

## Interdisciplinary Courses of Computer Science & Applications

**Session 2022-23**

Sr. No.	Course Code	Program	Course Title
1.	BCSM-1134 BECM-1134 BARM-1134	B.A./B.Sc. Computer Science Semester I	<u>Computer Fundamentals and PC Software</u>
2.	BCSM-2134 BECM-2134 BARM-2134	B.A./B.Sc. Computer Science Semester II	<u>Programming in C</u>
3.	BCSM-3134 BECM-3134 BARM-3134	B.A./B.Sc. Computer Science Semester III	<u>Computer Oriented Numerical And Statistical Methods</u>
4.	BCSM-4134 BECM-4134 BARM-4134	B.A./B.Sc. Computer Science Semester IV	<u>Data Structures</u>
5.	BCSM-5134 BECM-5134 BARM-5134	B.A./B.Sc. Computer Science Semester V	<u>Database Management System</u>
6.	BCSM-6134 BECM-6134 BARM-6134	B.A./B.Sc. Computer Science Semester VI	<u>Information Technology</u>
7.	BECM-1124 BARM-1124	B.A./B.Sc. Computer Applications Semester I	<u>Computer Fundamentals and PC Software</u>
8.	BECM-2124 BARM-2124	B.A./B.Sc. Computer Applications Semester II	<u>Programming in C</u>
9.	BECM-3124 BARM-3124	B.A./B.Sc. Computer Applications Semester III	<u>Operating System</u>
10.	BECM-4124 BARM-4124	B.A./B.Sc. Computer Applications Semester IV	<u>Relational Database Management Systems</u>
11.	BECM-5124 BARM-5124	B.A./B.Sc. Computer Applications Semester V	<u>Internet and Web Designing</u>
12.	BECM-6124 BARM-6124	B.A./B.Sc. Computer Applications Semester VI	<u>Business Data Processing</u>
13.	BCRM-1127	B.Com. (Pass) Semester I	<u>Computer Fundamentals</u>

Sr. No.	Course Code	Program	Course Title
14.	BCOP-1127	B.Com. (Hons.) Semester I	<u>Workshop on Office Package</u>
15.	BBRM-1127	BBA Semester I	<u>Computer Applications for Business- I</u>
16.	BFDM-1126	B.Sc. (Fashion Designing) Semester I	<u>Basics of Computer</u>
17.	BOPM-3135	B.Sc. (Honours) Physics Semester III	<u>Python Programming</u>
18.	BHSM-1127	B.Sc. (Home Science) Semester I	<u>Computer Basics</u>
19.	BHSM-2127	B.Sc. (Home Science) Semester II	<u>Computer Applications for Home Scientists</u>
20.	BOMM-2137	B.Sc. (Hons.) Mathematics Semester II	<u>Computer Fundamentals and Introduction to C Programming Language</u>
21.	BOMM-3135	B.Sc. (Hons.) Mathematics Semester III	<u>Python Programming</u>
22.	BOMM-4135	B.Sc. (Hons.) Mathematics Semester IV	<u>Foundation of Statistical Computing</u>
23.	MCML - 4122	Master of Commerce Semester - IV	<u>E - Commerce</u>
24.	MCHM-1135	M.Sc. (Chemistry) Semester I	<u>Computer for Chemists</u>
25.	MZOM-1134	M.Sc. (Zoology) Semester I	<u>Computer Programming &amp; Data Processing</u>
26.	MECM-2125 (OPT- XI)	Master of Arts (Economics) Semester – II	<u>Computer Applications for Economists</u>

**Bachelor of Arts / Bachelor of Science (Computer Science) /  
Bachelor of Science (Economics) Semester- I  
Session 2022-23**

**Course Code: BARM-1134  
BCSM-1134  
BECM-1134**

**COMPUTER SCIENCE**

**(COMPUTER FUNDAMENTALS AND PC SOFTWARE)**

**(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**

**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, 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 Presentation:** 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/Textbooks:**

1. Anshuman Sharma, A book of Fundamentals of Information Technology, Lakhanpal Publishers, 5<sup>th</sup> 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 / Bachelor of Science (Computer Science) /**

