Table

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**Lesson Plan of Software Testing & Quality Assurance**

**for 4th Sem of MCA for session**

**2021-22**

|  |  |
| --- | --- |
| Date | Particulars |
| April, 2022 | Testing Strategy and Environment: Minimizing Risks, writing a Policy for Software Testing, Economics of Testing, Testing-an organizational issue, Management Support for Software Testing, Building a Structured Approach to Software Testing, Developing a Test Strategy Building Software Testing Process: Software Testing Guidelines, workbench concept, Customizing the Software Testing Process, Process Preparation checklist. Software Testing Techniques: Dynamic Testing – Black Box testing techniques, White Box testing techniques, Static testing, Validation Activities, Regression testing. Software Testing Strategies: Approach, Issues; integration, incremental, System, alpha, Beta testing etc; Comparative evaluation of techniques: Testing tools; Dynamic analysis tools, test data generators, Debuggers, test drivers etc. |
| May, 2022 | Technical Metrics for Software: Quality Factors, framework; Metrics for analysis, design, testing source code.  **Object Oriented Testing:** Introduction to Object Oriented testing, Path Testing, State Based Testing, Class Testing, Testing Web Applications: Web testing, Functional Testing, User interface Testing, Usability Testing, Configuration and Compatibility Testing, Security Testing, Performance Testing, Database testing, Post Deployment Testing. |
| June, 2022 | **Rational Rose Software:** Introduction, Features, Various types of software testing using Rational Rose.  **Software Quality Assurance and Standards:** Software Quality, Software Quality Challenges, Software Quality factors. Software Quality Assurance: concept, components, importance and essence; FTR, structured walk-through technique etc. Software Quality Management Standards, Management and its role in Software Quality Assurance, Quality Standards: ISO 9000 and Companion ISO Standards, CMM, CMMI.  Revision, Test and Assignment. |

Preeti

Assistant Professor, Computer Science

**Lesson Plan of DBMS for 2nd Sem of MCA for session 2021-22**

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| Date | Particulars |
| April, 2022 | Graphical user interface, text  Description automatically generated |
| May, 2022 | Text  Description automatically generated |
| June, 2022 | Text, letter  Description automatically generated |

Manjula Verma

Assistant Professor, Computer Science

**Lesson Plan of Android Programming for 4th Sem of MCA for session**

**2021-22**

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| --- | --- |
| Date | Particulars |
| April, 2022 | **Introduction:** Mobile Applications, Characteristics and Benefits, Application Model, Infrastructure and Managing Resources, Mobile Software Engineering, Frameworks and Tools, Mobile devices Profiles.  **Application Design:** Memory Management, Design patterns for limited memory, Workflow for Application Development, Techniques for composing Applications, Dynamic Linking, Plug-ins and rules of thumb for using DLLs, Concurrency and Resource Management.  **Google Android:** Introduction, JDK & ADK, Android Application Architecture, Traditional Programming Model and Android, Activities, Intents, Tasks, Services. |
| May, 2022 | **Android Framework:** GUI and MVC Architecture, Fragments and Multi-platform development, Creating Widgets: Layouts, Shadows, Gradients; Applications with multiple screens.  **Development:** Intents and Services, Storing and Retrieving data, Graphics and Multimedia, Telephony, Location based services, Packaging and Deployment.  **Android Applications:** Working with Android, Various life cycles for applications, Building an User Interface: Blank UI, Folding and Unfolding a scalable UI, Making Activity, Fragment, Multiple layouts; |
| June, 2022 | Content Provider, Location and Mapping: location based services, Mapping, Google Maps activity, Working with Map View and Map Activity; Sensors and Near Field Communication; Native libraries and headers, Building client server applications.  Using Google Maps, GPS and Wi-Fi Integration, Android Notification, Audio manager, Bluetooth; Camera and Sensor integration, Sending SMS, Phone Calls. Runtime Environment for Applications, Callbacks and Override in application, Concurrency, Serialization, Application Signing, API keys for Google Maps, Publishing Android Application; Introduction to Flutter, Android features, UI, implementation |

Kiran Yadav

Assistant Professor, Computer Science

**Lesson Plan of Data Structure using C for 4th Sem of B.Sc(Maths Hons.) for session**

**2021-22**

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| Date | Particulars |
| April, 2022 | Data structure and its essence, Data structure types. Linear and list structures: Arrays, stacks, queues and lists; Sequential and linked structures; Simple lists, circular lists, doubly linked lists. Inverted lists, threaded lists, Operations on all these structures and applications. |
| May, 2022 | Arrays, Multidimensional arrays, sequential allocation, address calculations, sparse arrays. Tree structures: Trees, binary trees and binary search trees. Implementing binary trees, Tree traversal algorithms, threaded trees, trees in search algorithms, AVL Trees.  Graph data structure and their applications. Graph traversals, shortest paths, spanning trees and related algorithms |
| June, 2022 | Sorting: Internal and External sorting. Various sorting algorithms, Time and Space complexity of algorithms. Searching techniques and Merging algorithms. Applications of sorting and searching in computer science.  Revision, Test and Assignment. |

Jyoti

Assistant Professor, Computer Science

**Lesson Plan of Software Engineering 4th Sem of BCA for session**

**2021-22**

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| Date | Particulars |
| April, 2022 | Introduction: Software Crisis, Software Processes & Characteristics, Software life cycle models, Waterfall, Prototype, Evolutionary and Spiral Models. Software Requirements Analysis & Specifications: Requirement engineering, requirement elicitation techniques like FAST, QFD, requirements analysis using DFD, Data dictionaries & ER Diagrams, Requirements documentation, Nature of SRS, Characteristics & organization of SRS . |
| May, 2022 | Software Design: Cohesion & Coupling, Classification of Cohesiveness & Coupling, Function Oriented Design, Object Oriented Design, Software Metrics: Software measurements: What & Why, Token Count, Halstead Software Science Measures, Design Metrics, Data Structure Metrics |
| June, 2022 | Software Implementation: Relationship between design and implementation, Implementation issues and programming support environment, Coding the procedural design, Good coding style.  Revision, Test and Assignment. |

Jyoti

Assistant Professor, Computer Science

**Lesson Plan of Computer Security and Block Chain Technology for 4th Sem of MCA for session 2021-22**

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| Date | Particulars |
| April, 2022 | **Security Problem in Computing:** meaning of Computer Security, Computer Criminals, Methods of Defense, Elementary Cryptography: Substitution Ciphers, Transpositions, Making  "Good" Encryption Algorithms, The Data Encryption Standard, The AES Encryption Algorithm, Public Key Encryptions, Uses of Encryption. |
| May, 2022 | **Program Security**: Secure Programs, Non-malicious Program Errors, viruses and other malicious code, Targeted Malicious code, controls Against Program Threats, Protection in General-Purpose operating system protected objects and methods of protection, File protection Mechanisms, User Authentication Designing Trusted O.S : Security polices, models of security, trusted O.S. design, Assurance in trusted OS. Implementation examples.  **Database Security:** Security requirements, Reliability and integrity, Sensitive data, Inference,  multilevel database, proposals for multilevel security.  **Security in Network:** Threats in Network, Network Security Controls, Firewalls, Intrusion  Detection Systems, Secure E-mail. |
| June, 2022 | **Administering Security**: Security Planning, Risk Analysis, Organizational Security policies, Physical Security. Legal Privacy and Ethical Issues in Computer Security: Protecting Programs and data,Computer Crime, Praia, Ethical issues in Computer Security, Case studies of Ethics  **Blockchain Technology:** Cryptography - Hash function, Digital Signature - ECDSA, Memory Hard Algorithm, Zero Knowledge Proof; **Blockchain Overview:** Introduction, Advantage over conventional distributed database, Blockchain Network, Mining Mechanism, Distributed Consensus, Merkle Patricia Tree, Gas Limit, Transactions and Fee,Private and Public blockchain.  **Cryptocurrency:** History, Distributed Ledger, Bitcoin protocols - Mining strategy and rewards, Ethereum - Construction, DAO, Smart Contract, GHOST, Vulnerability, Attacks, Sidechain, Namecoin.  **Blockchain Applications:** Internet of Things, Medical Record Management System, Domain Name Service and future of Blockchain. Revision, Test and Assignment. |

Vasudha

Assistant Professor, Computer Science

**Lesson Plan of Software Engineering 4th Sem of BCA for session**

**2021-22**

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| Date | Particulars |
| April, 2022 | Software Project Management Concepts: The Management spectrum, The People The Problem, The Process, The Project. Software Project Planning: Size Estimation like lines of Code & Function Count, Cost Estimation Models, COCOMO, Risk Management |
| May, 2022 | Software Testing: Testing Process, Design of Test Cases, Types of Testing, Functional Testing, Structural Testing, Test Activities, Unit Testing, Integration Testing and System Testing, Debugging Activities. |
| June, 2022 | Software Maintenance: Management of Maintenance, Maintenance Process, Reverse Engineering, Software Re-engineering, Configuration Management, Documentation.  Revision, Test and Assignment. |

Vasudha

Assistant Professor, Computer Science

**Session Plan & Execution**

Faculty: Ms. Komal Bansal Semester: - II Class:-BCA sec B

Paper: BCA-107: LOGICAL ORGANIZATION OF COMPUTER-II

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics** |
| 1 | I | April | Unit-1 | Sequential Logic: Characteristics, Flip-Flops, |
| 2 | II | Unit-1 | Clocked RS, D type, JK, T type |
| 3 | III | Unit-1 | Master Slave flip-flops. State table, state diagram and state equations. Flip-flop excitation tables |
| 4 | IV | Unit-2 | Designing registers – Serial Input Serial Output (SISO), Serial Input Parallel Output (SIPO), |
| 5 | I | May | Unit-2 | Parallel Input Serial Output (PISO), Parallel Input Parallel Output (PIPO) and shift registers. Designing counters – Asynchronous |
| 6 | II | Unit-2 | Synchronous Binary Counters, Modulo-N Counters and Up-Down Counters |
| 7 | III | Unit-3 | Memory & I/O Devices: Memory Parameters, Semiconductor RAM, ROM, |
| 8 | IV | Unit-3 | Magnetic and Optical Storage devices, Flash memory, I/O Devices and their controllers. |
| 9 | I | June | Unit-4 | Instruction Design & I/O Organization: Machine instruction, Instruction set selection, Instruction cycle, |
| 10 | II | Unit-4 | Instruction Format and Addressing Modes. I/O Interface, Interrupt structure, Program-controlled, |
| 11 | III | Unit 1-4 | Interrupt-controlled & DMA transfer, I/O Channels, IOP.  Revision |
| 12 | IV | Unit 1-4 | Revision |

