

7. Syllabus

SATAVAHANA UNIVERSITY
B.COM (COMPUTERS) (I YEAR)
FUNDAMENTALS OF INFORMATION TECHNOLOGY
Theory Paper-IV

Objective: To impart basic knowledge about computer with application of various packages to Business and Commerce.

UNIT-I:

Introduction to computers: Definition, Characteristics and limitations of computers - Elements of Computers - Hardware - CPU - Primary and Secondary memory - Input and Output devices. IT enabled services - BPO, KPO, Call centers. Modern communications (Concepts only): Communications – FAX, Voice mail, and information services – E Mail – Creation of email id - group communication – Tele conferencing – Video conferencing – File exchange – Bandwidth – Modem – Network Topologies – Network types LAN, MAN, WAN and their architecture – Dial up access.

UNIT-II:

Operating System and Windows: Operating Systems: Meaning, Definition, Functions and Types of Operating Systems - Booting process – Disk Operating System: Internal and External Commands – Wild Card Characters – Computer Virus, Cryptology. Windows operating system - Desktop, Start menu, Control panel, Windows accessories.

UNIT-III:

MS Office I: MS Word & Word Processing : Meaning and features of word processing – Advantages and applications of word processing - Parts of MS Word application window – Toolbars – Creating, Saving and closing a document – Opening and editing a document - Moving and copying text – Text and paragraph formatting, applying Bullets and Numbering – Find and Replace – Insertion of Objects, Date and Time, Headers, Footers and Page Breaks – Auto Correct – Spelling and Grammar checking – Graphics, Templates and wizards - Mail Merge : Meaning, purpose and advantages – creating merged letters, mailing labels, envelopes and catalogs- Working with Tables – Format Painter.

MS EXCEL: Features of MS Excel – Spread sheet / worksheet, workbook, cell, cell pointer, cell address etc., - Parts of MS Excel window – Saving, Opening and

Closing workbook – Insertion and deletion of worksheet – Entering and Editing data in worksheet – cell range – Formatting – Auto Fill –Formulas and its advantages – References : Relative, absolute and mixed – Functions: Meaning and Advantages of functions, different types of functions available in Excel – Templates –Charts – Graphs – Macros : Meaning and Advantages of macros, creation, editing and deletion of macros – Data Sorting, Filtering, validation, Consolidation, Grouping, Pivot Table and Pivot Chart Reports.

UNIT-IV:

MS Office II: MS Access - Data, Information, Database, File, Record, Fields - Features, advantages and limitations of MS Access – Application of MS Access – 10 parts of MS Access window – Tables, Forms, Queries and Reports – Data validity checks – (Theory with simple problems)

MS PowerPoint: Features, advantages and application of Ms Power point – Parts of MS Power point window – Menus and Tool bars – Creating presentations through Auto content wizard, Templates and manually – slide show – saving, opening and closing a Presentation – Inserting, editing and deleting slides –Types of slides - Slide Views- Formatting –Insertion of Objects and Charts in slides- Custom Animation and Transition.

Multimedia: Meaning, Purpose, Usage and application – Images, Graphics, sounds and music – Video presentation devices – Multimedia on web.

UNIT-V:

Internet & E commerce: Services available on internet - WWW - ISP.

E commerce: Meaning, advantages and limitations, applications of E commerce - trading stocks online, ordering products / journals / books etc., online, travel and tourism services, employment placement and job market, internet banking, auctions, online publishing, advertising-Online payment system (including practicals).

PRACTICALS: MS DOS MS WINDOWS MS WORD MS EXCEL , MS ACCESS MS POWERPOINT INTERNET & E COMMERCE.

Suggested Readings:

1. Introduction to Information Technology: Rajaraman, PHI
2. Fundamentals of Computers 4/E: Rajaraman, PHI
3. Fundamentals of Computers: P. Mohan, Himalaya Publishing House

4. Information Technology: Dennis P. Curtin, McGraw Hill International
5. E-Commerce-Business: C.S.Rayudu ,Himalaya Publishing House
6. Microsoft Office Excel 2003 step by step: Frye, PHI
7. Fundamentals of Computers: Atul Kahate, Tata McGraw Hill
8. Fundamentals of Computers: V. Srinivas, Kalyani Publications
9. Microsoft Office Word 2003 step by step: Online Training Solutions Inc PHI
10. Microsoft Office Access 2003 step by step: Online Training Solutions Inc, PHI
11. Microsoft Office Power Point 2003 step by step: Online Training Solutions Inc, PHI
12. MS Office: Sanjay Saxsena
13. MS Office: BPB Publications
14. E commerce: CSV Murthy,Himayalaya Publishing House
15. Raymond Green Law: Fundamentals of theInternet, Tata Mc Graw Hill
15. Efraim Turban: Electronic Commerce,Pearson Education
16. Fundamentals of Information Technolgy: Deepak Bharihanke, Excel
17. E-Commerce , An Indian Perspective: Joseph, PHI
18. Understanding Computers: Morley, Cengage
19. Foundations of IT: Dhiraj Sharma - Excel Books.
20. Microsoft Office Excel 2007 step by step: Frye, PHI
21. Computer Applications in Business: K. Mohan Kumar, Dr. S. Rajkumar, Tata.
22. Fundamentals of Information Technology: Dr.K.Kiran Kumar, Laysa.

FUNDAMENTALS OF INFORMATION TECHNOLOGY

Objective: to acquire basic knowledge in Information Technology and its applications in the areas of business.

UNIT-I: INTRODUCTION:

Introduction to computers - Generations of computers – An overview of computer system - Types of computers - Input & Output Devices. Hardware: Basic components of a computer system - Control unit – ALU - Input/output functions - Memory – RAM – ROM – EPROM - PROM and Other types of memory.