**Bachelor of Science (Economics) Semester- I**

**Session 2022-23**

**Course Code: BARM-1134**

**BCSM-1134**

**BECM-1134**

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

**Examination Time: (3+3) Hrs.**

**Max. Marks: 100**

**Theory: 50**

**Practical: 30**

**CA: 20**

**Practical on PC Software - Office.**

**Bachelor of Arts / Bachelor of Science (Computer Science) /  
Bachelor of Science (Economics) Semester- II  
(Session 2022-23)**

**Course Code: BARM-2134  
BCSM-2134  
BECM-2134**

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

Data Representation, Introduction to Number Systems and Character Set, ASCII Codes, Flow Charts, pseudo codes and, algorithms.

**UNIT-II**

**Programming Using C:**

**Basics of 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.

**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

**UNIT-III**

**Control Statements:** Jumping, Branching and Looping–Entry controlled and exit controlled, Advantages/Disadvantages of loops, difference between for, while and do–while.

**Arrays:** Types of Arrays, One Dimensional and Two-Dimensional Arrays.

**Strings:** Introduction to Strings and String functions, array of strings.

**UNIT-IV**

**Functions:** User Defined & Library Function, Function (Prototype, Declaration, Definition), Methods of passing arguments, local and global functions, Recursion.

**Storage Classes:** Introduction to various storage classes, scope and lifetime of a variable, Storage class specifiers (auto, register, static, extern), advantages and disadvantages.

**Structure and Union:** Introduction to structure and union, pointers with structure.

**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. Rachhpal Singh K.S. Kahlon, Gurvinder Singh, Programming in C, Kalyani Publishers (2011).
4. Yashwant Kanetkar, 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 / Bachelor of Science (Computer Science) /**

**Bachelor of Science (Economics) Semester- II**

**(Session 2022-23)**

**Course Code: BARM-2134**

**BCSM-2134**

**BECM-2134**

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

**Examination Time: (3+3) Hrs.**

**Max. Marks: 100**

**Theory: 50**

**Practical: 30**

**CA: 20**

**Practical on Programming in C.**

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

**Bachelor of Science (Economics) Semester- III**

**Session 2022-23**

**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**

**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 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, Gauss Siedel Method.

**Unit -II**

**Interpolation:** Interpolation and Curve Fitting, Lagrangian Polynomials, 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:** Preparing frequency distribution table, Mean Arithmetic, Mean Geometric, Mean Harmonic, Mean, Median and Mode.

**Measure of dispersion:** Range, Mean deviation, Standard deviation, co-efficient of variation, Moments, Skewness, Kurtosis.

**Unit –IV**

**Correlation:** Meaning, Bivariate Distribution, Multivariate distribution, Karl Pearson method, Rank correlation.

**Regression:** Meaning, Linear Regression.

**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- IV**

**(Session 2022-23)**

**Course Code: BARM-4134**

**BCSM-4134**

**BECM-4134**

**COMPUTER SCIENCE**

**(DATA STRUCTURES)**

**(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 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, dequeues.

**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 Structures 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 2022-23)**

**Course Code: BARM-4134**

**BCSM-4134**

**BECM-4134**

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

**Examination Time: (3+3) Hrs.**

**Max. Marks: 100**

**Theory: 50**

**Practical: 30**

**CA: 20**

**Practical on Data Structures.**

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

**Bachelor of Science (Economics) - Semester-V**

**Session 2022-23**

**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**

**Normalisation:** 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 & Silberschatz, 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, 4<sup>th</sup> 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 2022-23**

**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 2022-23)**

**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, Types and 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 2022-23**

**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 2022-23**

**COURSE CODE: BARM-1124**

**BECM-1124**

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

**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, 5<sup>th</sup> 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 / Bachelor of Science(Economics) Semester I**

**Session 2022-23**

**COURSE CODE: BARM-1124**

**BECM-1124**

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

**Examination Time: (3+3) Hrs.**

**Max. Marks: 100**

**Theory: 50**

**Practical: 30**

**CA: 20**

**Practical based on PC Software - Office.**

**Bachelor of Arts / Bachelor of Science(Economics) Semester II**

**(Session 2022-23)**

**COURSE CODE: BARM-2124  
BECM-2124**

**COMPUTER APPLICATIONS (VOCATIONAL)  
(PROGRAMMING IN C)  
(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**

Data Representation, Flow Charts, Problem Analysis, Decision tables, Pseudo codes and Algorithms.