Faculty: Ms. Komal Bansal Semester: - IV Class:-BCA sec A

Pape: BCA-206: Web Designing

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics** |
| 1 | I | April | Unit-1 | Introduction to Internet and World Wide Web; Evolution and History of World Wide Web; Basic features; Web Browsers; |
| 2 | II | Unit-1 | Web Servers; Hypertext Transfer Protocol, Overview of TCP/IP and its services; URLs; |
| 3 | III | Unit-1 | Searching and Web-Casting Techniques; Search Engines and Search Tools |
| 4 | IV | Unit-2 | Web Publishing: Hosting your Site; Internet Service Provider; Web terminologies, Phases of Planning and designing your Web Site; |
| 5 | I | May | Unit-2 | Steps for developing your Site; Choosing the contents; Home Page; Domain Names, Front page views, Adding pictures, Links, Backgrounds, Relating Front Page to DHTML. |
| 6 | II | Unit-2,3 | Creating a Website and the Markup Languages (HTML, DHTML), Web Development: Introduction to HTML; Hypertext and HTML; HTML Document Features; HTML command Tags; |
| 7 | III | Unit-3 | Creating Links; Headers; Text styles; Text Structuring; Text colors and Background; Formatting text; Page layouts; |
| 8 | IV | Unit-4 | Images; Ordered and Unordered lists; Inserting Graphics; Table Creation and Layouts; Frame Creation and Layouts; |
| 9 | I | June | Unit-4 | Working with Forms and Menus; Working with Radio Buttons; Check Boxes; Text Boxes; |
| 10 | II | Unit-4 | DHTML: Dynamic HTML, Features of DHTML,CSSP(cascading style sheet positioning) and JSSS(JavaScript assisted style sheet), Layers of netscape, The ID attributes, DHTML events |
| 11 | III | Unit 1-4 | Revision |
| 12 | IV | Unit 1-4 | Revision |

Faculty: Ms. Komal Bansal Semester: - VI Class:-BCA sec A

Paper: BCA-308: Artificial Intelligence

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics** |
| 1 | I | April | Unit-1 | Overview of A.I: Introduction to AI, Importance of AI, AI and its related field, |
| 2 | II | Unit-1 | AI techniques, Criteria for success, Problems, problem space and search: Defining the problem as a state space search, |
| 3 | III | Unit-1 | Production system and its characteristics, Issues in the design of the search problem, Heuristic search techniques : Generate and test |
| 4 | IV | Unit 1 | hill climbing, best first search technique, problem reduction, constraint satisfaction |
| 5 | I | May | Unit-2 | Knowledge Representation: Definition and importance of knowledge, Knowledge representation, Various approaches used in knowledge representation, |
| 6 | II | Unit-2 | Issues in knowledge representation. Using Predicate Logic : Represent ting Simple Facts in logic, Representing instances and is\_a relationship, |
| 7 | III | Unit 2-3 | Computable function and predicate, Natural language processing : Introduction syntactic processing, Semantic processing, |
| 8 | IV | Unit-3 | Discourse and pragmatic processing. Learning: Introduction learning, Rote learning, Learning by taking advice, Learning in problem solving, |
| 9 | I | June | Unit 3-4 | Learning from example-induction , Explanation based learning, Expert System: Introduction |
| 10 | II | Unit-4 | Representing using domain specific knowledge, Expert system shells. |
| 11 | III | Unit 1-4 | Revision |
| 12 | IV | Unit 1-4 | Revision |

Faculty: Ms. Komal Bansal Semester: - IV Class:-BSc Comp Sc.

Paper-4.1: Data Structures with C /C++

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics** |
| 1 | I | April | Unit-1 | Data-Structure: Data-Structure operations, Algorithm, Complexity, Data structure and its essence, |
| 2 | II | Unit-1 | Introduction to Arrays, Array operations, Multi- dimensional arrays, sequential allocation, address calculations, |
| 3 | III | Unit-1 | sparse arrays, Stacks-Introduction to Stacks, primitive operations on stacks, representation of stacks as an array and stack-applications |
| 4 | IV | Unit-2 | Queues:-Introduction to queues, operations on queue, circular queue, priority queue, Applications of queue. |
| 5 | I | May | Unit-2 | Linked List-introduction and basic operations, Header nodes, doubly linked list, circular linked list, |
| 6 | II | Unit-2 | Applications of linked list, Representation of linked list as an array, stacks and queues, Tree structures: Basic terminology, binary trees and binary search trees |
| 7 | III | Unit-3 | implementing binary trees, Tree traversal algorithms, threaded trees, trees in search algorithms, AVL |
| 8 | IV | Unit-3-4 | Polish notation and expression trees, applications of binary trees, Graph data structure and their applications, Graph traversals, shortest paths, spanning trees and related algorithms. |
| 9 | I | June | Unit-4 | Sorting: Internal and external sorting. Various sorting algorithms, |
| 10 | II | Unit-4 | Time and Space complexity of algorithms. Searching techniques. Applications of S orting and S earching in computer science. |
| 11 | III | Unit 1-4 | Revision |
| 12 | IV | Unit 1-4 | Revision |

Faculty: Ms. Komal & Ms. Namita

Semester: - II Class:-B.COM Sec(D )

Paper : Basics of Computer - II 2.06

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Fundamental of computers: Model of a digital computer; Functioning of a digital computer;  Types of a digital computer |
| 2 | II | Unit-1 | Advantages of computers. Difference between digital computer and analog computer, Applications of computers: Computers in Commerce |
| 3 | III | Unit-1 | Marketing, Education and Management AND REVISION |
| 4 | IV | Unit-2 | Software concepts: Types of Software and their role, Different System Software types Operating systems |
| 5 | I | May | Unit-2 | Translators, System Utilities; Concept of Application Packages; Types of an Operating system- Multi-user O.S., Multi-tasking O.S., Multi-Processing O.S; Time – sharing O.S., Multi-Programming O.S.Operating System as a resource Manager |
| 6 | II | Unit-2,3 | concept of GUI and CUI,Unit-3  Introduction to Windows: Components of a Application Window; Types of Windows,  Windows as an Operating System |
| 7 | III | Unit-3 | Windows explorer, Using Paintbrush, Control Panel, Installing a printer. User interfaces- CUI and GUI; Concept of a Desktop and Taskbar |
| 8 | IV | Unit-3 | My Computer, Recycle Bin, My Documents and Internet Explorer icons and revision |
| 9 | I | June | Unit-4 | MS-Excel: Applications of a Spreadsheet; Advantages of an Spreadsheet; Features of Excel;  Rows, Columns, Cell |
| 10 | II | Unit-4 | Menus, Creating worksheet, Formatting, Printing, establishing worksheet links, Table creating and printing graphs |
| 11 | III | Unit-4 | Macros, Using Built-in-functions |
| 12 | IV | Unit 1-4 | Revision and test |

**Lesson Plan (Session 2021-22)**

**Subject: Data Structures Using C**

**Class: MSC Comp Sc 2nd Sem PAPER CODE: 16MCS22C1**

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| Month | Topics |
| April, 2022 | **UNIT-I**  Programming fundamentals: Algorithm development, Techniques of problem solving, flow-chart, decision table, structured programming concepts; top-down design, development of efficient program; program correctness; debugging and testing of programs, algorithm for searching, sorting (exchange and insertion), Analysis of Algorithm: Frequency count, Time Space tradeoff.  **UNIT-II**  Programming in C: Introduction to C, Data type, constants and variable; Structure of a C program, Operators and Expressions, Control statements: Sequencing, Alteration and Iteration; Arrays: Representation of single and multidimensional arrays; sparse arrays - lower and upper triangular matrices and Tri-diagonal matrices; String and pointers, Functions, Recursion. |
| May, 2022 | **UNIT-III**  Stacks and Queues: Introduction and Primitive operations on stack; Stack application: Infix, postfix, prefix expressions; Evaluation of postfix expression; Conversion from infix to Postfix Introduction and Primitive Operation on queues, D-queues and Priority queues, Circular queue.  Linked Lists: Introduction to Linked lists; Implementation of linked lists, operations such as traversal, Insertion, deletion, searching, Two way lists.  **UNIT-IV**  Trees: Introduction and Terminology; Traversal of binary trees; Recursive algorithms for tree operations such as traversal, insertion, deletion; threaded Binary trees, binary search trees; AVL trees, B tress.  **Revision,Assignment and Tests.** |
| June, 2022 | File structure: Physical Storage devices and their characteristics, constituents of a file viz. fields, records, fixed and variable length records, primary and secondary keys; file operations, basic file system operations, file organizations: serial sequential, index sequential, direct, inverted, multilist. Sorting Techniques: Bubble Sort, Insertion sort, Selection sort, merge sort, Heap sort, Quick sort. Searching Techniques: Linear search, Binary search, Hashing function and Collision Handling methods  **Test , PPT .** |

Sangeeta Bhatia

Assistant Professor, Computer Science

**Session Plan & Execution**

Faculty: Arti Semester: - II Class:- B.Com (Hons.) CS

Paper : Paper : Introduction to Computer (Theory) BCH-2.06

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Computer basic concepts: Definition and characteristics of a computer, Advantages of computer, Components of computer, Human-being Vs computer, Difference between Computer and Calculator, Applications of computer, Generations of Computer, Types of computer: Analog, Digital and Hybrid computers, Micro, Mini, Mainframe and Super Computers, |
| 2 | II | Unit-1 | Input devices and Output devices, Introduction to Computer memories: Primary storage, Secondary storage. Introduction to Software: Software Types, Systems Software, Types of Operating System, |
| 3 | III | Unit-1 | Application Software, Introduction to Programming Language: Types of Programming Language, Language Translators. |
| 4 | IV | Unit-2 | Computer Network: Introduction, Network Elements, Advantages of Networking, Network Topologies, Communication Channels, Types of Computer Networks- LAN, MAN and WAN , Public and Private Network., Communication devices, Introduction to MS Word: Features of MS Word, Components of Word document window |
| 5 | I | May | Unit-2 | , Menu Bars, Creating own document-, Formatting text and document, Mail Merge, Creating a Macro, Working with auto shapes, Export and Import File, Finding and replacing text, Spell Check and Grammar Check, Working within tables- Adding, |
| 6 | II | Unit-2,3 | deleting, modifying rows and columns, Printing documents Internet: Introduction, History of Internet, Benefits of the Internet, Hardware and Software requirement for Internet, Internet Applications or services of Internet, Types of Internet Connection, Internet Addressing, Extranet and E-Mail, Mobile Computing.MS Excel: Features of MS Excel, Components of Worksheet, |
| 7 | III | Unit-3 | Menu Bars, Working with worksheets-cells-Entering ,editing, moving, copying, cutting, pasting, Inserting and deleting of cells, rows and columns, Formatting a worksheet, Formatting textual data, |
| 8 | IV | Unit-3 | Creating and editing charts, Types of Chart, Excel Functions, Goal Seek, validation, Pivot Table and Pivot Chart, Sort, Filter, Print the worksheet. |
| 9 | I | June | Unit-4 | Introduction to Database Systems: Basic concepts, Components of database, Advantages of database, DBMS, Components of DBMS, Database Models, |
| 10 | II | Unit-4 | Microsoft Access: Create a database, Database Objects, Creating tables, Data Types, Sorting, Filtering and |
| 11 | III | Unit-4 | Creating a relationships, Format a table, Creating and modifying a Form, Operators in Access, Designing Queries and Reports. |
| 12 | IV | Unit-4 | Revision and Test |