UNIT-II: OPERATING SYSTEM (OS): Meaning - Definition & Functions - Types of OS - Booting process - DOS – Commands (internal & external) - Wild card characters – Virus & Hackers – Cryptography & cryptology Windows: Using the Start Menu –Control Panel – Using multiple windows – Customizing the Desktop – Windows accessories (Preferably latest version of windows or Linux Ubuntu).

UNIT-III: WORD PROCESSING:

Application of word processing - Menus & Tool Bars - Word processor – Creating – Entering - Saving & printing the document - Editing & Formatting Text - Mail Merge and Macros (Preferably latest version of MS Word or Libre Office Writer).

UNIT-IV: SPREAD SHEET:

Application of work sheet/spread sheet - Menus & Tool bars - Creating a worksheet - Entering and editing of numbers - Cell referencing - Worksheet to analyze data with graphs & Charts. Advanced tools: Functions – Formulae – Formatting numbers - Macros – Sorting- Filtering - Validation & Consolidation of Data (Preferably latest version of MS Excel or Libre Office Calc)

UNIT-V: POWER POINT PRESENTATION:

Application of Power Point Presentation – Menus & Tool bars – Creating presentations – Adding - Editing and deleting slides - Templates and manually creating presentation– Slide show – Saving - Opening and closing a Presentation –Types of slides - Slide Views - Formatting – Insertion of Objects and Charts in slides - Custom Animation and Transition (Preferably latest version of MS Power Point presentation - Libre Office Impress). Internet & Browsing: Services available on internet – WWW – ISP – Browsers. Multimedia: Application of multimedia – Images – Graphics-Audio and Video – IT security.

**Programming Concept Using C
Theory Paper-II**

Paper: 105 Max Marks: 70T + 30P= 100

P.P.W: 4 (3 + 1) Hrs Exam Duration: 3 Hrs

Objective: To acquaint the students about the basic programming language.

Unit-I:

Fundamentals of "C" C Program, branching in C, if Statement, if-else statement, nested if, go to statement, else-if statement, switch break statements, loops, while, do-while, for, nesting of loops.

Unit-II:

Functions in C –global and local variables, parameter passing, standard functions in header files, recursion.

Array's in C- one dimensional arrays, multi dimensional arrays, arrays as function arguments, sorting, searching, and merging.

Unit-III:

Data types, scope and visibility, automatic conversion of variables different types of variables, include directives, define directive, define with arguments
Pointers in C - Arrays and pointers, pointers to functions, pointers and strings, command line arguments.

Unit-IV:

Structures and Unions: arrays as structures members, nested structure array of structures, structures as function arguments, pointer to a structure, input and output-elementary functions.

Unit-V:

Screen control, creation of windows, new design advanced file management, binary files, direct access files.

Suggested Readings:

1. Computing fundamentals and C Programming: Balaguruswamy, Tata
2. Exploring C: Yashwantkanetkar, BPB Publications.
3. Mastering C: K R Venugopal, S R Prasad
4. Let us C: Yashwantkanetkar.

BUSINESS DATA PROCESSING SYSTEM

Theory Paper- IV

Paper-IV Marks : 100 (Theory 70 + Practical 30)

Unit – I:

Data and information-Limitations of manual data processing - Advantages of data base –DBMS –Functions of DBA-Elements of DBMS: DDL, DML, Entities, Sets and attributes. Data Base Tables: Keys -Primary, secondary, composite and foreign key.

Unit – II:

Relational Data Base: Entity relationship- Types- 1:1, 1:M, M:N, Strong and weak entities, Recursive Data Base Design, Normalization. First, Second, third BCNF fourth. Class diagrams and Entity relationship tables.

Unit – III: Creating Data Bases: Creating tables - Modifying table structures-Data entry -Edit-Delete -Importing-Exporting tables using MS Access.

Unit – IV: Queries: QBE-Select queries-Grouping-Parameters-Data formatting, queries based on multiple sources-Cross tab queries-Action queries-Make table queries-append-Delete and Update queries using MS-Access,

Unit-V: Forms and Reports; Forms: Functions and uses-Creating, Modifying labels-List boxes-Dialog boxes. Reports. Creating-Modifying reports-Creating Reports with Report wizard-Report Graphics-Label output format-Form letters.(Using MS Access)

Lab Work: (MS Access)

Creating tables entering data, viewing , editing, sorting, deleting, moving data in Tables Simple queries using Employee data base, inventory database, product data base, invoice data base, customer database. Creating forms and reports using the database stated in itemno.2

Books Recommended:

Perer Norton: Introduction to Computers (2nd Ed),TMH, New Delhi, 1998.

Basandra K.Suresh:Computers: Today, Galgotia Publications New deihi,2000,

RobPeter.and Semaan Elie:Data Bases: Design, Development & Development using MS Access, TMH. New delhi,2000.

ELECTRONIC COMMERCE**Theory Paper-III**

Paper-III Marks : 100 (Theory 70 + Practical 30)

UNIT - I: Overview of Electronic Commerce

Definition of Electronic Commerce- E-Business -Potential Benefits of Electronic Commerce- The Internet and World Wide Web (WWW) as enabler of E-Commerce- Impact if E-Commerce on Business Models- E-Commerce Applications- Market forces influencing highway- Global Information Distribution Networks.

UNIT - II: E-Commerce and WWW- Architecture Framework

E-Commerce and WWW- Architecture Framework- Technology behind the Web- Hyper text Publishing- Security and the Web- Security protocols and the Web Security issues-Encryption techniques.

UNIT - III: Consumer Oriented E-Commerce Applications

Consumer Oriented E-Commerce Applications - Mercantile Process Models from Consumers and Merchant's Perspective- Electronic Payment Systems- Types of Payment System (Credit Card; E-Cash, Smart-Cards - Digital Payments, etc.,)- Risks in E-Payments-Designing E-Payment Systems.

UNIT - IV: Electronic Data Interchange (EDI)

Electronic Data Interchange (EDI)- EDI applications in business- Legal, Security and Privacy Issues in EDI and E-Commerce- Internet based EDI- Intra Organizational E-Commerce.