**Programming Using C:**

**Basics of C:** Introduction to C, Applications and Advantages of C, Tokens, Types of Errors

**Data Types:** Basic and 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, Advantages/Disadvantages of loops, difference between for, while and do–while.

**UNIT-III**

**Arrays:** Types of Arrays, Advantages/Disadvantages of arrays. Insertion, Deletion, Searching and sorting operations on array

**Strings:** Introduction to Strings and String functions, array of strings.

**Functions:** User Defined and 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, Storage class specifiers (auto, register, static, extern), advantages and disadvantages.

**Pointers:** Introduction, Advantages/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 / Bachelor of Science(Economics) Semester II**

**(Session 2022-23)**

**COURSE CODE: BARM-2124**

**BECM-2124**

**COMPUTER APPLICATIONS (VOCATIONAL)  
(PROGRAMMING IN C)  
(PRACTICAL)**

**Examination Time: (3+3)**

**Hrs.**

**Lab based on Programming in C.**

**Bachelor of Arts / Bachelor of Science(Economics) Semester III**

**Session 2022-23**

**COURSE CODE: BARM-3124**

**BECM-3124**

**COMPUTER APPLICATIONS (VOCATIONAL)  
(OPERATING 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**

**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, Algorithm, 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 handling 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, 2<sup>nd</sup> Edition.

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

**Bachelor of Arts / Bachelor of Science(Economics) Semester III**

**Session 2022-23**

**COURSE CODE: BARM-3124**

**BECM-3124**

**COMPUTER APPLICATIONS (VOCATIONAL)**

**(OPERATING SYSTEM)**

**(PRACTICAL)**

**Practical based on Operating System.**

**Bachelor of Arts / Bachelor of Science(Economics) Semester IV**

**(Session 2022-23)**

**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**

**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**

**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, date long, raw, long raw.

**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:** Roll back, 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, Security amongst users.

#### **UNIT IV**

**PL/SQL:** Introduction to PL/SQL, Relationship between SQL & PL/SQL, Advantages, block structure, Valuable and Constant declaration, Declaration using attributes %type attribute, 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 2022-23)**

**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**

**Practical: 30**

**CA: 20**

Practical on Relational Data Base Management System .

**Bachelor of Arts / Bachelor of Science(Economics) Semester V**

**Session 2022-23**

**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, Internet Services, ISP, Types of internet connection, Internet Security, Advantages, Disadvantages and Uses of Internet.

**Search Engines:** Introduction, its working, searching using google, web directory, Meta search engines.

**UNIT – II**

**E-Mail:** Introduction, its working, E-mail protocols: SMTP, POP, IMAP, Structure of E-mail, Operations on E-mail, Address Book, Signature, File attachment, MIME, Web based E-mail, Spams, Advantages and limitations of E-mail

**Browsers:** Introduction, Features of Internet Explorer and Google Chrome.

**UNIT – III**

**HTTP:** HTTP Protocol and its structure. **WWW:** Introduction and its working

**TCP/IP Protocols:** PPP, SLIP.

**FTP:** Introduction, its working, FTP Commands, FTP Session, Advantages and Disadvantages of FTP.

## UNIT – IV

**HTML and Web Designing:** Introduction, Structure and creation of HTML document, Formatting Text, Lists, Font element, Advantages and Disadvantages of HTML, Hyperlinks, Images, Tables, Frames, Forms.

### References:

1. Keith Sutherland, Understanding the Internet: A Clear Guide to Internet Technologies, Butterworth-Heinemann, 2000.
2. S. K. Bansal, Internet Technologies, APH Publishing Corporation, 2002.
3. Forouzan B., Data Communications and networking, McGraw Hill, 2007.