**Session Plan & Execution**

Faculty: Arti Semester: - II Class:-BCA Sec B

Paper: BCA-109: Structured Systems Analysis and Design

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Introduction to system, Definition and characteristics of a system, Elements of system, Types of system, System development life cycle |
| 2 | II | Unit-1 | Role of system analyst, Analyst/user interface, System planning and initial investigation: Introduction, Bases for planning in system analysis |
| 3 | III | Unit-1 | Sources of project requests, Initial investigation, Fact finding, Information gathering, information gathering tools. Fact analysis, Determination of feasibility |
| 4 | IV | Unit-2 | Structured analysis, Tools of structured analysis: DFD, Data dictionary, Flow charts, Gantt charts, decision tree, decision table, structured English, Pros and cons of each tool, Feasibility study: |
| 5 | I | May | Unit-2 | Introduction, Objective, Types, Steps in feasibility analysis, Feasibility report, Oral presentation, Cost and benefit analysis: Identification of costs and benefits, classification of costs and benefits |
| 6 | II | Unit-2,3 | Methods of determining costs and benefits, Interpret results of analysis and take final action. System Design: System design objective, Logical and physical design, Design Methodologies, structured design, |
| 7 | III | Unit-3 | Form-Driven methodology(IPO charts), structured walkthrough, Input/Output and form design: Input design, Objectives of input design. |
| 8 | IV | Unit-3 | Output design, Objectives of output design, Form design, Classification of forms. requirements of form design, Types of forms, Layout considerations, Form control. |
| 9 | I | June | Unit-4 | System testing: Introduction, Objectives of testing, Test plan, testing techniques/Types of system tests, |
| 10 | II | Unit-4 | Quality assurance goals in system life cycle, System implementation, Process of implementation. |
| 11 | III | Unit-4 | System evaluation, System maintenance and its types. System documentation, Forms of documentation |
| 12 | IV | Unit-4 | Revision. |

**Session Plan & Execution**

Faculty: Arti Semester: - 6TH Class:-BCA Sec A

Paper: BCA – 306 E-Commerce

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Electronic Commerce: Overview of Electronic Commerce, Scope of Electronic Commerce, Traditional Commerce vs. Electronic Commerce |
| 2 | II | Unit-1 | Impact of E-Commerce, Electronic Markets, Internet Commerce, e-commerce in perspective, Application of E Commerce in |
| 3 | III | Unit-1 | Direct Marketing and Selling, Obstacles in adopting E-Commerce Applications. Future of ECommerce. |
| 4 | IV | Unit-2 | Value Chains in electronic Commerce, Supply chain, Porter’s value chain Model, Inter Organizational value chains, Strategic Business unit chains, Industry value chains. |
| 5 | I | May | Unit-2 | Security Threats to E-commerce: Security Overview, Computer Security Classification, Copyright and Intellectual Property, security Policy and Integrated Security |
| 6 | II | Unit-2,3 | Property Threats, electronic Commerce Threats, Clients Threats, Communication Channel Threats, server Threats. Implementing security for E-Commerce: Protecting E-Commerce Assets, Protecting Intellectual |
| 7 | III | Unit-3 | Property, Protecting Client Computers, Protecting E-commerce Channels, Insuring Transaction Integrity, Protecting the Commerce Server. |
| 8 | IV | Unit-3 | Property, Protecting Client Computers, Protecting E-commerce Channels, Insuring Transaction Integrity, Protecting the Commerce Server. |
| 9 | I | June | Unit-4 | Business to Business E-Commerce: Inter-organizational Transitions, Credit Transaction Trade Cycle, a variety of transactions |
| 10 | II | Unit-4 | Electronic Data Interchange (EDI): Introduction to EDI, Benefits of EDI, EDI Technology, EDI standards, |
| 11 | III | Unit-4 | EDI Communication, EDI Implementation EDI agreement, EDI security |
| 12 | IV | Unit-4 | .Revision and test |

**Session Plan & Execution**

Faculty: Arti Semester: - 4TH Class:-BCA Sec B

Paper: BCA-208: Object Oriented Programming Using C++

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Object Oriented Programming Concepts : Procedural Language and Object Oriented  approach, Characteristics of OOP |
| 2 | II | Unit-1 | user defined types, polymorphism and encapsulation. Getting started with C++: syntax, data types, variables, string, function, namespace  exception, operators, flow control, recursion, array and pointer, structure |
| 3 | III | Unit-1 | exception, operators, flow control, recursion, array and pointer, structure |
| 4 | IV | Unit-2 | Abstracting Mechanism: classes, private and public, Constructor and Destructor , member  function, static members, references |
| 5 | I | May | Unit-2 | Memory Management: new, delete, object copying, copy constructer, assignment operator |
| 6 | II | Unit-2,3 | this input/output,Inheritance and Polymorphism: Derived Class and Base Class |
| 7 | III | Unit-3 | Different types of Inheritance, Overriding member function, Abstract Class, Public and Private Inheritance, Ambiguity in  Multiple inheritance |
| 8 | IV | Unit-3 | Virtual function, Friend function, Static function.  test and revision |
| 9 | I | June | Unit-4 | Exception Handling: Exception and derived class, function exception declaration, unexpected exception, exception when handling exception |
| 10 | II | Unit-4 | resource capture and release.  Template and Standard Template Library: Template classes, declaration, template  functions, namespace |
| 11 | III | Unit-4 | string, iterators, hashes, iostreams and other types |
| 12 | IV | Unit-4 | Revision and test |

**Session Plan & Execution**

Faculty: Bhanu Pratap Saini Semester: - II Class:-BCA

Pape: BCA-108: Mathematical Foundations of Computer Science

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-3 | Tree: Trees, Minimum distance trees |
| 2 | II | Unit-3 | Minimum weight and Minimum distance spanning trees. |
| 3 | III | Unit-3 | Spanning trees. |
| 4 | IV | Unit-3 | Recursion: Recursively defined function |
| 5 | I | May | Unit-3 | Merge sort, Insertion sort |
| 6 | II | Unit-3 | Bubble sort and Decimal to Binary |
| 7 | III | Unit-4 | Recurrence Relations: LHRR, LHRRWCCs |
| 8 | IV | Unit-4 | DCRR. Recursive procedures. Number Theory: |
| 9 | I | June | Unit-4 | Principle of Mathematical induction, GCD |
| 10 | II | Unit-4 | Euclidean algorithm, Fibonacci numbers, |
| 11 | III | Unit-4 | congruences and equivalence relations, |
| 12 | IV | Unit-4 | Public key encryption schemes. |

**Session Plan & Execution**

Faculty: Bhanu Pratap Saini Semester: - VI Class:-BCA

Pape: BCA-307: Object Technologies & Programming using Java

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Object Oriented Methodology-1: Paradigms of Programming Languages, Evolution of OO Methodology. |
| 2 | II | Unit-1 | Basic Concepts of OO Approach, Comparison of Object Oriented and Procedure Oriented Approaches, Benefits of OOPs. |
| 3 | III | Unit-1 | Introduction to Common OO Language, Applications of OOPs. Object Oriented Methodology-2: Classes and Objects, Abstraction and Encapsulation, Inheritance, Method Overriding and Polymorphism. |
| 4 | IV | Unit-2 | Java Language Basics: Introduction To Java, Basic Features, Java Virtual Machine Concepts, Primitive Data Type And Variables, Java Operators Expressions, Statements and Arrays. Object Oriented Concepts: Class and Objects-- Class Fundamentals, Creating objects , Assigning object reference variables. |
| 5 | I | May | Unit-2 | Introducing Methods, Static methods, Constructors Overloading constructors; This Keyword; Using Objects as Parameters, Argument passing, Returning objects , Method overloading, Inheritance and Polymorphism: Inheritance Basics, Access Control, |
| 6 | II | Unit-2,3 | Multilevel Inheritance, Method Overriding, Abstract Classes, Polymorphism, Final Keyword. Packages: Defining Package, CLASSPATH, Package naming, Accessibility of Packages, using Package Members. |
| 7 | III | Unit-3 | Interfaces: Implementing Interfaces, Interface and Abstract Classes, Extends and Implements together. Exceptions Handling : Exception , Handling of Exception, Using try-catch , Catching, |
| 8 | IV | Unit-3 | Multiple Exceptions , Using finally clause , Types of Exceptions, Throwing Exceptions, Writing Exception Subclasses, |
| 9 | I | June | Unit-4 | Multithreading: Introduction, The Main Thread, Java Thread Model, Thread Priorities, Synchronization in Java, Inter thread Communication. I/O in Java : I/O Basics, Streams and Stream Classes ,The Predefined Streams, Reading from, and Writing to, Console |
| 10 | II | Unit-4 | Reading and Writing Files, The Transient and Volatile Modifiers, Using Instance of Native Methods. Strings and Characters |
| 11 | III | Unit-4 | Fundamentals of Characters and Strings, The String Class , String Operations, Data Conversion using Value Of ( ) Methods, |
| 12 | IV | Unit-4 | String Buffer Class and Methods. |