UNIT - V: Web-based Marketing

Web-based Marketing - Introduction and Scope of Marketing- Business, Marketing and Information Technology congruence- Advertising and Marketing on the internet-Application of 4 Ps (Product, Price, Place & Promotion) in internet-Marketing Supply Chain Management.

Lab work: Using Microsoft front-page editor and HTML in Designing a Static (simple) Website.

Suggested Readings:

1. E-Commerce : A Managerial Perspective : Micheal change, et. A1
2. Electronic Commerce- Security : Greenstein & Feinman Risk Management & Control
3. Frontiers of Electronic Commerce : Ravi Kalakota & A.B. Whinston

WEB PROGRAMMING THEORY PAPER-VI

Paper-VI Marks: 100 (Theory 70 + Practical 30)

UNIT-I:

HTML Programming Introduction - Formatting Text-Forms &Formulating Elements - Graphics in HTML Creating Tables & Frames - Web Design Principles.

UNIT-II:

VB Scripting Introduction - VB Script - Basics of VB Script - Array Handling - User Interaction in VB Script - Data Validation in VB Script - Handling Runtime errors.

UNIT- III:

Dynamic HTML Programming Introduction – Cascading Style Sheets (CSS) - Events Handling - Changing Text and Attributes - Dynamically Changing Style, Text, Graphics and Placements - Creating Multimedia Effects with Filters and Transactions.

UNIT-IV: Active Server Pages (ASP) Introduction – Scripting Languages and Script Engines in ASP - ASP Objects - Data Access Technology - ASP Application - Information Search Tools.

UNIT-V: Extensible Markup Language (XML) Introduction – Creating XML Documents - XML Style Sheets - Hyperlinks in XML Documents - XML Document Object Model - XML Query Language.

Lab Work:

Creation of a Web site with Dynamic functionality using client-side and server - side scripting.

Suggested Readings:

1. M. SULOCHANA – Web Programming- Kalyani Publishers
2. Microsoft Official Curriculum.
3. Essential XML : Box
4. Dynamic HTML : Rule
5. HTML for the WWW : Castro.

RELATIONAL DATABASE MANAGEMENT SYSTEMS THEORY PAPER-VII

Paper-VII Marks : 100 (Theory 70 + Practical 30)

UNIT-I: Database Systems- Evolution- File Oriented Systems-Database Models database System Components- Database Systems in the Organization- Data sharing Strategic Database Planning database and Management Control- Risks and Costs and Databases- Database development.

UNIT-II: Database Design-Principles of Conceptual Database Design-Conceptual Data Models- Aggregation- Modeling conceptual Objects vs. Physical Objects- Relational Data Model- Fundamental Concepts-Normalization-Transforming a conceptual model - Relational Model- Relational Database Implementation- Relational Algebra and Calculus.

UNIT-III: SQL-Schema and Table Definition-Data Manipulation- View Definition Graphical Query Language-Client-Server Databases- Defining Database Tables and Server- Server Data Manipulation and Programming- Developing Client Applications

UNIT-IV: Physical Database Systems- Storage Media- Disk Performance Factors- File Organization- Implementing Logical Relationships- Mapping logical Data Structures to Physical Structures- Secondary Keys Access-Database Administration and Control DBA Functions- DBA Goals- Database Integrity- Database Security- Database Recovery

UNIT-V: Distributed Database Systems-Design.- Query Processing- Data Integrity Recovery- Client/Server Systems- DBMS Selection and Implementation- Information Needs- DBMS Functions and Capabilities-Classifying DBMS feature requirement Evaluation Models- Implementation Issues- Case studies of RDBMS package such as ORACLE/MS-SQL Server.

Lab Work:

Using SQL commands creating Database Schema and Tables and Retrieval of data.

SUGGESTED READINGS:

- 1.Modern Database Management: MeFadden
2. An Introduction to Database System:Bipin C.Desai
- 3.Database Management & Design: Gary Hansen & James. Hansesn

B.COM (CA) I YEAR — II SEMESTER

Paper 203: DSC 203: PROGRAMMING WITH C & C++

Objective: To understand the fundamental concepts of programming in C and Object Oriented Programming using C++.

UNIT-I: INTRODUCTION TO C LANGUAGE, VARIABLES, DATA TYPES AND OPERATORS Introduction: Types of Languages- History of C language – Basic Structure –Programming Rules – Flow charts-algorithms–Commonly used library functions - Executing the C Program - Pre-processors in “C”- Keywords & Identifiers – Constants – Variables: Rules for defining variables - Scope and Life

of a Variable— Data types - Type Conversion - Formatted Input and Output operations. Operators: Introduction – Arithmetic – Relational – Logical – Assignment - Conditional - Special - Bitwise - Increment / Decrement operator. UNIT-II: WORKING WITH CONTROL STATEMENTS, LOOPS Conditional statements: Introduction - If statements - If-else statements – nested if-else – break statement- continue statement-go to statement-Switch statements. Looping statements: Introduction- While statements – Do-while statements - For Statements nested loop statements. UNIT-III: FUNCTIONS, ARRAYS AND STRINGS Functions: Definition and declaration of functions- Function proto type-return statement- types of functions-formatted and unformatted functions. Built in functions: Mathematical functions – String functions - Character functions - Date functions. User defined functions: Introduction - Need for user defined functions - Elements of functions – Function call – call by value and call by reference – Recursive functions. Arrays: Introduction - Defining an array - Initializing an array –characteristics of an array- One dimensional array – Two dimensional array – Multi dimensional array. Strings: Introduction – Declaring and initializing string - Reading and Writing strings - String standard functions. UNIT-IV: POINTERS, STRUCTURES AND UNIONS Pointers: Features of pointers- Declaration of Pointers-arithmetic operations with pointers Structures: Features of Structures - Declaring and initialization of Structures –Structure within Structure- Array of Structures- Enumerated data type-Unions-Definition and advantages of Unions comparison between Structure & Unions. UNIT-V: OBJECT ORIENTED CONCEPTS USING C++ Object Oriented Programming: Introduction to Object Oriented Programming - Structure of C++ – Simple program of C++– Storage Classes-Similarities and Differences between C & C++ - Data Members-Member Functions - Object Oriented Concepts-Class-Object- Inheritance-Polymorphism- Encapsulation- Abstraction.