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

**Bachelor of Arts / Bachelor of Science(Economics) Semester V**

**Session 2022-23**

**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 2022-23)**

**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 Access 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:**

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 2022-23**

**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 (Pass.) Semester – I**

**(Session 2022-23)**

**Course Code: BCRM–1127**

**COMPUTER FUNDAMENTALS**

**Examination Time: (3+3) Hours**

**Max. Marks: 50**

**Theory: 25**

**Practical: 15**

**CA: 10**

**Instructions for Paper Setter -**

Eight questions of equal marks (5 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:** Computer as System, Features, Computer Memory –Primary (RAM & ROM) and Secondary (Hard Disk, CD, DVD), Storage Devices (Magnetic and Optical).

**Computer Applications:** Data Processing, Information Processing, Commercial, Office Automation, Industry, Healthcare, Education, Graphics and Multimedia

**UNIT-II**

**Word Processing:** Introduction to word, features, Parts of window of word (Title bar, menu bar, ribbon, office button, status bar, and ruler), creation of new documents, opening document, insert a document into another document. Page setup, margins, gutters, font properties, Alignment, page breaks, header and footer, deleting, moving, replace, editing text in document, saving a document, spell checker, printing a document.

**UNIT-III**

**Word Processing:** Creating a table, entering and editing text in tables, changing format of table, height, width of row/column, adding and deleting rows/columns, adding picture and shapes, page colors and watermarks, borders, shading, templates, wizards and mail merge

**Spreadsheet:** Introduction to worksheet, features, creating a new workbook, manual math formulas (average, count, etc.), use “cell references” with formulas.

**UNIT IV**

**Spreadsheet:** Creation of graphs, editing it and formatting, adding/deleting/moving the text in worksheet, linking different sheets, sorting the data, filtering the data (auto and advance filters), What-if analysis, open an already existing workbook, saving workbook, printing a worksheet, closing the workbook.

**References:**

1. Anshuman Sharma, A book of Fundamentals of Information Technology, Lakhanpal Publishers, 5<sup>th</sup> 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.
6. Peter Norton, Peter Norton's Computing Fundamentals, McGraw-Hill Technology Education, 2006.
7. R. Parameswaran, Computer Applications in Business, S Chand & Company, 2010.

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

**Bachelor of Commerce (Hons.) Semester-I**  
**(Session 2022-23)**  
**COURSE CODE: BCOP-1127**  
**WORKSHOP ON OFFICE PACKAGE**

**Examination Time: 3 Hrs.**

**Max. Marks: 50**  
**Practical: 40**  
**CA: 10**

**Instructions for the Paper Setter:**

- Paper will be set on the spot by the examiner

**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
- 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

**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

#### **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:**

8. Anshuman Sharma, A book of Fundamentals of Information Technology, Lakhanpal Publishers, 5<sup>th</sup> Edition.
9. Prof. Satish Jain, M. Geetha, Kratika, BPB's Office 2010 Course Complete Book, BPB Publications, 2017.
10. Joyce Cox, Joan Lambert and Curtis Frye, Microsoft office Professional 2010 Step by Step, Microsoft Press, 2010.
11. P.K. Sinha, Computer Fundamentals, BPB Publications, 2004.
12. Ebooks at OpenOffice.org
13. R. Gabriel Gurley, A Conceptual Guide to OpenOffice.org3, 2nd Edition.

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

**Bachelor of Business Administration (Semester – I)**

**(Session 2022-23)**

**COURSE CODE: BBRM-1127  
COMPUTER APPLICATIONS FOR BUSINESS- I**

**Examination Time: 3+3 Hours**

**Max. Marks: 50**

**Theory:25**

**Practical: 15**

**CA:10**

**Instructions for Paper Setter -**

Eight questions of equal 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, 5<sup>th</sup> Edition.

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

**BACHELOR OF SCIENCE (FASHION DESIGNING) SEMESTER-I**

**(Session 2022-23)**

**COURSE CODE: BFDM-1126  
BASICS OF COMPUTER**

**Examination Time: 3+3Hrs**

**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**

Introduction to Computer, Data Processing, Concept of data and information,

**UNIT II**

Classification of computer.

