPB Publications

Web Links:

1) https:// entrancegeek.com/five-generation-of-computer/

2) https://products.office.com/en-in/powerpoint

3) https:// www.businessdictionary.com/definition/internet.html

Bachelor of Vocation (Hospitality and Tourism) Semester II

Session 2024-25

Course Code: BVHM-2663

Applications of Computer in Hospitality and Tourism

(Practical)

Time: 3 Hours   Maximum Marks: 50

L-T-P: Theory Marks: 20

1-0-1   Practical Marks: 15

                                                                                                                  CA-15

Practical:

WINDOWS OPERATIONS: Creating Folders, Creating Shortcuts, Copying Files/Folders, Renaming Files/Folders, Deleting Files, Exploring Windows, Quick Menus

MS-OFFICE (WORD): CREATING A DOCUMENT, Entering Text, Saving the Document, Editing a Document already saved to Disk, Getting around the Document, Find and Replace Operations, Printing the Document

SPECIAL EFFECTS: Print Special Effects E.g. Bold, Underline, Superscripts, Subscript, Changing Fonts, Changing Case

CUT, COPY AND PASTE OPERATION: Marking Blocks, Copying and Pasting a Block, Cutting and Pasting a Block, Deleting a Block, Formatting a Block, Using Find and Replace in a Block.

USING MS-WORD TOOLS: Spelling and Grammar, Printing Envelops and Labels, TABLES-Create, Delete, Format

PRINT OPTIONS: Previewing the Document, Printing a whole Document, Printing a Specific Page, Printing a selected set, Printing Several Documents, Printing More than one Copy.

MS-OFFICE (EXCEL): How to use Excel, Starting Excel, Parts of the Excel Screen, parts of the Worksheet, Navigating in a Worksheet, and Getting to know mouse pointer shapes.

MS-POWER POINT: Making a simple presentation, Using Auto content Wizards and Templates, Slides-Creating Slides, Re-arranging, modifying, Inserting pictures, objects, setting up a Slide Show.

Bachelor of Science (Honours) Medical Laboratory Technology Semester-I
Session 2024-25
COURSE CODE: BMLM - 2136
FUNDAMENTALS OF DATA ANALYTICS

Course Outcomes:

On Completion of this course, the student will be able to:

CO1: To understand the basic functionality of various parts of computer and terminologies related to computers and peripherals

CO2: To work with Word documents and apply various formatting techniques, page setup, creation of tables and other functions required in day-to-day word processing tasks.

CO3: To be able to make presentations, adding graphics, charts, audio, video and applying various themes and transition effects required for making an effective PowerPoint presentation.

CO4: Calculate Mean and Correlation using statistical techniques.

Examination Time: (3+3) Hours	**Max. Marks: 100**
L-T-P: 2-0-1	**Theory: 40**
Credit: 3	**Practical: 30**
	CA: 30

Instructions for Paper Setter -
- Eight questions of equal marks (8 marks each) are to be set, two in each of the four Sections (A-D).
- Questions of Sections A-D should be set from Units I-IV of the syllabus respectively.
- Questions may be subdivided into parts (not exceeding four).
- Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

UNIT I

Computer Fundamentals: Hardware, Software, Memory, Storage devices, I/O Devices and Output Devices, Introduction to Internet and E-Mail.
Word Processing: Creating, Saving and Printing documents, Page setup, Formatting, Spell check, adding Page numbers, Header and Footer, Macros, Creating Tables, Converting table to text and vice versa.

UNIT II

Spreadsheets: Creating Spreadsheets, using different types of functions and Formulae, Cell referencing, create graphs, various types of charts. Pivot tables, vlookup, hlookup, exporting charts to MS – Word.
Create presentations, Formatting, Adding effects and timings.

UNIT III

Data Collection: Meaning, Primary and secondary sources of Data Collection, Sampling and Methods of Sampling.
Measures of Central Tendency: Mean, Median, Mode.
Correlation: Meaning, types of Correlation, Karl Pearson's method of correlation.

UNIT IV

Data Management: Correlation analysis using Excel, Calculation of Mean, Median and Mode using Excel
Data Visualisation Tools: Google Charts and Data Wrapper.

References / Textbooks:
7. Sinha P.K., "Computer Fundamentals", BPB Publications
8. Norton Peter, "Introduction to Computers", McGraw Hill Education
9. Rajaraman V (Author), Adabala N, "Fundamentals of Computers", Prentice Hall India Learning Private Limited

10. Peter Weverka, "Microsoft Office 2016 All-In-One for Dummies", Wiley
11. Amrinder Pal Sngh, Jaspal Singh, Anshuman Sharma, Fundamentals Of Numerical Methods And Statistical Techniques, Lakhanpal Publishers, 4th edition.
12. Kandasamy P.& et AI., Numerical Methods, S. Chand & Company (2006), Reprint Edn. 2006 Edition.

Bachelor of Vocation
(Management and Secretarial Practices) (Semester-IV)
Session 2024-25
Course Code: BVML-4121
MANAGEMENT INFORMATION SYSTEM

Course Outcomes:

After studying this course, students will be able to:

CO1: Identify the importance of data and information management.
CO2: Comprehend development life cycle of information systems.
CO3: Identify the components and applications of Management Information System and Decision Support System.
CO4: Identify the role of Information System in organizations: Accounting Information systems, Inventory control systems and Marketing systems.