SUGGESTED READINGS: 1. Programming with C& C++ :IndrakantiSekhar, V.V.R.Raman&V.N.Battu, Himalaya Publishers. 2. Programming in ANSI C: Balagurusamy, McGraw Hill. 3. Mastering C: K.R. Venugopal, McGraw Hill. 4. C: The Complete Reference: H.Schildt, McGraw Hill. 5. Let Us C: Y.Kanetkar, BPB. 6. Objected Oriented Programming with C++: E. Balagurusamy, McGraw Hill. 7. Mastering C++: KR.Venugopal&R.Buyya, McGraw Hill. 8. Schaum s Outlines: Programming with C++: by John R Hubbard. 9. Let Us C++: Y.Kanetkar, BPB.

**B.COM (CA) II YEAR — III SEMESTER
FUNDAMENTALS OF WEB DESIGNING**

Max. Marks: 60+20

Exam Duration: 3Hrs

Objective of the course: The aim of this course is to provide the conceptual knowledge of web page design which enables the student to develop the skill of web page design

UNIT-I: Introduction to Basics of Internet: Concepts of Internet: Domain, IP Addressing, Resolving Domain Names, Overview of TCP/IP and its Services, WWW. Essential HTML: History of HTML-Creating a Web page-viewing a web page-checking your webpage- Working with Text: Formatting with HTML tags- Physical HTML Styles-Logical HTML Styles-Setting fonts-Headings -Dynamic HTML-Introduction of DHTML- HTML vs. DHTML, Advantages of DHTML, CSS of DHTML, Event Handling, Data Binding, Browser Object Models

UNIT-II: Presenting and Arranging Text: Arranging Text- Using <DIV> and - Using layers-More Formatting power- Pre formatting Text - Exposure to Various Tags (DIV, MARQUEE, NOBR, DFN, HR, LISTING, Comment, IMG), Color and Background of Web Pages, Lists and their Types, Working with Images: Images in Web Pages — Graphic formats — Graphic programs and resources — using clipart — Graphics color — Creating images -Attributes of Image Tag

UNIT- III : Links and Lists: Creating Hyperlinks — All about URLs — Creating image Maps —Creating Lists- Creating Tables: The parts of a Table — Creating a Table — Adding a Border - Padding your cells — Widening the cell spacing — Aligning your data Horizontally - Aligning your Data vertically — Spanning columns — Spanning rows — Setting colors

Unit-IV: Working with Frames: To Frame or Not to Frame- Creating Horizontal Frames —Creating Horizontal and Vertical Frames — Named Frames — opening new browser windows. Working with Multimedia: Multimedia sound — Multimedia video — Multimedia 3D — Creating your own Multimedia — Connecting to External Multimedia files — Creating inline sound — Creating inline video.

B.Com (Computer Applications):
RELATIONAL DATABASE MANAGEMENT SYSTEMS

Objective: to acquire basic conceptual background necessary to design and develop simple database system, Relational database mode, ER model and distributed databases, and to write good queries using a standard query language called SQL.

UNIT-I: BASIC CONCEPTS:

Database Management System - File based system - Advantages of DBMS over file based system - Database Approach - Logical DBMS Architecture - Three level architecture of DBMS or logical DBMS architecture - Need for three level architecture - Physical DBMS Architecture - Database Administrator (DBA) Functions & Role - Data files indices and Data Dictionary - Types of Database.

Relational and ER Models: Data Models - Relational Model — Domains - Tuple and Relation - Super keys - Candidate keys - Primary keys and foreign key for the Relations - Relational Constraints - Domain Constraint - Key Constraint - Integrity Constraint - Update Operations and Dealing with Constraint Violations - Relational Operations - Entity Relationship (ER) Model — Entities — Attributes — Relationships - More about Entities and Relationships - Defining Relationship for College Database - E-R Diagram - Conversion of E-R Diagram to Relational Database.

UNIT-II: DATABASE INTEGRITY AND NORMALISATION:

Relational Database Integrity - The Keys - Referential Integrity - Entity Integrity - Redundancy and Associated Problems — Single Valued Dependencies — Normalisation - Rules of Data Normalisation - The First Normal Form - The Second Normal Form - The Third Normal Form - Boyce Codd Normal Form - Attribute Preservation - Lossless-join Decomposition - Dependency Preservation.

File Organisation : Physical Database Design Issues - Storage of Database on Hard Disks - File Organisation and Its Types - Heap files (Unordered files) - Sequential File Organisation - Indexed (Indexed Sequential) File Organisation - Hashed File Organisation - Types of Indexes - Index and Tree Structure - Multi-key File Organisation - Need for Multiple Access Paths - Multi-list File Organisation - Inverted File Organisation.

UNIT-III: STRUCTURES QUERY LANGUAGE (SQL):

Meaning — SQL commands - Data Definition Language - Data Manipulation Language - Data Control Language - Transaction Control Language - Queries using Order by — Where - Group by - Nested Queries.

Joins — Views — Sequences - Indexes and Synonyms - Table Handling.

UNIT-IV : TRANSACTIONS AND CONCURRENCY MANAGEMENT:

Transactions - Concurrent Transactions - Locking Protocol - Serializable Schedules - Locks Two Phase Locking (2PL) - Deadlock and its Prevention - Optimistic Concurrency Control. Database Recovery and Security Database Recovery meaning - Kinds of failures - Failure controlling methods - Database errors - Backup & Recovery Techniques - Security & Integrity - Database Security - Authorization.