Computer Hardware-Central Processing Unit, Main Memory, Secondary Memory  
I/O devices

**UNIT III**

General concept of Word Processor: Word Processing, Formatting, editing  
Word Processing: Spell- grammar check, Mail Merge, Printing and saving.

**UNIT IV**

Computer applications in various fields of fashion Industry.

**References/Textbooks:**

1. Anshuman Sharma, Fundamentals of Information Technology, Lakhanpal Publishers, 5<sup>th</sup> Edition.
2. Rachhpal Singh and Gurvinder Singh, PC Software, Kalyani Publisher, 2009.
3. Peter Norton, Peter Norton's Computing Fundamentals, McGraw-Hill Technology Education, 2006.

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

# **Bachelor of Science (Honours) Physics Semester III**

**Session 2022-23**

## **PYTHON PROGRAMMING**

**Course Code: BOPM-3135**

**Examination Time: (3+3) Hrs.**

**Max. Marks: 50**

**Theory: 25**

**Practical: 15**

**CA: 10**

### **Instructions for the Paper Setters:**

Eight questions of equal marks (05 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, interactiveshell, 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**

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.

**Matrix operations using NumPy array (Multiplication. Addition, matrix multiplication, inverse, determinant, adjoint, Eigenvalues, etc).**

### **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.

**Case study of Projectile Motion.**

### **UNIT IV**

**SciPy: Integration, differentiation and interpolation.**

Files: manipulating files and directories, OS and Sys modules; text files: reading/writing text and numbers from/to a file; creating and reading a formatted 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 graphics. **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.

**Bachelor of Science (Home Science) Semester-I**

**Session 2022-23**

**COURSE CODE: BHSM - 1127**

**COMPUTER BASICS**

**(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 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:**

History of computers, Generations of Computers, Types of Computers, input devices, output devices, memory devices, software and its types, working with windows, features, desktop, using context menu, creating shortcut, working with dialog box, arranging windows, setting properties of desktop, transfer from CD, DVD. Pen Drive to Hard disk and vice versa, copying files.

Definition of Virus, Malware, Spyware and removal.

**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 Internet Provides, Internet terms, Internet requirements, getting started Internet, Surfing Net, moving about the Web, E-Mail, its features, creating and E-Mail message, Reading Mail, replying mail, draft message, sending mail. Phishing and SPAM mail.

### **References / Textbooks:**

1. Anshuman Sharma, Fundamentals of Information Technology, Lakhanpal Publishers, 5<sup>th</sup> 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 (Home Science) Semester-I**  
**Session 2022-23**  
**COURSE CODE: BHSM - 1127**  
**COMPUTER BASICS (PRACTICAL)**

**Practical on Computer Basics.**

**BACHELOR OF SCIENCE (HOME SCIENCE) SEMESTER II**  
**(Session 2022-23)**  
**COURSE CODE: BHSM - 2127**  
**COMPUTER APPLICATIONS FOR HOME SCIENTISTS**  
**(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**

**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), 5<sup>th</sup> ed.
4. Ramesh Bangia, Introduction To Multimedia, Laxmi Publications Pvt. Ltd.(2015).
5. Laudon, E-Commerce, Pearson Education India (2016), 10<sup>th</sup> ed.
6. [https://www.tutorialspoint.com/social\\_media\\_marketing/](https://www.tutorialspoint.com/social_media_marketing/)
7. <https://blog.hubspot.com/marketing/how-to-start-a-blog>

**BACHELOR OF SCIENCE (HOME SCIENCE) SEMESTER II**  
**(Session 2022-23)**  
**Course Code: BHSM - 2127**  
**COMPUTER APPLICATIONS FOR HOME SCIENTISTS**  
**(Practical)**

**Examination Time: (3+3) Hrs.**

**Max. Marks: 100**

**Theory: 50**

**Practical: 30**

**CA: 20**

**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

**Bachelor of Science (Honours) Mathematics Semester–II**  
**Session 2022-23**  
**Course Code: BOMM-2137**  
**Computer Fundamentals and Introduction to C Programming Language**

**Examination Time: (3+3) Hrs.**

**Max. Marks: 100**

**Theory: 50**

**Practical: 30**

**CA: 20**

**Instructions for the Paper Setters:**

Eight questions of equal marks (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 : Early computing devices, diverse uses of computers, block diagram, use of CPU and I/O devices, software and hardware, application software and system software, primary and secondary storage devices, Flowcharts and algorithms.