**Lesson Plan of Theory of Computation and Compiler for 2nd Sem of MCA.**

**Session 2021-22 (Even Semester)**

|  |  |
| --- | --- |
| Date | Particulars |
| April, 2022 | Theory of Computation: Formal Language, Language Vs Grammar, Non-Computational Problems, Chomsky Hierarchy of Languages  System Programming & Compiler: Introduction to System programs, Assembler Vs Compiler Vs Interpreter  Structure of a Compiler: Lexical Analysis, Syntax Analysis, Semantic Analysis, Intermediate Code Generation, Code Optimization, Code Generation, Symbol Table Management, Grouping of phases into passes, compiler construction tools, Applications of Compiler Technology. |
| May, 2022 | Lexical Analysis: The role of lexical analyser, Lexical Analysis vs Parsing, Specification of Tokens, Recognition of Tokens, Basic introduction to lex.  Regular Language Models: Regular Languages, Regular Grammars, Regular Expressions, Properties of Regular Language, Pumping Lemma, Non-Regular Languages, Deterministic Finite Automaton (DFA), Non-Deterministic Finite Automaton (NDFA), Equivalence of DFA and NDFA.  Syntax Analysis: Basic Concepts- Syntax definition, Parse Tree and Derivations, Ambiguity, Associativity & Precedence of Operations, Context Free Grammars Vs Regular Expressions. |
| June, 2022 | Lexical Analysis Vs Syntactical Analysis, Eliminating Ambiguity, Eliminating Left Recursion.  Parsing: Top Down Parsing:- Recursive Descent, Predictive Parsing, LL41) Grammars, Bottom up Parsing:- Reductions, Handle Pruning, SR parsing, LR Parser, LALR Parser; Basic introduction to Yacc.  Code Generation and Code Optimization: Control-flow, Data-flow Analysis, Local Optimization, Global Optimization, Loop Optimization, Peep Hole Optimization.  Context Free Language:- Pushdown Automaton (PDA), Non-Deterministic Pushdown Automaton (NPDA), Context Free Grammar, Chomsky Normal Form, Greibach Normal Form, Ambiguity, Equivalence of PDA's and Context Free Grammars, Properties of Context Free Language  Revision, Test and Assignment. |

Monika Sihmar

Assistant Professor, Computer Science

**Session Plan & Execution**

Faculty: POONAM Semester: - 2nd Class:-Bsc

Pape: Paper-2.1: Programming in C

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Basic concepts of programming, techniques of problem solving, algorithm designing and  flowcharting |
| 2 | II | Unit-1 | concept of structured programming-Top-Down design, Development of efficient  program; Program correctness; Debugging and testing of programs |
| 3 | III | Unit-1 | Algorithm for searching, sorting(Insertion, Exchange), Merging of Order-List |
| 4 | IV | Unit-2 | Overview of C: History of C, Importance of C, Structure of a C Program Elements of C: C  character set, identifiers and keywords, Data types: declaration and definition |
| 5 | I | May | Unit-2 | Operators: Arithmetic, relational, logical, bitwise, unary, assignment and conditional operators andtheir hierarchy & associativity, input/output statements |
| 6 | II | Unit-2,3 | Arithmetic Expression, Evaluation of Arithmetic Expression, Type-casting and Conversion,Decision making & branching: Decision making with if statement |
| 7 | III | Unit-3 | if-else statement, nested if, else-if  ladder, switch statement, goto statement. Decision making & looping: for |
| 8 | IV | Unit-3 | while, and do-while loop; Jumps in loop, break, continue. Functions: Definition, prototype, passing parameters, Recursion |
| 9 | I | June | Unit-4 | Pointers: Declaration, operations on pointers, array of pointers, pointers to arrays. Data Structures:  . |
| 10 | II | Unit-4 | Arrays: One Dimensional, Multidimensional, Pointers and arrays. Strings: String Constants, Input & Output,String Functions. Structure & Unions. File Handling: Standard I/O text File, Writing to File,  Reading a File |
| 11 | III | Unit-4 | Doubt classes |
| 12 | IV | Unit-4 | Revision and test |

**Session Plan & Execution**

Faculty: POONAM AND VANITA Semester: - 2nd

Class:-B.COM

Paper: Basics of Computer-II 2.06

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Fundamental of computers: Model of a digital computer; Functioning of a digital computer;  Types of a digital computer |
| 2 | II | Unit-1 | Advantages of computers. Difference between digital computer and analog computer, Applications of computers: Computers in Commerce |
| 3 | III | Unit-1 | Marketing, Education and Management AND REVISION |
| 4 | IV | Unit-2 | Software concepts: Types of Software and their role, Different System Software types Operating systems |
| 5 | I | May | Unit-2 | Translators, System Utilities; Concept of Application Packages; Types of an Operating system- Multi-user O.S., Multi-tasking O.S., Multi-Processing O.S; Time – sharing O.S., Multi-Programming O.S.Operating System as a resource Manager |
| 6 | II | Unit-2,3 | concept of GUI and CUI,Unit-3  Introduction to Windows: Components of a Application Window; Types of Windows,  Windows as an Operating System |
| 7 | III | Unit-3 | Windows explorer, Using Paintbrush, Control Panel, Installing a printer. User interfaces- CUI and GUI; Concept of a Desktop and Taskbar |
| 8 | IV | Unit-3 | My Computer, Recycle Bin, My Documents and Internet Explorer icons and revision |
| 9 | I | June | Unit-4 | MS-Excel: Applications of a Spreadsheet; Advantages of an Spreadsheet; Features of Excel;  Rows, Columns, Cell |
| 10 | II | Unit-4 | Menus, Creating worksheet, Formatting, Printing, establishing worksheet links, Table creating and printing graphs,Macros, Using Built-in-functions |
| 11 | III | Unit-4 | doubts classes |
| 12 | IV | Unit-4 | Revision and test |

**Session Plan & Execution**

Faculty: POONAM Semester: - 4TH Class:-BCA

Paper: BCA-208: Object Oriented Programming Using C++

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Object Oriented Programming Concepts : Procedural Language and Object Oriented  approach, Characteristics of OOP |
| 2 | II | Unit-1 | user defined types, polymorphism and encapsulation. Getting started with C++: syntax, data types, variables, string, function, namespace  exception, operators, flow control, recursion, array and pointer, structure |
| 3 | III | Unit-1 | exception, operators, flow control, recursion, array and pointer, structure |
| 4 | IV | Unit-2 | Abstracting Mechanism: classes, private and public, Constructor and Destructor , member  function, static members, references |
| 5 | I | May | Unit-2 | Memory Management: new, delete, object copying, copy constructer, assignment operator |
| 6 | II | Unit-2,3 | this input/output,Inheritance and Polymorphism: Derived Class and Base Class |
| 7 | III | Unit-3 | Different types of Inheritance, Overriding member function, Abstract Class, Public and Private Inheritance, Ambiguity in  Multiple inheritance |
| 8 | IV | Unit-3 | Virtual function, Friend function, Static function.  test and revision |
| 9 | I | June | Unit-4 | Exception Handling: Exception and derived class, function exception declaration, unexpected exception, exception when handling exception |
| 10 | II | Unit-4 | resource capture and release.  Template and Standard Template Library: Template classes, declaration, template  functions, namespace,string, iterators, hashes, iostreams and other types |
| 11 | III | Unit-4 | Doubt class |
| 12 | IV | Unit-4 | Revision and test |

**Session Plan & Execution**

Faculty: POONAM Semester: - VI Class:-BCA

Paper: BCA-307: Object Technologies & Programming using Java

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Object Oriented Methodology-1: Paradigms of Programming Languages, Evolution of OO Methodology. |
| 2 | II | Unit-1 | Basic Concepts of OO Approach, Comparison of Object Oriented and Procedure Oriented Approaches, Benefits of OOPs. |
| 3 | III | Unit-1 | Introduction to Common OO Language, Applications of OOPs. Object Oriented Methodology-2: Classes and Objects, Abstraction and Encapsulation, Inheritance, Method Overriding and Polymorphism. |
| 4 | IV | Unit-2 | Java Language Basics: Introduction To Java, Basic Features, Java Virtual Machine Concepts, Primitive Data Type And Variables, Java Operators Expressions, Statements and Arrays. Object Oriented Concepts: Class and Objects-- Class Fundamentals, Creating objects , Assigning object reference variables. |
| 5 | I | May | Unit-2 | Introducing Methods, Static methods, Constructors Overloading constructors; This Keyword; Using Objects as Parameters, Argument passing, Returning objects , Method overloading, Inheritance and Polymorphism: Inheritance Basics, Access Control, |
| 6 | II | Unit-2,3 | Multilevel Inheritance, Method Overriding, Abstract Classes, Polymorphism, Final Keyword. Packages: Defining Package, CLASSPATH, Package naming, Accessibility of Packages, using Package Members. |
| 7 | III | Unit-3 | Interfaces: Implementing Interfaces, Interface and Abstract Classes, Extends and Implements together. Exceptions Handling : Exception , Handling of Exception, Using try-catch , Catching, |
| 8 | IV | Unit-3 | Multiple Exceptions , Using finally clause , Types of Exceptions, Throwing Exceptions, Writing Exception Subclasses, |
| 9 | I | June | Unit-4 | Multithreading: Introduction, The Main Thread, Java Thread Model, Thread Priorities, Synchronization in Java, Inter thread Communication. I/O in Java : I/O Basics, Streams and Stream Classes ,The Predefined Streams, Reading from, and Writing to, Console,Fundamentals of Characters and Strings, The String Class , String Operations, Data Conversion using Value Of ( ) Methods |
| 10 | II | Unit-4 | Reading and Writing Files, The Transient and Volatile Modifiers, Using Instance of Native Methods. Strings and Characters ,String Buffer Class and Methods. |
| 11 | III | Unit-4 | Doubt classes |
| 12 | IV | Unit-4 | Revision and Test |

**Session Plan & Execution**

Faculty: POONAM Semester: - 2nd Class:-BCA

Paper: BCA-106 : ‘C’ PROGRAMMING

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Overview of C: History of C, Importance of C, Elements of C: C character set, identifiers  and keywords, Data types, Constants and Variables, Assignment statement |
| 2 | II | Unit-1 | Symbolic constant, Structure of a C Program, printf(), scanf() Functions, Operators & Expression:Arithmetic, relational, logical, bitwise, unary, assignment, shorthand assignment operators,conditional operators and increment and decrement operators |
| 3 | III | Unit-1 | Arithmetic expressions,evaluation of arithmetic expression, type casting and conversion, operator hierarchy & associativity. |
| 4 | IV | Unit-2 | Decision making & branching: Decision making with IF statement, IF-ELSE statement  , Nested loops. |
| 5 | I | May | Unit-2 | Nested IF statement, ELSE-IF ladder, switch statement, goto statement.  Decision making & looping: For, while, and do-while loop, jumps in loops, break, continue  statement |
| 6 | II | Unit-2,3 | Nested loops.Functions: Standard Mathematical functions, Input/output: Unformatted & formatted I/O function in C, Input functions viz. getch(), getche() |
| 7 | III | Unit-3 | getchar(), gets(), output functions viz.,  putch(), putchar(), puts(), string manipulation functions |
| 8 | IV | Unit-3 | User defined functions: Introduction/Definition, prototype, Local and global variables,  passing parameters, recursion |
| 9 | I | June | Unit-4 | Arrays, strings and pointers: Definition, types, initialization, processing an array, passing  arrays to functions |
| 10 | II | Unit-4 | Array of Strings. String constant and variables, Declaration and initialization of string, Input/output of string data, Introduction to pointers,Storage classes in C: auto, extern, register and static storage class, their scope, storage, & lifetime |
| 11 | III | Unit-4 | Doubt classes |
| 12 | IV | Unit-4 | Revision and test |