UNIT-V: DISTRIBUTED AND CLIENT SERVER DATABASES:

Need for Distributed Database Systems - Structure of Distributed Database - Advantages and Disadvantages of DDBMS - Advantages of Data Distribution - Disadvantages of Data Distribution - Data Replication - Data Fragmentation. Client Server Databases: Emergence of Client Server Architecture - Need for Client Server Computing - Structure of Client Server Systems & its advantages.

LAB: SQL QUERIES BASED ON VARIOUS COMMANDS.

SUGGESTED READINGS:

1. Database Systems: R.Ehnsari& S.B. Navathe, Pearson.
2. Introduction to Database Management System: ISRD Group, McGraw Hill.
3. Database Management System: R.Ramakrishnan&J.Gehrke, McGraw Hill.
4. Modern Database Management: J.A.Hoffer,V.Rames&H.Topi, Pearson.
5. Database System Concepts: Silberschatz, Korth&Sudarshan, McGraw Hill.
6. Simplified Approach to DBMS: ParteekBhaia, Kalyani Publishers.
7. Database Management System: NirupmaPathak, Himalaya.
8. Database Management Systems: Pannervselvam, PHI.
9. Relational Database Management System: Srivastava & Srivastava, New Age
- 10.PHP MySQL Spoken Tutorials by HT Bombay.
- 11.Oracle Database: A Beginner's Guide: I.Abramson, McGraw Hill.

E-COMMERCE Spl-1 (for B.Com CA only)

Paper: BCC/E505 Max Marks: 80 T + 20 I = 100

PPW: 4 (3T+2P) Hrs Exam Duration: 3hrs

OBJECTIVE: to acquire conceptual and application knowledge of ecommerce.

UNIT-I: INTRODUCTION: E-Commerce: Meaning, Advantages & Limitations - E-Business: Traditional & Contemporary Model, Impact of E-Commerce on Business Models - Classification Of E-Commerce: B2B, B2C, C2B, C2C, B2E - Applications of Ecommerce: E-Commerce Organization Applications - EMarketing - E-Advertising - E-Banking - Mobile Commerce - E-Trading - E-Learning - E-Shopping.

UNIT-II: FRAMEWORK OF E-COMMERCE: Framework Of E-Commerce: Application Services - Interface Layers - Secure Messaging - Middleware Services and Network Infrastructure - Site Security - Firewalls & Network Security - TCP/IP – HTTP - Secured HTTP – SMTP - SSL. Data Encryption: Cryptography – Encryption – Decryption - Public Key - Private Key - Digital Signatures - Digital Certificates.

UNIT-III: CONSUMER ORIENTED E-COMMERCE APPLICATIONS: Introduction - Mercantile Process Model: Consumers Perspective and Merchant's Perspective - Electronic Payment Systems: Legal Issues & Digital Currency - E-Cash & E-Cheque - Electronic Fund Transfer (EFT) - Advantages and Risks - Digital Token-Based E-Payment System - Smart Cards.

UNIT-IV: ELECTRONIC DATA INTERCHANGE: Introduction - EDI Standards - Types of EDI - EDI Applications in Business – Legal - Security and Privacy issues if EDI - EDI and E-Commerce - EDI Software Implementation.

UNIT-V: E-MARKETING TECHNIQUES: Introduction - New Age of Information - Based Marketing - Influence on Marketing - Search Engines & Directory Services - Charting the On-Line Marketing Process - Chain Letters - Applications of 5P's (Product, Price, Place, Promotion, People) E-Advertisement - Virtual Reality & Consumer Experience - Role of Digital Marketing. Lab work: Using Microsoft Front Page Editor and HTML in Designing a Static Webpage/Website.

SUGGESTED READINGS:

1. Frontiers of Electronic Commerce: Ravi Kalakota, Andrew B Whinston, Pearson
2. E-Commerce:An Indian Perspective: P.T. Joseph, S.J, Phi
3. Electronic Commerce, Framework Technologies&Applications: Bharat Bhasker, McgrawHill
4. Introduction To E-Commerce: Jeffrey F Rayport, Bernard J. Jaworski: Tata Mcgraw Hill

5. Electronic Commerce, A Managers' Guide: Ravi Kalakota, Andrew B Whinston
6. E-Commerce & Computerized Accounting: Rajinder Singh, Er. Kaisar Rasheed, Kalyani
7. E-Commerce & Mobile Commerce Technologies: Pandey, Saurabh Shukla, S. Chand
8. E-Business 2.0, Roadmap For Success: Ravi Kalakota, Marcia Robinson, Pearson
9. Electronic Commerce: Pete Loshin / John Vacca, Firewall Media
10. E-Commerce, Strategy, Technologies And Applications : David Whiteley, Tata Mcgraw Hill
11. Digital Commerce and Its Applications (Student's Handbook): K Goyal, Kalyani Pub

Paper: (BCO506) OBJECT ORIENTED PROGRAMMING IN C++

Objective: to gain skills of Object Oriented Programming using C++ Language.

UNIT-I: INTRODUCTION:

Object Oriented Programming: Concepts – Benefits – Languages-Structured vs. Object Oriented Programming.

C++: Genesis - Structure of a program – Tokens - Data Types – Operators - Control Structures - C vs C++ - Functions.

UNIT-II: CLASSES, OBJECTS, CONSTRUCTORS AND DESTRUCTORS:

Encapsulation - Hiding - Abstract data types - Object & Classes – Attributes - Methods - C++ class declaration - State identity and behavior of an object.

Purpose of Constructors - Default Constructor - Parameterized Constructors - Copy Constructor - Instantiation of objects - Default parameter value - Object types - C++ garbage collection - Dynamic memory allocation – Meta class/ Abstract classes.