Course Code: BVML-4121
MANAGEMENT INFORMATION SYSTEM

L	T	P	Total Credits
4	0	0	4

Examination Time: 3 Hours   Max.   Marks: 100
                                                                                          Theory: 80
                                                                                          CA: 20

Instructions for the Paper Setter
Eight questions of equal marks are to be set (16 marks each), two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Unit I
Basic Concepts: Systems, Data, Information, Knowledge, Database Management System. Information needs of business, Sources of information – Primary and Secondary. Online access and capture.

Unit II
Information System: Introduction to System, types of Systems, Information System and its types. Planning Information systems: System Development Life Cycle and Rapid Application Development. Types of Decisions - Structured, Unstructured and Semi Structured.

Unit III
Management Information System: Need, Components and Functions of MIS. Planning of MIS, Implementation and Controlling MIS. Decision Support System: Meaning, Characteristics, Types and Components of DSS.

Unit IV
Transaction Processing Systems: Meaning, Characteristics, Components of TPS. Difference between MIS, DSS and TPS. Case studies of the Information System: Accounting Information systems, Inventory control systems & Marketing systems.

References:
1. Robert G. Murdick, Joel E. Ross, "Introduction to Management Information Systems", Prentice Hall
2. Muneesh Kumar, "Business Information Systems",Vikas Publishing House
     3. Ashok Arora , Akshaya Bhatia,"Management Information Systems",Excel Books

Bachelor of Vocation
(Management & Secretarial Practices) (Semester-V)
Session 2024-25
Course Code: BVMM-5126
INTRODUCTION TO PYTHON PROGRAMMING

Course Outcomes:

After passing course the student will be able to:

CO1: Comprehend basics of Python programming.

CO2: Learn the use of operators and data types.

CO3: Learn the use of control structures.

CO4: Implement various built-in and user defined functions to solve mathematical problems.

INTRODUCTION TO PYTHON PROGRAMMING

L	T	P	Total Credits
3	0	1	4

Examination Time: 3 Hour   Max. Marks: 50
                                                                                Theory: 25
                                                                                Practical: 15
                                                                                CA: 10

Instructions for the Paper Setter

 Five questions of equal marks (5 marks each) are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section.

Unit I
Introduction to Python Programming Language: Features of Python, Limitations, Major Applications of Python, Getting, setting up the Python development Environment, Basic syntax, interactive shell, editing, saving and running a script.

Unit II
Python Operators; Keywords, Identifiers, Literals, Variables, Identifiers, Keywords, Expressions, Statements and Data.   **Python Native Data Types**: Numbers, Lists, Tuples, Sets, Dictionary, Functions & Methods of Dictionary, Strings.

Unit III
Control Structures: Selection control, Iterative statements, Jumping statements.

Unit IV
Functions: Fundamental Concepts, Program Routines, Flow of Execution, Parameters & Arguments, Recursive Functions, Recursive Problem Solving, Iteration vs. Recursion, Basic OOPs concept.

REFERENCES:

1. Charles Severance, Python for Informatics, Version 0.0.7.
2. Charles Dierbach, Introduction to Computer Science Using Python: A Computational Problem-SolvingFocus, Wiley Publications, 2012.
3. Guttag John V, Introduction To Computation And Programming Using Python, PHI, 2014.
4. Jeeva Jose and Sojan P. Lal, Introduction to Computating & Problem Solving Through Python, Khanna Publishers, 2015.
5. Mark J. Guzdial, Introduction to Computing and Programming in Python, , 2015.

Course Outcomes:

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

CO1: understand working of internet, services it offers
CO2: communicate via email effective and manage email accounts in efficiently

Bachelor of Vocation (Nutrition, Exercise & Health) (Semester-V)
(Session: 2024-25)
Internet Applications
Course Code: BVNM- 5125

Time: 3 Hour   **MaximumMarks:50**
L-T-P: 1-0-1

                                                             Practical:15
                                                             Theory:25
                                                             CA-10

Instructions for the Paper Setter
Eight questions of equal marks are to be set, two in each of the four Sections (A-D). Questions of Sections A-D should be set from Units I-IV of the syllabus respectively. Questions may be subdivided into parts (not exceeding four). Candidates are required to attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section

Course Contents

UNIT –I
Introduction to Internet &its working, Business use of Internet, Services offered by Internet

UNIT-II
Introduction to email, Advantages and disadvantages, structure of email message, working with email (sending and receiving messages), Managing email (creating new folder, deleting messages, forwarding messages, filtering messages)

UNIT-III
World wide web (www): Introduction, working and web browsing, DNS & IP addressing

UNIT-IV
Search engine: Introduction, Components and working of search engine.

Instruction to the Practical Examiner: Paper will be set on the spot by the examiner based on the content in the syllabus.

Books Recommended:

1. Windows Based Computer Courses, Rachhpal Singh& Gurvinder Singh.
2. Information Technology, Hardeep Singh & Anshuman Sharma.
3. Office Complete,BPB Publications.