**Lesson Plan of E Commerce for 6th Sem of BCA for session 2021-22**

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| Date | Particulars |
| April, 2022 | Electronic Commerce: Overview of Electronic Commerce, Scope of Electronic Commerce, Traditional Commerce vs. Electronic Commerce, Impact of E-Commerce, Electronic Markets, Internet Commerce, e-commerce in perspective, Application of E Commerce in Direct Marketing and Selling, Obstacles in adopting E-Commerce Applications; Future of Ecommerce.  Value Chains in electronic Commerce, Supply chain, Porter’s value chain Model, Inter Organizational value chains, Strategic Business unit chains, Industry value chains. |
| May, 2022 | Security Threats to E-commerce: Security Overview, Computer Security Classification, Copyright and Intellectual Property, security Policy and Integrated Security, Intellectual  Property Threats, electronic Commerce Threats, Clients Threats, Communication Channel Threats, server Threats.  Implementing security for E-Commerce: Protecting E-Commerce Assets, Protecting Intellectual Property, Protecting Client Computers, Protecting E-commerce Channels, Insuring Transaction Integrity, Protecting the Commerce Server. |
| June, 2022 | Electronic Payment System: Electronic Cash, Electronic Wallets, Smart Card, Credit and Change Card. Business to Business E-Commerce: Inter-organizational Transitions, Credit Transaction Trade Cycle, a variety of transactions.  Electronic Data Interchange (EDI): Introduction to EDI, Benefits of EDI, EDI Technology, EDI standards, EDI Communication, EDI Implementation, EDI agreement, EDI security. |

Shweta Sharma

Assistant Professor, Computer Science Dept.

**Session Plan – April – June 2022**

Faculty: Dr Pradeep Kumar Sharma Semester: - IV Class:-MSc (CS)

Department: Computer Science

Paper Name: JAVA PROGRAMMING PAPER CODE: 17MCS24C1

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Introduction: Java History, Java features Java and Internet, Java and World Wide Web, Java Program Structure, Java Tokens, Java Virtual Machine |
| 2 | II | Unit-1 | , Data Types, Operators and Expressions, Decision Making and Branching, looping Classes and Methods. Inheritance: Using Existing Classes, Class Inheritance, Choosing Base Class, Access Attributes, types of Inheritance  Abstract Classes, Using Final Modifier |
| 3 | III | Unit-2 | Polymorphism: Types of polymorphism. Packages & Interfaces: Understanding Packages, Defining a Package, Packaging up Your Classes, Adding Classes from a Package to Your Program |
| 4 | IV | Unit-2 | Understanding CLASSPATH, Access Protection in Packages, Concept of Interface. Exception Handling: Types of Exceptions, Dealing with Exceptions, Exception Objects. |
| 5 | I | May | Unit-3 | Multithreading Programming: Creating Multiple Threads, communication |
| 6 | II | Unit-3 | Input/Output in Java: I/O Basic, Byte and Character Structures, I/O Classes, Reading Console. Creating Applets in Java: Applet Basics, Applet Architecture, Applet Life Cycle |
| 7 | III | Unit-3 | Simple Applet Display Methods, Requesting Repainting, Using The Status Window, The HTML APPLET Tag Passing Parameters to Applets. |
| 8 | IV | Unit-4 | AWT: Working with AWT Controls, AWT Classes, Window Fundamentals, |
| 9 | I | June | Unit-4 | Working with Frame, Creating a Frame Window in an Applet, Displaying Information Within a Window. |
| 10 | II | Unit-4 | Working with Graph: Working with Graphics, Working with Color, Setting the Paint Mode, Working with Fonts, |
| 11 | III | Unit-4 | Exploring Text and Graphics, Layout Managers and Menus. |

**Session Plan & Execution**

Faculty: Jyotsna Semester: - IV Class: -BCA

Paper: BCA – 207: DATA STRUCTURE – II

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Tree: Header nodes, Threads, Binary search trees, Searching, Insertion and deletion in a Binary search tree . |
| 2 | II | Unit-1 | AVL search trees, Insertion and deletion in AVL search tree, m-way search tree, Searching, Insertion and deletion in an m-way search tree. |
| 3 | III | Unit-1 | B-trees, Searching, Insertion and deletion in a B-tree, B+tree, Huffman’s algorithm, General trees. |
| 4 | IV | Unit-2 | Graphs: Warshall’s algorithm for shortest path, Dijkstra algorithm for shortest path. |
| 5 | I | May | Unit-2 | Operations on graphs, Traversal of graph, Topological sorting. |
| 6 | II | Unit-3 | Sorting: Internal & external sorting, Radix sort, Quick sort, Heap sort, Merge sort, Tournament sort. |
| 7 | III | Unit-3 | Searching: Liner search, binary search, merging, Comparison of various sorting and searching algorithms on the basis of their complexity . |
| 8 | IV | Unit-3 | Files: Physical storage devices and their characteristics, Attributes of a file viz fields, records, Fixed and variable length records. |
| 9 | I | June | Unit-4 | Primary and secondary keys, Classification of files, File operations, Comparison of various types of files. |
| 10 | II | Unit-4 | Hashing: Introduction, Hashing functions and Collision resolution methods. |

Faculty: Jyotsna Semester: - II Class: -BCA

Paper: BCA-108 : MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Basic Statistics: Measure of Central Tendency |
| 2 | II | Unit-1 | Preparing frequency distribution table, Mean |
| 3 | III | Unit-1 | Mode, Median ,Measure of Dispersion: Range |
| 4 | IV | Unit-1 | Variance and Standard Deviations |
| 5 | I | May | Unit-1 | Correlation and Regression |
| 6 | II | Unit-1 | Algorithm: Algorithms, merits and demerits, Exponentiation |
| 7 | III | Unit-1 | How to compute fast exponentiation. Linear Search, Binary Search, "Big Oh" notation, Worst case |
| 8 | IV | Unit-2 | Advantage of logarithmic algorithms over linear algorithms, complexity |
| 9 | I | June | Unit-2 | Graph Theory: Graphs, Types of graphs, degree of vertex, sub graph, isomorphic and homeomorphic graphs |
| 10 | II | Unit-2 | Adjacent and incidence matrices, Path Circuit ; Eulerian, Hamiltonian path circuit |

**Session Plan & Execution**

Faculty: Vanita Semester: - IV Class: -BCA

Paper: BCA – 207: DATA STRUCTURE – II

Section-B

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Tree: Header nodes, Threads, Binary search trees, Searching, Insertion and deletion in a Binary search tree, |
| 2 | II | Unit-1 | AVL search trees, Insertion and deletion in AVL search tree, m-way search tree, Searching, Insertion and deletion in an m-way search tree, |
| 3 | III | Unit-1 | B-trees, Searching, Insertion and deletion in a B-tree, B+tree, Huffman’s algorithm, General trees. |
| 4 | IV | Unit-2 | Graphs: Warshall’s algorithm for shortest path, Dijkstra algorithm for shortest path, |
| 5 | I | May | Unit-2 | Operations on graphs, Traversal of graph, Topological sorting |
| 6 | II | Unit-3 | Sorting: Internal & external sorting, Radix sort, Quick sort, Heap sort, Merge sort, Tournament sort, |
| 7 | III | Unit-3 | Searching: Liner search, binary search, merging, Comparison of various sorting and searching algorithms on the basis of their complexity |
| 8 | IV | Unit-3 | Files: Physical storage devices and their characteristics, Attributes of a file viz fields, records, Fixed and variable length records, |
| 9 | I | June | Unit-4 | Primary and secondary keys, Classification of files, File operations, Comparison of various types of files, |
| 10 | II | Unit-4 | Hashing: Introduction, Hashing functions and Collision resolution methods. |

Faculty: Vanita Semester: - II Class: -B.Com

Paper: Basics of Computer-I Code-1.06

Section E,F

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| Sr.No. | Week | Month | Unit | Topics Cover |
| 1 | I | April | Unit-1 | Introduction to Computers: Definition of Computer; Components of Computer; Characteristics of Computers; History evolution of Computers; |
| 2 | II | Unit-1 | Generation of computers; Classification of Computers- According to Purpose, According to Technology , |
| 3 | III | Unit-1 | According to Size and Storage Capacity ; Human being VS Computer; Difference between Computer and Calculator. |
| 4 | IV | Unit-2 | Input Devices: Mouse, Keyboard, Light pen, Track Ball, Joystick, MICR, Optical Mark reader and Optical Character Reader Scanners, Voice system, Web Camera. |
| 5 | I | May | Unit-2 | Output Devices: Hard Copy Output Devices; Line Printers, Character Printers, Chain Printers, Dot-matrix Printers, Daisy Wheel Printer, Laser Printers, Ink Jet Printers; Plotters, Soft Copy device –Monitor, Sound Cards and speakers |
| 6 | II | Unit-3 | Memory and Mass Storage Devices: Characteristics of Memory Systems; Memory Hierarchy; |
| 7 | III | Unit-3 | Types of Primary Memory; RAM and ROM; Secondary and Back-up; Magnetic Disks, |
| 8 | IV | Unit-3 | Characteristics and classification of Magnetic Disks; Optical Disks; Magnetic Taps. |
| 9 | I | June | Unit-4 | MS- Word: Fundamentals of MS-Word, Features of MS-Word, Menus, Formatting and Standard Toolbars, Ruler, Scroll Bar, Creating, Editing, Saving, |
| 10 | II | Unit-4 | export and import files, inserting and copying the files, Working with frames, Paragraph formatting, Columns, Pictures, Tables, Macros and Mail Merge. |