UNIT-III: OVERLOADING, CONVERSIONS, DERIVED CLASSES AND INHERITANCE:

Function and Operator Overloading - Overloading Unary and Binary Operators - Data and Type Conversions - Derived Classes - Concept of Reusability - Visibility modes - Types of Inheritance - Single and Multiple Inheritance - Multilevel Inheritance.

UNIT-IV: POLYMORPHISM, VIRTUAL FUNCTION, STREAMS AND FILES:

Polymorphism - Virtual - Classes - Pointer to Derived class - Virtual functions - Rules for Virtual function - Pure Virtual functions-Stream Classes - Types of I/O - Formatting Outputs - File Pointers – Buffer -C++ Stream - Unformatted console I/O operations – Functions: get() - put() – formatted console I /O operations - IOS class format functions - Manipulators.

UNIT-V: EXCEPTION HANDLING AND DATA STRUCTURES IN C++:

Exceptions in C++ Programs - Try and Catch Expressions - Exceptions with arguments.

Data Structures: Introduction - Linked list - Stacks - Queues.

SUGGESTED READINGS:

1. Objected Oriented Programming with C++: E.Balagurusamy, McGrawHill.
2. C++ Programming-A Practical Approach: MadhusudanMothe, Pearson.
3. Object Oriented Programming Using C++: Chadha&Chadha, Kalyani.

4. Programming in C++: A.N.Kamthane, Pearson.
5. The Complete Reference C++: H.Schildt, McGrawHill.
6. C++:How to Program: Deitel&Deitel, PHI.
7. Mastering C++: KR.Venugopal&R.Buyya, McGrawHill.
8. Schaum's Outlines:Programming with C++: by John R Hubbard.
9. Object Oriented Programming using C++: Somashekara, PHI.
- 10.C++ Spoken Tutorials by IIT Bombay.

B.Sc.(Computer Science)
Programming in C (Semester – I)

Theory: 4 Hrs/Wk (4 Credits)

Practical: 3 Hrs/Wk (1 Credit)

Total Credits: 4+1 = 5 Credits

UNIT – I Computer Fundamentals: Introduction of Computers, Classification of Computers, Anatomy of a Computer, Memory Hierarchy, Introduction to OS, Operational Overview of a CPU. Program Fundamentals: Generation and Classification of Programming Languages, Compiling, Interpreting, Loading, Linking of a Program, Developing Program, Software Development. Algorithms: Definitions, Different Ways of Stating Algorithms (Step-form, Pseudo-code, Flowchart), Strategy for Designing Algorithms, Structured Programming Concept. Basics of C: Overview of C, Developing Programs in C, Parts of Simple C Program, Structure of a C Program, Comments, Program Statements, C Tokens, Keywords, Identifiers, Data Types, Variables, Constants, Operators and Expressions, Expression Evaluation–precedence and associativity, Type Conversions.

UNIT – II Input-Output: Non-formatted and Formatted Input and Output Functions, Escape Sequences, Control Statements: Selection Statements – if, if-else, nested if, nested if-else, comma operator, conditional operator, switch; Iterative Statements–while, for, do-while; Special Control Statement– go to, break, continue, return, exit. Arrays and Strings: One-dimensional Arrays, Character Arrays, Functions from c type. h, string. h, Multidimensional Arrays.

UNIT – III Functions: Concept of Function, Using Functions, Call-by-Value Vs Call-by-reference, Passing Arrays to Functions, Scope of Variables, Storage Classes, Inline Functions, and Recursion. Pointers: Introduction, Address of Operator (&), Pointer, Uses of Pointers, Arrays and Pointers, Pointers and Strings, Pointers to Pointers, Array of Pointers, Pointer to Array, Dynamic Memory Allocation.

UNIT – IV User-defined Data Types: Declaring a Structure (Union) and its members, Initialization Structure (Union), Accessing members of a Structure (Union), Array of Structures (Union), and Structures verses Unions, Enumeration Types. Files: Introduction, Using Files in C, Working with Text Files, Working with Binary Files, Files of Records, Random Access to Files of Records, Other File Management Functions.

Text Book: Pradip Dey, Manas Ghosh, Computer Fundamentals and Programming in C (2e)

Reference Books: 1. Ivor Horton, Beginning C 2. Ashok Kamthane, Programming in C 3. Herbert Schildt, The Complete Reference C 4. Paul Deitel, Harvey Deitel, C How To Program 5. Byron S. Gottfried, Theory and Problems of Programming with C 6. Brian W. Kernighan, Dennis M. Ritchie, The C Programming Language 7. B. A. Forouzan, R. F. Gilberg, A Structured Programming Approach Using C

Satavahana University-B.Sc.(Computer Science) Syllabus –CBCS- Pattern System W.E.F – 2019 - 2020 Programming in C++ (Semester – II)

Theory: 4 Hrs/Wk (4 Credits)

Practical: 3 Hrs/Wk (1 Credit)

Total Credits: 4+1 = 5 Credits

UNIT – I Introduction to C++: Applications, Example Programs, Tokens, Data Types, Operators, Expressions, Control Structures, Arrays, Strings, Pointers, Searching and Sorting Arrays. Functions: Introduction, Prototype, Passing Data by Value, Reference Variables, Using Reference Variables as Parameters, Inline Functions, Default Arguments, Overloading Functions, Passing Arrays to Functions. Object Oriented Programming: Procedural and Object-Oriented Programming, Terminology, Benefits, OOP Languages, and OOP Applications.

UNIT – II Classes: Introduction, Defining an Instance of a Class, Why Have Private Members? Separating Class Specification from Implementation, Inline Member Functions, Constructors, Passing Arguments to Constructors, Destructors, Overloading Constructors, Private Member Functions, Arrays of Objects, Instance and Static Members, Friends of Classes, Member-wise Assignment, Copy Constructors, Operator Overloading, Object Conversion, Aggregation.