**UNIT-II**

Introduction to 'C' language: Tokens, Identifiers, Keywords, constants and literals, Data types. Operators: arithmetic, relational and logical, precedence and order of evaluation

**UNIT-III**

Control Statements: Decision control, loop control and case control. Functions and storage classes.

**UNIT-IV**

Arrays: initializing an array. one dimensional arrays: array manipulation; searching, insertion, deletion of an element from an array; finding the largest/smallest element in array; two dimensional arrays, addition/multiplication of two matrices, program to transpose a square matrix; null terminated strings as array of characters.

**References / Textbooks:**

1. E. Balagurusamy, Programming in ANSI C, Tata McGraw-Hill (2002), 5<sup>th</sup> edition.
2. Stephen G. Kochan, Programming in C, Pearson Education (2015), 4<sup>th</sup> edition.
3. Rachhpal Singh, Gurvinder Singh, Windows based computer courses, Kalyani Publishers (2011).
4. Yashwant Kanetkar, Let us C, BPB Publications (2020), 17<sup>th</sup> edition.
5. R.S. Salari, Application Programming in C, Khanna Book Publishing (2012), 4<sup>th</sup> edition.
6. Anshuman Sharma, Learn programming in C, Lakhanpal Publishers (2016), 7<sup>th</sup> edition.

# **Bachelor of Science (Honours) Mathematics Semester III**

**Session 2022-23**

## **PYTHON PROGRAMMING**

**Course Code: BOMM-3135**

**Examination Time: (3+3) Hours**

**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, interactiveshell, 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:**

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

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

# **Bachelor of Science (Honours) Mathematics Semester-IV**

**Session: 2022-23**

**COURSE CODE: BOMM-4135**

## **FOUNDATION OF STATISTICAL COMPUTING**

**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 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), 2<sup>nd</sup> Edition.
2. Sandip Rakshit, R Programming for Beginners, McGraw Hill Education (2017), 1<sup>st</sup> Edition.
3. Sandip Rakshit, Statistics with R Programming, McGraw Hill Education (2018), 1<sup>st</sup> Edition.
4. Garrett Golemund, Hands on Programming with R, O'Reilly (2014), 1<sup>st</sup> 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), 1<sup>st</sup> Edition

## MASTER OF COMMERCE SEMESTER- IV

(Session 2022-23)

COURSE CODE: MCML - 4122

E-COMMERCE

**L-T-P: 4-0-0**

**Credits: 4**

**Examination Time: 3 Hrs.**

**Max. Marks: 100**

**Theory: 80**

**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:** Introduction to E Commerce and Definition, E-Commerce based activities, Goals of E- Commerce, Functions, Advantages and disadvantages of E-Commerce, Scope of E- Commerce, Framework of E-Commerce, Electronic Commerce and Electronic Business. Steps to open online business store.

### UNIT-II

**Electronic Business models:** B2B, B2C, C2C, Websites as market place. Pure online vs. brick and click business.

**Electronic Payment systems:** Payment Gateways; Different methods of E-payments: Debit Cards, Credit Cards, Paytm, UPI, Google Pay.

### UNIT-III

**Security and Legal Aspects of E-Commerce:** Threats in E-Commerce, Security of Clients and Service-Provider; Cyber Laws – Relevant provisions of Information Technology Act 2000, offences. Secure electronic records and digital signatures.

### UNIT-IV

Business process Re-engineering, Methodology, Planning methods for change. Case studies of E-Banking, E-Governance, Supply chain management, e-Retailing.