Faculty: Vanita Semester: - II Class: -B.Sc. Math Hons

Paper: Programming in Visual Basic Code: BHM 126

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Visual Basic: Introduction, Analyzing, Data types, Variables, Constants, Controls and Properties. |
| 2 | II | Unit-1 | Control Structures: Conditional Statements, Loop Statements |
| 3 | III | Unit-1 | Exit statement, Stop statement Arrays |
| 4 | IV | Unit-2 | Text Boxes, Command Buttons, Labels, Additional Controls – List Box, ComboBox, Difference between ListBox and Combo Box |
| 5 | I | May | Unit-2 | Option Buttons, Check Boxes, Frames, Scroll Bars, Timer Control Control Arrays, Procedures and Functions, SDI and MDI Applications |
| 6 | II | Unit-3 | Menus: Menu Editor, Menu controls, Submenus, Popup Menus Common Dialog Controls: Color Dialog Box, Font Dialog Box |
| 7 | III | Unit-3 | Open and Save as Dialog Box, Print Dialog Box, Help Dialog Box. Database Programming: Data Access Object, Data Binding |
| 8 | IV | Unit-3 | Data Control and Data Bound Controls, Database Object, Recordset Object, Field Object. |
| 9 | I | June | Unit-4 | Crystal Reports: Introduction to Reports, Crystal Reports, Creating and Using a Report in VB Library |
| 10 | II | Unit-4 | Functions: Conversion functions, String functions, Numeric functions, Date and Time Functions. |

Faculty: Vanita Semester: - IV Class: -B.Sc. Pass Course

Paper: -Structured System Analysis And Design Code 2.2

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Introduction to system, Definition and characteristics of a system, Elements of system, Types of system, System development life cycle |
| 2 | II | Unit-1 | Role of system analyst, Analyst/user interface, System planning and initial investigation: Introduction, Bases for planning in system analysis |
| 3 | III | Unit-1 | Sources of project requests, Initial investigation, Fact finding, Information gathering, information gathering tools. |
| 4 | IV | Unit-2 | Structured analysis, Tools of structured analysis: DFD, Data dictionary, Flow charts, Gantt charts, decision tree, decision table, structured English, Pros and cons of each tool. |
| 5 | I | May | Unit-2 | Feasibility study: Introduction, Objective, Types, Steps in feasibility analysis, Feasibility report, Oral presentation, Cost and benefit analysis: Identification of costs and benefits, classification of costs and benefits, Methods of determining costs and benefits, Interpret results of analysis and take final action |
| 6 | II | Unit-3 | System Design: System design objective, Logical and physical design, Design Methodologies, structured design, Form-Driven methodology(IPO charts) |
| 7 | III | Unit-3 | structured walkthrough, Input/Output and form design: Input design, Objectives of input design, Output design, Objectives of output design, Form design |
| 8 | IV | Unit-3 | Classification of forms, requirements of form design, Types of forms, Layout considerations, Form control. |
| 9 | I | June | Unit-4 | System testing: Introduction, Objectives of testing, Test plan, testing techniques/Types of system tests, Quality assurance goals in system life cycle |
| 10 | II | Unit-4 | System implementation, Process of implementation, System evaluation, System maintenance and its types, System documentation, Forms of documentation |

**Session Plan & Execution**

Faculty: Dr. Namita Khurana Semester: - IV Class:-B.Sc(Comp. Sc.)

Pape: B.Sc.-4.2: Operating System

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Introductory Concepts: Operating system functions and characteristics, historical evolution of operating systems, |
| 2 | II | Unit-1 | Types of Operating System: Real time, Multiprogramming, Multiprocessing, Batch processing, |
| 3 | III | Unit-1 | Methodologies for implementation of O/S service system calls, system programs. |
| 4 | IV | Unit-2 | Process management: Process concepts, operations on processes, Process states and Process Control Block. |
| 5 | I | May | Unit-2 | CPU Scheduling: Scheduling criteria, Levels of Scheduling, Scheduling algorithms, Multiple processor scheduling. |
| 6 | II | Unit-2,3 | Deadlocks: Deadlock characterization, Deadlock prevention and avoidance. UNIT – III Concurrent Processes: Critical section problem, Semaphores, Classical process co-ordination problems and their solutions |
| 7 | III | Unit-3 | Inter-process Communications. Storage Mana gement : memory management of single-user a n d multi-user operating system, partitioning, swapping, paging and segmentation, Thrashing. |
| 8 | IV | Unit-4 | File management: File Systems: Functions of the system, File access methods, allocation methods: |
| 9 | I | June | Unit-4 | Contiguous, allocation, linked, indexed allocation, |
| 10 | II | Unit-4 | Directory Systems: Structured Organizations, directory and file protection mechanisms. |
| 11 | III | Unit(1-4) | Revision |
| 12 | IV | Unit(1-4) | Revision |

**Session Plan & Execution**

Faculty: Namita AND Komal

Semester: - 2nd Class:-B.COM Sec(D)

Paper : Basics of Computer - II 2.06

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Fundamental of computers: Model of a digital computer; Functioning of a digital computer;  Types of a digital computer |
| 2 | II | Unit-1 | Advantages of computers. Difference between digital computer and analog computer, Applications of computers: Computers in Commerce |
| 3 | III | Unit-1 | Marketing, Education and Management AND REVISION |
| 4 | IV | Unit-2 | Software concepts: Types of Software and their role, Different System Software types Operating systems |
| 5 | I | May | Unit-2 | Translators, System Utilities; Concept of Application Packages; Types of an Operating system- Multi-user O.S., Multi-tasking O.S., Multi-Processing O.S; Time – sharing O.S., Multi-Programming O.S.Operating System as a resource Manager |
| 6 | II | Unit-2,3 | concept of GUI and CUI,Unit-3  Introduction to Windows: Components of a Application Window; Types of Windows,  Windows as an Operating System |
| 7 | III | Unit-3 | Windows explorer, Using Paintbrush, Control Panel, Installing a printer. User interfaces- CUI and GUI; Concept of a Desktop and Taskbar |
| 8 | IV | Unit-3 | My Computer, Recycle Bin, My Documents and Internet Explorer icons and revision |
| 9 | I | June | Unit-4 | MS-Excel: Applications of a Spreadsheet; Advantages of an Spreadsheet; Features of Excel;  Rows, Columns, Cell |
| 10 | II | Unit-4 | Menus, Creating worksheet, Formatting, Printing, establishing worksheet links, Table creating and printing graphs |
| 11 | III | Unit-4 | Macros, Using Built-in-functions |
| 12 | IV | Unit-4 | Revision and test |

**Session Plan & Execution**

Faculty:- Dr. Namita Khurana Semester: - II Class:-BCA(A)

Paper: BCA-107: LOGICAL ORGANIZATION OF COMPUTER-II

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics** |
| 1 | I | April | Unit-1 | Sequential Logic: Characteristics, Flip-Flops, |
| 2 | II | Unit-1 | Clocked RS, D type, JK, T type |
| 3 | III | Unit-1 | Master Slave flip-flops. State table, state diagram and state equations. Flip-flop excitation tables |
| 4 | IV | Unit-2 | Designing registers – Serial Input Serial Output (SISO), Serial Input Parallel Output (SIPO), |
| 5 | I | May | Unit-2 | Parallel Input Serial Output (PISO), Parallel Input Parallel Output (PIPO) and shift registers. Designing counters – Asynchronous |
| 6 | II | Unit-2 | Synchronous Binary Counters, Modulo-N Counters and Up-Down Counters |
| 7 | III | Unit-3 | Memory & I/O Devices: Memory Parameters, Semiconductor RAM, ROM, |
| 8 | IV | Unit-3 | Magnetic and Optical Storage devices, Flash memory, I/O Devices and their controllers. |
| 9 | I | June | Unit-4 | Instruction Design & I/O Organization: Machine instruction, Instruction set selection, Instruction cycle, |
| 10 | II | Unit-4 | Instruction Format and Addressing Modes. I/O Interface, Interrupt structure, Program-controlled, |
| 11 | III | Unit-4 | Interrupt-controlled & DMA transfer, I/O Channels, IOP.  Revision |
| 12 | IV | Unit-4 | Revision |

**Session Plan & Execution**

Faculty: Dr. Namita Khurana Semester: - IV Class:-BCA(B)

Pape: BCA-206: Web Designing

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Introduction to Internet and World Wide Web; Evolution and History of World Wide Web; Basic features; Web Browsers; |
| 2 | II | Unit-1 | Web Servers; Hypertext Transfer Protocol, Overview of TCP/IP and its services; URLs; |
| 3 | III | Unit-1 | Searching and Web-Casting Techniques; Search Engines and Search Tools |
| 4 | IV | Unit-2 | Web Publishing: Hosting your Site; Internet Service Provider; Web terminologies, Phases of Planning and designing your Web Site; |
| 5 | I | May | Unit-2 | Steps for developing your Site; Choosing the contents; Home Page; Domain Names, Front page views, Adding pictures, Links, Backgrounds, Relating Front Page to DHTML. |
| 6 | II | Unit-2,3 | Creating a Website and the Markup Languages (HTML, DHTML), Web Development: Introduction to HTML; Hypertext and HTML; HTML Document Features; HTML command Tags; |
| 7 | III | Unit-3 | Creating Links; Headers; Text styles; Text Structuring; Text colors and Background; Formatting text; Page layouts; |
| 8 | IV | Unit-4 | Images; Ordered and Unordered lists; Inserting Graphics; Table Creation and Layouts; Frame Creation and Layouts; |
| 9 | I | June | Unit-4 | Working with Forms and Menus; Working with Radio Buttons; Check Boxes; Text Boxes; |
| 10 | II | Unit-4 | DHTML: Dynamic HTML, Features of DHTML,CSSP(cascading style sheet positioning) and JSSS(JavaScript assisted style sheet), Layers of netscape, The ID attributes, DHTML events |
| 11 | III | Unit(1-4) | Revision |
| 12 | IV | Unit(1-4) | Revision |

LESSON PLAN [EVEN SEM-2022]

(Gian Devi, Assistant Prof. in Computer Science) Govt. College for Girls, Sec.14, Gurugram

MCA-IV (Internet of Things)