UNIT – III Inheritance: Introduction, Protected Members and Class Access, Base Class Access Specification, Constructors and Destructors in Base and Derived Classes, Redefining Base Class Functions, Class Hierarchies, Polymorphism and Virtual Member Functions, Abstract Base Classes and Pure Virtual Functions, Multiple Inheritance. C++ Streams: Stream Classes, Unformatted I/O Operations, Formatted I/O Operations.

UNIT – IV Exceptions: Introduction, Throwing an Exception, Handling an Exception, Object-Oriented Exception Handling with Classes, Multiple Exceptions, Extracting Data from the Exception Class, Re-throwing an Exception, Handling the `bad_alloc` Exception. Templates: Function Templates– Introduction, Function Templates with Multiple Type, Overloading with Function Templates, Class Templates – Introduction, Defining Objects of the Class Template, Class Templates and Inheritance, Introduction to the STL.

Text Book: Tony Gaddis, Starting out with C++: from control structures through objects (7e)

References: 1. B. Lippman, C++ Primer 2. Bruce Eckel, Thinking in C++ 3. K.R. Venugopal, Mastering C++ 4. Herbert Schildt, C++: The Complete Reference 5. Bjarne Stroustrup, The C++ Programming Language 6. Sourav Sahay, Object Oriented Programming with C++

B.Sc.(Computer Science)
Data Structures using C++ (Semester – III)

Theory: 4 Hrs/Wk (4 Credits)

Practical: 3 Hrs/Wk (1 Credit)

Total Credits: 4+1 = 5 Credits

UNIT – I Basic data Structure: Introduction to Data Structures, Types of Data Structures, and Introduction to Algorithms, Pseudo code, and Relationship among data, data structures, and algorithms, Implementation of data structures, Analysis of Algorithms. Stacks: Concept of Stacks and Queues, Stacks, Stack Abstract Data Type, Representation of Stacks Using Sequential Organization (Arrays), Multiple Stacks, Applications of Stack, Expression Evaluation and Conversion, Polish notation and expression conversion, Processing of Function Calls, Reversing a String with a Stack, Recursion.

UNIT – II Recursion: Introduction, Recurrence, Use of Stack in Recursion, Variants of Recursion, Recursive Functions, Iteration versus Recursion. Queues: Concept of Queues, Queue as Abstract Data Type, Realization of Queues Using Arrays, Circular Queue, Multi-queues, Dequeue, Priority Queue, Applications of Queues, Linked Lists: Introduction, Linked List, Linked List Abstract Data Type, Linked List Variants, Doubly Linked List, Circular Linked List, Representation of Sparse Matrix Using Linked List, Linked Stack, Linked Queue.

UNIT – III Trees: Introduction, Types of Trees, Binary Tree, Binary Tree Abstract Data Type, Realization of a Binary Tree, Insertion of a Node in Binary Tree, Binary Tree Traversal, Other Tree Operations, Binary Search Tree, Threaded Binary Tree, Applications of Binary Trees. Searching and Sorting: Search Techniques-Linear Search, Binary Search, Sorting Techniques- Selection Sort, Bubble Sort, Insertion Sort, Merge Sort, Quick Sort, Comparison of All Sorting Methods, Search Trees: Symbol Table, Optimal Binary Search Tree, AVL Tree (Height-balanced Tree).

UNIT – IV Graphs: Introduction, Representation of Graphs, Graph Traversal – Depth First Search, Breadth First Search, Spanning Tree, Prim's Algorithm, Kruskal's Algorithm. Hashing: Introduction, Key Terms and Issues, Hash Functions, Collision Resolution Strategies, Hash Table Overflow, Extendible Hashing Heaps: Basic Concepts, Implementation of Heap, Heap as Abstract Data Type, Heap Sort, Heap Applications.

Text Book: 1. Varsha H. Patil "Data structures using C++" Oxford University press, 2012 2. M.T. Goodrich, R. Tamassia and D. Mount, Data Structures and Algorithms in C++, John Wiley and Sons, Inc., 2011.

References: 1. Adam Drozdek "Data structures and algorithm in C++" Second edition, 2001 2. T.H. Cormen, C.E. Leiserson, R.L. Rivest and C. Stein, Introduction to Algorithms,2nd Ed., Prentice-Hall of India, 2006. 3. Robert L. Kruse and A.J. Ryba, Data Structures and Program Design in C++, PrenticeHall, Inc., NJ, 1998. 4. B. Stroustrup, The C++ Programming Language, Addison Wesley, 2004 5. D.E. Knuth, Fundamental Algorithms (Vol. I), Addison Wesley, 1997

B.Sc.(Computer Science)

Data Base Management Systems (Semester – IV)

Theory: 4 Hrs/Wk (4 Credits)

Practical: 3 Hrs/Wk (1 Credit)

Total Credits: 4+1 = 5 Credits

UNIT – I Introduction: Database-System Applications, Purpose of Database Systems, View of Data, Database Languages, Relational Databases, Database Design, Data Storage and Querying, Transaction Management, Database Architecture, Database Users and Administrators. Introduction to the Relational Model: Structure of Relational Databases, Database Schema, Keys, Schema Diagrams, Relational Query Languages, Relational Operations.

UNIT – II Database Design and the E-R Model: Overview of the Design Process, The Entity- Relationship Model, Constraints, Removing Redundant Attributes in Entity Sets, Entity-Relationship Diagrams, Reduction to Relational Schemas, Entity-Relationship Design Issues, Extended E-R Features, Alternative Notations for Modeling Data, Other Aspects of Database Design. Relational Database Design: Features of Good Relational Designs, Atomic Domains and First Normal Form, Decomposition Using Functional Dependencies, Functional-Dependency Theory, Decomposition Using Multivalued Dependencies, Normal Forms-2 NF, 3 NF, BCNF, The Database Design Methodology for Relational Databases.