### References/Textbooks:

1. Laudon, E-Commerce, Pearson Education India (2016), 10<sup>th</sup> edition.
2. David Whiteley, E - Commerce: Strategy, Technologies and Applications, McGraw Hill Education (2017).
3. K.K. Bajaj, Debjani Nag, E-Commerce: The Cutting Edge of Business, McGraw Hill Education (2017), 2<sup>nd</sup> 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), 2<sup>nd</sup> edition.
6. SyamalesMaiti, SweetySadhukhan, E-commerce and business communication, McGraw-Hill (2019), 1<sup>st</sup> edition.

**Master of Science (Chemistry) Semester - I  
Session 2021-22**

**(Theory)  
COMPUTER FOR CHEMISTS  
Course code: MCHM - 1135**

**L-T-P: 2-0-1**

**Credits: 3**

**Examination Time: (3+3) Hours**

**Max. Marks: 75**

**Theory: 40**

**Practical: 20**

**CA: 15**

**Note: The students are allowed to use Non-Programmable Calculator.**

**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.

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

**UNIT-I**

Principles of 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, assignment statement, arithmetic operators.

Integer arithmetic expressions, truncation effects, relative priority of arithmetic operators, use of parenthesis, modulus operator.

**UNIT-II**

Floating point numbers, scientific notation, converting integers to floating point and vice versa, coercion and cast operator, type char.

Decision making in C, scanf function, 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  $n_1$  molecules of molecular weight  $m_1$ ,  $n_2$  molecules of molecular weight  $M_2$  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 gas.

#### 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.

**Master of Science (Zoology) Semester-I  
Session 2022-23**

**(Theory)  
COMPUTER PROGRAMMING AND DATA PROCESSING  
COURSE CODE: MZOM-1134**

**L-T-P: 2-0-1**

**Credits: 3**

**Examination Time: 3+3 Hours**

**Max. Marks: 50**

**Theory: 25**

**Practical: 15**

**CA: 10**

**Instructions for Paper Setter -**

Eight questions of equal marks (5 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 and generations.  
Computer architecture, organization, its 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, 5<sup>th</sup> 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 ARTS (ECONOMICS) SEMESTER - II

(Session 2022-23)

### COMPUTER APPLICATIONS FOR ECONOMISTS

COURSE CODE: MECM- 2125 (OPT - XI)

**L-T-P: 3-0-1**

**Credits: 4**

**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**

**Fundamentals of Computer:** Introduction to computer, Applications of computer, Input and Output devices, Memory – Primary and Secondary.

**Latest trends and Technologies in IT:** Digital Camera, Smart finger: Distance measuring tool, Nipper, Stylus, Tiny cube speaker, Airpods, Mobile as a computing device, Payment gateway, Payment methods: Net-banking, m-Banking, UPI, Debit/Credit Card, Mobile Wallets.

#### **UNIT II**

**Word Processing:** Introduction to word processing & its features, parts of window of word processing (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 and width of row/column editing, adding and deleting rows/columns. Adding picture, page colors and watermarks, borders, shading, drawing objects.

#### **UNIT -III**

**Spreadsheet:** Introduction to worksheet/spreadsheet, features, creating a new workbook, different functions on different data in excel, creation of chart, creation of worksheet, adding, deleting, moving the text in worksheet, linking, sorting the data, querying the data, filtering the data (auto and advance filters), open an already existing workbook, saving workbook, printing a worksheet, closing the workbook & exiting.

## **UNIT -IV**

**SPSS:** Introduction, Data editor Window, Syntax, Output basics, If command, Filter command, Entering and modifying data, Creating a chart, using interactive chart function, difference between excel and SPSS.

### **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), 5<sup>th</sup> ed..
4. E. Balagurusamy, Programming in ANSI C, Tata McGraw-Hill (2002), 5<sup>th</sup> ed.
5. Yashwant Kanetkar, Let us C, BPB Publications (2020), 17<sup>th</sup> ed.
6. Anshuman Sharma, Learn programming in C, Lakhanpal Publishers (2016), 7<sup>th</sup> ed.
7. Lokesh Jasrai, Data Analysis using SPSS, SAGE Publications Pvt. Ltd. (2020), 1<sup>st</sup> Edition