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| **WEEK** | **Unit** | **Topic to be Covered** |
| **Week: 01**  **[31-Mar-22 to 02-Apr-**  **22]** | **I** | **Introduction**  Definitions, Motivation, Impact & Challenges, IoT vs  WoT, Functional Requirements |
| **Week: 02**  **[04-Apr-22 to 09-Apr- 22]** | **I** | Web 3.0 view of IoT, DNA of IoT: Device, Connect & Manage; IoT Security & Vulnerability. |
| **Week: 03**  **[11-Apr-22 to 16-Apr- 22]** | **I** | **Four Pillars of IoT:** M2M, RFID, WSN, SCADA, Communication Middleware for IoT. |
| **Week: 04**  **[18-Apr-22 to 23-Apr- 22]** | **II** | **Communicating smart objects:** *Standard Wireless Access Technologies:* IEEE Technologies - IEEE 802.15.4, IEEE 802.15.4e |
| **Week: 05**  **[25-Apr-22 to 30-Apr- 22]** | **II** | IEEE 802.11ah, IEEE 1901.2a, Mobile - 2G, 3G,  Standard LTE, 4G;. *Private Long Range Access*  *Technologies :* LoRAWAN |
| **Week: 06**  **[02-May-22 to 07- May-22]** | **II** | ZigBee, SigFox, DASH7; *Portable Short Range Access Technologies:* NB-IoT, Z-Wave, Bluetooth Low Energy; |
| **Week: 07**  **[09-May-22 to 14- May-22]** | **II** | **IoT Network Layer:** IP as IoT Network layer, 6LoWPAN, 6Lo, 6T1SCH, RPL, CORPL, CARP. |

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| **Week: 08**  **[16-May-22 to 21- May-22]** | **III** | **loT Application Layer:** MQTT, SMQTT, CoAP, AMQP, XMPP*,* DDS. |
| **Week: 09**  **[23-May-22 to 28-**  **May-22]** | **III** | **Protocol Standardization for IoT:** IoT Protocol Standardization Efforts, M2M |
| **Week: 10**  **[30-May-22 to 04-Jun- 22]** | **III** | WSN Protocols, SCADA and RFID Protocols, Issues with IoT Standardization, Introduction of Unified Data Standards. |
| **Week: 11**  **[06-Jun-22 to 11-Jun- 22]** | **IV** | **Implementing IoT:** Examples and working principles of sensors and actuators, Setting up the board |
| **Week: 12**  **[13-Jun-22 to 18-Jun-**  **22]** | **IV** | Reading from Sensors Communication: Arduino microcontroller and programming.. **Ubiquitous IoT:**  IoT in Big Data, |
| **Week: 13 [20-Jun-22 to 25-Jun-22]** | **IV** | Cloud Computing, Applications of IoT: Smart Building, Smart Home, Smart City, Smart Grid, Smart Transportation, Smart Manufacturing, Smart  Healthcare |
| **Week: 14**  **[27-Jun-22 to 30-Jun- 22]** |  | **REVISION** |

Lesson Plan April 2022

Name: Gagnesh Class: MCA 2nd Sem

Subject code: MCA 203

Subject: The Java Programming Language

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| April 2022 | **Introduction:** The History and Evolution of JAVA, Features of Java: Platform Independent, Robust etc., Java Environment, Hardware and Software Requirements, Byte Code, Installing JDK, Difference between C++ and Java, Command Line Arguments, Environment variables, System Utilities, Command Line I/O Objects, Path and Classpath  **Java as Programming Language:** Java as Object Oriented Language, Java Program Structure, Java literals, Data Type, Variables & Arrays in Java  **Java Programming Constructs:** Operators and Expressions, Precedence Rules and Associativity, Type conversion and casting, Controls Structures in Java |
| May 2022 | **Java Object Oriented Basics:** Classes and Objects in Java, Variables & Methods in Classes; declaration and invocation, constructors and garbage collection, static and this keyword.  **Inheritance in Java:** Types, Access Specifiers, Class vs Interfaces, extending vs Implementing of Interface, overloading vs overriding, Abstract Class, super & final keywords  **JAVA as Internet Programming Language:** Applets: difference from normal application, life cycle, Applet tag, Passing parameters and display output. AWT: Basics Components and Container Layouts, AWT vs Swings  **Exception Handling:** The concept of Exceptions, Types of Exceptions, Dealing with Exception, Exception Objects |
| June 2022 | **Multithreading Programming:** The Java Thread Model, understanding threads, The Main thread, creating a Thread, Creating Multiple Threads, Thread Priorities, Synchronization.  **Input/ Output in Java:** I/O Basic, Byte and Character structures, I/O Classes, Reading and Writing on Files, Random Access Files, Stream Benefits |

**Session Plan & Execution**

Faculty: ANKITA Semester: - VI Class:-BCA SEC(A)

Paper: BCA-309 : INTRODUCTION TO .NET

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | The Framework of .Net: Building blocks of .Net Platform (the CLR, CTS and CLS), Features of .Net, |
| 2 | II | Unit-1 | Deploying the .Net Runtime, Architecture of .Net platform, Introduction to namespaces & type distinction. |
| 3 | III | Unit-1 | Types & Object in .Net, the evolution of Web development . |
| 4 | IV | Unit-2 | Class Libraries in .Net, Introduction to Assemblies & Manifest in .Net, Metadata & attributes . |
| 5 | I | May | Unit-2 | Introduction to C#: Characteristics of C#, Data types: Value types, reference types, default value, |
| 6 | II | Unit-2,3 | Constants, variables, scope of variables, boxing and unboxing.  Operators and expressions: Arithmetic, relational, logical, bitwise, special operators, evolution of expressions, |
| 7 | III | Unit-3 | Operator precedence & associativity, Control constructs in C#: Decision making, loops, Classes & methods: Class, methods, |
| 8 | IV | Unit-3 | Constructors, destructors, overloading of operators & functions. |
| 9 | I | June | Unit-4 | Inheritance & polymorphism: visibility control, overriding, abstract class & methods, sealed classes & methods, interfaces. |
| 10 | II | Unit-4 | Advanced features of C#: Exception handling & error handling, automatic memory management, |
| 11 | III | Unit-4 | Input and output (Directories, Files, and streams) |
| 12 | IV | Unit-4 | Revision and Test |

**Session Plan & Execution**

Faculty: Ankita Semester: - VI Class:-BSC (Computer Science)

Paper: Paper-6.2: Software Engineering

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Software and software engineering: Software characteristics, Software Processes, software cris |
| 2 | II | Unit-1 | Software life cycle models, Waterfall, Prototype, Evolutionary and Spiral Models, |
| 3 | III | Unit-1 | software engineering paradigms, goals and principles of software engineering. |
| 4 | IV | Unit-2 | Software requirement analysis – Structured analysis, object-oriented analysis and data modeling, software requirement specification, validation. |
| 5 | I | May | Unit-2 | Software requirements Analysis and Specifications: Requirement engineering, requirements analysis using DFD, Data Dictionaries and E-R Diagram, requirement documentation, |
| 6 | II | Unit-2,3 | nature of SRS, characteristics and organization of SRS. Software project management: Planning a software project, Software cost estimation, project scheduling, personnel planning,, |
| 7 | III | Unit-3 | team structure Software configuration management, |
| 8 | IV | Unit-3 | software quality and quality assurance, project monitoring, risk management. |
| 9 | I | June | Unit-4 | Design and implementation of software- Software design fundamentals, software design principles, |
| 10 | II | Unit-4 | Cohesion and Coupling, Classification of Cohesion and Coupling, Function oriented design, |
| 11 | III | Unit-4 | object-oriented Design, design verification, monitoring and con |
| 12 | IV | Unit-4 | Revision and Test |

**Session Plan & Execution**

Faculty: ANKITA Semester: - 2nd Class:-B.COM(Sec A)

Paper : Basics of Computer - II 2.06

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Fundamental of computers: Model of a digital computer; Functioning of a digital computer;  Types of a digital computer |
| 2 | II | Unit-1 | Advantages of computers. Difference between digital computer and analog computer, Applications of computers: Computers in Commerce |
| 3 | III | Unit-1 | Marketing, Education and Management AND REVISION |
| 4 | IV | Unit-2 | Software concepts: Types of Software and their role, Different System Software types Operating systems |
| 5 | I | May | Unit-2 | Translators, System Utilities; Concept of Application Packages; Types of an Operating system- Multi-user O.S., Multi-tasking O.S., Multi-Processing O.S; Time – sharing O.S., Multi-Programming O.S.Operating System as a resource Manager |
| 6 | II | Unit-2,3 | concept of GUI and CUI,Unit-3  Introduction to Windows: Components of a Application Window; Types of Windows,  Windows as an Operating System |
| 7 | III | Unit-3 | Windows explorer, Using Paintbrush, Control Panel, Installing a printer. User interfaces- CUI and GUI; Concept of a Desktop and Taskbar |
| 8 | IV | Unit-3 | My Computer, Recycle Bin, My Documents and Internet Explorer icons and revision |
| 9 | I | June | Unit-4 | MS-Excel: Applications of a Spreadsheet; Advantages of an Spreadsheet; Features of Excel;  Rows, Columns, Cell |
| 10 | II | Unit-4 | Menus, Creating worksheet, Formatting, Printing, establishing worksheet links, Table creating and printing graphs |
| 11 | III | Unit-4 | Macros, Using Built-in-functions |
| 12 | IV | Unit-4 | Revision and test |

**Session Plan & Execution**

Faculty: ANKITA AND MONIKA

Semester: - 2nd Class:-B.COM Sec(C )

Paper : Basics of Computer - II 2.06

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Fundamental of computers: Model of a digital computer; Functioning of a digital computer;  Types of a digital computer |
| 2 | II | Unit-1 | Advantages of computers. Difference between digital computer and analog computer, Applications of computers: Computers in Commerce |
| 3 | III | Unit-1 | Marketing, Education and Management AND REVISION |
| 4 | IV | Unit-2 | Software concepts: Types of Software and their role, Different System Software types Operating systems |
| 5 | I | May | Unit-2 | Translators, System Utilities; Concept of Application Packages; Types of an Operating system- Multi-user O.S., Multi-tasking O.S., Multi-Processing O.S; Time – sharing O.S., Multi-Programming O.S.Operating System as a resource Manager |
| 6 | II | Unit-2,3 | concept of GUI and CUI,Unit-3  Introduction to Windows: Components of a Application Window; Types of Windows,  Windows as an Operating System |
| 7 | III | Unit-3 | Windows explorer, Using Paintbrush, Control Panel, Installing a printer. User interfaces- CUI and GUI; Concept of a Desktop and Taskbar |
| 8 | IV | Unit-3 | My Computer, Recycle Bin, My Documents and Internet Explorer icons and revision |
| 9 | I | June | Unit-4 | MS-Excel: Applications of a Spreadsheet; Advantages of an Spreadsheet; Features of Excel;  Rows, Columns, Cell |
| 10 | II | Unit-4 | Menus, Creating worksheet, Formatting, Printing, establishing worksheet links, Table creating and printing graphs |
| 11 | III | Unit-4 | Macros, Using Built-in-functions |
| 12 | IV | Unit-4 | Revision and test |