UNIT – III Introduction to SQL: Overview of the SQL Query Language, SQL Data Definition, Basic Structure of SQL Queries, Additional Basic Operations, Set Operations, Null Values, Aggregate Functions, Nested Subqueries, Modification of the Database. Intermediate SQL: Join Expressions, Views, Transactions, Integrity Constraints, SQL Data Types and Schemas, Authorization. Advanced SQL: Accessing SQL from a Programming Language, Functions and Procedures, Triggers, Recursive Queries.

UNIT – IV Transaction Management: Transaction Support–Properties of Transactions, Database Architecture, Concurrency Control–The Need for Concurrency Control, Serializability and Recoverability, Locking Methods, Deadlock, Time Stamping Methods, Multi-version Timestamp Ordering, Optimistic Techniques, Granularity of Data Items, Database Recovery–The Need for Recovery, Transactions and Recovery, Recovery Facilities, Recovery Techniques, Nested Transaction Model. Security: Database Security–Threats, Computer-Based Controls–Authorization, Access Controls, Views, Backup and Recovery, Integrity, Encryption, RAID.

Text book: 1. Silberschatz, H. Korth and S. Sudarshan, Database System Concepts, 6th Ed., Tata McGraw Hill, 2011 2. Thomas M. Connolly, Carolyn E. Begg, Database Systems–A Practical Approach to Design, Implementation, and Management (6e)

B.Sc.(Computer Science)

Programming in Java (Semester – V)

Theory: 4 Hrs/Wk (4 Credits)

Practical: 3 Hrs/Wk (1 Credit)

Total Credits: 4+1 = 5 Credits

UNIT - I Introduction: Java Essentials, JVM, Java Features, Creation and Execution of Programs, Data Types, Structure of Java Program, Type Casting, Conditional Statements, Loops, Classes, Objects, Class Declaration, Creating Objects.

UNIT - II Method Declaration and Invocation, Method Overloading, Constructors – Parameterized Constructors, Constructor Overloading, Cleaning-up unused Objects. Class Variables & Method-static Keyword, this Keyword, One-Dimensional Arrays, Two-Dimensional Arrays, Command-Line Arguments, Inner Class. Inheritance: Introduction, Types of Inheritance, extends Keyword, Examples, Method Overriding, super, final Keyword, Abstract classes, Interfaces, Abstract Classes Verses Interfaces. Packages: Creating and Using Packages, Access Protection, Wrapper Classes, String Class, StringBuffer Class.

UNIT - III Exception: Introduction, Types, Exception Handling Techniques, User-Defined Exception. Multithreading: Introduction, Main Thread and Creation of New Threads –By Inheriting the Thread Class or Implementing the Runnable Interface, Thread Lifecycle, Thread Priority and Synchronization. Input/Output: Introduction, java.io Package, File Streams, FileInputStream Class, FileOutputStream Class, Scanner Class, BufferedInputStream Class, BufferedOutputStream Class, RandomAccessFile Class.

UNIT - IV Applets: Introduction, Example, Life Cycle, Applet Class, Common Methods Used in Displaying the Output (Graphics Class). Event Handling: Introduction, Types of Events, Example. AWT: Introduction, Components, Containers, Button, Label, Checkbox, Radio Buttons, Container Class, Layouts. Swings: Introduction, Differences between Swing and AWT, JFrame, JApplet, JPanel, Components in Swings, Layout Managers, JTable.

Text Book: 1. Sachin Malhotra, SaurabhChoudhary, Programming in Java (2e)

References: 1. Bruce Eckel, Thinking in Java (4e) 2. Herbert Schildt, Java: The Complete Reference (9e) 3. Y. Daniel Liang, Introduction to Java Programming (10e) 4. Paul Deitel, Harvey Deitel, Java: How To Program (10e) 5. Cay S. Horstmann, Core Java Volume I –Fundamentals (10e)

B.Sc.(Computer Science)
Web Technologies (Semester – VI)

Theory: 4 Hrs/Wk (4 Credits)

Practical: 3 Hrs/Wk (1 Credit)

Total Credits: 4+1 = 5 Credits

UNIT – I Introduction To XHTML: Introduction, first HTML, Headings, Linking, Images, special characters and horizontal rules, Lists, Tables, Frames, Forms, internal linking, meta Elements. CASCADING STYLE SHEETS – Introduction, Inline Styles, Embedded Style Sheets, Conflicting Styles, Linking external sheets, position Elements, box model and text flow, media types, building a CSS drop-down menu, user style sheets, CSS3.

UNIT – II Introduction To Java Scripting: Introduction, simple program, prompt dialog and alert boxes, memory concepts, operators, decision making, control structures, if... else statement, while, counter-controlled repetitions, switch statement, do... while statement, break and continue statements. Functions – program modules in JavaScript, programmer-defined functions, functions definition, scope rules, global functions, Recursion.

UNIT – III Arrays: Introduction, declaring and allocating arrays, references and reference parameters, passing arrays to functions. Multidimensional arrays, EVENTS–registering event handling, event onload, onmouseover, onmouseout, onfocus, onblur, onsubmit, onreset, event bubbling, more events. JAVA SCRIPT OBJECTS – introduction to object technology, Math Object, String Object, Date Object, Boolean and Number Object, document and window Objects, using cookies.

UNIT – IV XML : Introduction, XML Basics, Structuring Data, XML Namespaces, Document Type Definitions (DTDs), W3C XML Schema Documents, XML Vocabularies, Extensible Style sheet Language and XSL Transformations, Document Object Model (DOM).

Ajax-Enabled Rich Internet Applications: introduction, history of Ajax, traditional web applications Vs Ajax Applications, RIAs with Ajax, Ajax example using XMLHttpRequest object, XML and DOM, creating full scale Ajax-enabled application, Dojo Toolkit.

Text Book: 1. Internet & World Wide Web: HOW TO PROGRAM- H. M. Deitel, P.J. Deitel, -Fourth