**Session Plan & Execution**

Faculty: Ankita Semester: - II Class:-BCA Sec A

Paper : BCA-109: Structured Systems Analysis and Design

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Introduction to system, Definition and characteristics of a system, Elements of system, Types of system, System development life cycle |
| 2 | II | Unit-1 | Role of system analyst, Analyst/user interface, System planning and initial investigation: Introduction, Bases for planning in system analysis |
| 3 | III | Unit-1 | Sources of project requests, Initial investigation, Fact finding, Information gathering, information gathering tools. Fact analysis, Determination of feasibility |
| 4 | IV | Unit-2 | Structured analysis, Tools of structured analysis: DFD, Data dictionary, Flow charts, Gantt charts, decision tree, decision table, structured English, Pros and cons of each tool, Feasibility study: |
| 5 | I | May | Unit-2 | Introduction, Objective, Types, Steps in feasibility analysis, Feasibility report, Oral presentation, Cost and benefit analysis: Identification of costs and benefits, classification of costs and benefits |
| 6 | II | Unit-2,3 | Methods of determining costs and benefits, Interpret results of analysis and take final action. System Design: System design objective, Logical and physical design, Design Methodologies, structured design, |
| 7 | III | Unit-3 | Form-Driven methodology(IPO charts), structured walkthrough, Input/Output and form design: Input design, Objectives of input design. |
| 8 | IV | Unit-3 | Output design, Objectives of output design, Form design, Classification of forms. requirements of form design, Types of forms, Layout considerations, Form control. |
| 9 | I | June | Unit-4 | System testing: Introduction, Objectives of testing, Test plan, testing techniques/Types of system tests, |
| 10 | II | Unit-4 | Quality assurance goals in system life cycle, System implementation, Process of implementation. |
| 11 | III | Unit-4 | System evaluation, System maintenance and its types System documentation, Forms of documentation |
| 12 | IV | Unit-4 | Revision and Test |

**Session Plan & Execution**

Faculty: ANKITA AND MONIKA

Semester: - 2nd Sec-C Class:-B.COM

Paper : Basics of Computer - II 2.06

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Fundamental of computers: Model of a digital computer; Functioning of a digital computer;  Types of a digital computer |
| 2 | II | Unit-1 | Advantages of computers. Difference between digital computer and analog computer, Applications of computers: Computers in Commerce |
| 3 | III | Unit-1 | Marketing, Education and Management AND REVISION |
| 4 | IV | Unit-2 | Software concepts: Types of Software and their role, Different System Software types Operating systems |
| 5 | I | May | Unit-2 | Translators, System Utilities; Concept of Application Packages; Types of an Operating system- Multi-user O.S., Multi-tasking O.S., Multi-Processing O.S; Time – sharing O.S., Multi-Programming O.S.Operating System as a resource Manager |
| 6 | II | Unit-2,3 | concept of GUI and CUI,Unit-3  Introduction to Windows: Components of a Application Window; Types of Windows,  Windows as an Operating System |
| 7 | III | Unit-3 | Windows explorer, Using Paintbrush, Control Panel, Installing a printer. User interfaces- CUI and GUI; Concept of a Desktop and Taskbar |
| 8 | IV | Unit-3 | My Computer, Recycle Bin, My Documents and Internet Explorer icons and revision |
| 9 | I | June | Unit-4 | MS-Excel: Applications of a Spreadsheet; Advantages of an Spreadsheet; Features of Excel;  Rows, Columns, Cell |
| 10 | II | Unit-4 | Menus, Creating worksheet, Formatting, Printing, establishing worksheet links, Table creating and printing graphs |
| 11 | III | Unit-4 | Macros, Using Built-in-functions |
| 12 | IV | Unit-4 | Revision and test |

**Lession Plan & Execution**

Faculty: Monika Semester: - 6th Class:-B.Sc

Paper :6.1: Visual Basic Programming

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Introduction to VB: Visual & Non-visual programming, Procedural, Object-oriented and event- driven programming languages, |
| 2 | II | Unit-1 | The VB environment: Menu bar, Toolbar, Project explorer, Toolbox, Properties window, Form designer. |
| 3 | III | Unit-1 | Form layout, Immediate window. Event driven programming. |
| 4 | IV | Unit-2 | Basics of Programming: Variables: Declaration, Types of variables, Converting variables types, User-defined data type. |
| 5 | I | May | Unit-2 | Scope & lifetime of variables. Constants: Named & intrinsic. Operators: Arithmetic, Relational & Logical operators. |
| 6 | II | Unit-2,3 | I/O in VB: Various controls for I/O in VB, Message box, Input Box, Print statement.  Programming with VB: Decisions and conditions: If statement, If-then-else, Select-case. |
| 7 | III | Unit-3 | Looping statements: Do-loops, For-next, While-wend, Exit statement. Nested control structures. Arrays: Declaring and using arrays. |
| 8 | IV | Unit-3 | One-dimensional and multi-dimensional arrays, Static & dynamic arrays, Arrays of array. |
| 9 | I | June | Unit-4 | Programming with VB: Procedures: General & event procedures, Subroutines, Functions, Calling procedures, Arguments- passing mechanisms, Optional arguments, Named arguments, Functions returning custom data types. |
| 10 | II | Unit-4 | Working with forms: Adding multiple forms in VB, Hiding & showing forms, Load & unload statements, Activate & deactivate events, Form-load event, |
| 11 | III | Unit-4 | Menu designing in VB, Database Programming using DAO & ADO, Simple Active X controls |
| 12 | IV | Unit-4 | Revision and test |

Faculty: Ms. MONIKA Semester: - VI Class:-BCA sec A

Paper: BCA-308: Artificial Intelligence

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics** |
| 1 | I | April | Unit-1 | Overview of A.I: Introduction to AI, Importance of AI, AI and its related field, |
| 2 | II | Unit-1 | AI techniques, Criteria for success, Problems, problem space and search: Defining the problem as a state space search, |
| 3 | III | Unit-1 | Production system and its characteristics, Issues in the design of the search problem, Heuristic search techniques : Generate and test |
| 4 | IV | Unit 1 | hill climbing, best first search technique, problem reduction, constraint satisfaction |
| 5 | I | May | Unit-2 | Knowledge Representation: Definition and importance of knowledge, Knowledge representation, Various approaches used in knowledge representation, |
| 6 | II | Unit-2 | Issues in knowledge representation. Using Predicate Logic : Represent ting Simple Facts in logic, Representing instances and is\_a relationship, |
| 7 | III | Unit 2-3 | Computable function and predicate, Natural language processing : Introduction syntactic processing, Semantic processing, |
| 8 | IV | Unit-3 | Discourse and pragmatic processing. Learning: Introduction learning, Rote learning, Learning by taking advice, Learning in problem solving, |
| 9 | I | June | Unit 3-4 | Learning from example-induction , Explanation based learning, Expert System: Introduction |
| 10 | II | Unit-4 | Representing using domain specific knowledge, Expert system shells. |
| 11 | III | Unit 1-4 | Revision |
| 12 | IV | Unit 1-4 | Revision |

**Session Plan & Execution**

Faculty: Monika Semester: - VI Sec-B Class:-BCA

Paper: BCA-309 : INTRODUCTION TO .NET

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | The Framework of .Net: Building blocks of .Net Platform (the CLR, CTS and CLS), Features of .Net, |
| 2 | II | Unit-1 | Deploying the .Net Runtime, Architecture of .Net platform, Introduction to namespaces & type distinction. |
| 3 | III | Unit-1 | Types & Object in .Net, the evolution of Web development . |
| 4 | IV | Unit-2 | Class Libraries in .Net, Introduction to Assemblies & Manifest in .Net, Metadata & attributes . |
| 5 | I | May | Unit-2 | Introduction to C#: Characteristics of C#, Data types: Value types, reference types, default value, |
| 6 | II | Unit-2,3 | Constants, variables, scope of variables, boxing and unboxing.  Operators and expressions: Arithmetic, relational, logical, bitwise, special operators, evolution of expressions, |
| 7 | III | Unit-3 | Operator precedence & associativity, Control constructs in C#: Decision making, loops, Classes & methods: Class, methods, |
| 8 | IV | Unit-3 | Constructors, destructors, overloading of operators & functions. |
| 9 | I | June | Unit-4 | Inheritance & polymorphism: visibility control, overriding, abstract class & methods, sealed classes & methods, interfaces. |
| 10 | II | Unit-4 | Advanced features of C#: Exception handling & error handling, automatic memory management, |
| 11 | III | Unit-4 | Input and output (Directories, Files, and streams) |
| 12 | IV | Unit-4 | Revision and Test |

**Session Plan & Execution**

Faculty: Monika Semester: - 2nd Sec-B Class:-B.COM

Paper : Basics of Computer - II 2.06

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| **Sr.No.** | **Week** | **Month** | **Unit** | **Topics Cover** |
| 1 | I | April | Unit-1 | Fundamental of computers: Model of a digital computer; Functioning of a digital computer;  Types of a digital computer |
| 2 | II | Unit-1 | Advantages of computers. Difference between digital computer and analog computer, Applications of computers: Computers in Commerce |
| 3 | III | Unit-1 | Marketing, Education and Management AND REVISION |
| 4 | IV | Unit-2 | Software concepts: Types of Software and their role, Different System Software types Operating systems |
| 5 | I | May | Unit-2 | Translators, System Utilities; Concept of Application Packages; Types of an Operating system- Multi-user O.S., Multi-tasking O.S., Multi-Processing O.S; Time – sharing O.S., Multi-Programming O.S.Operating System as a resource Manager |
| 6 | II | Unit-2,3 | concept of GUI and CUI,Unit-3  Introduction to Windows: Components of a Application Window; Types of Windows,  Windows as an Operating System |
| 7 | III | Unit-3 | Windows explorer, Using Paintbrush, Control Panel, Installing a printer. User interfaces- CUI and GUI; Concept of a Desktop and Taskbar |
| 8 | IV | Unit-3 | My Computer, Recycle Bin, My Documents and Internet Explorer icons and revision |
| 9 | I | June | Unit-4 | MS-Excel: Applications of a Spreadsheet; Advantages of an Spreadsheet; Features of Excel;  Rows, Columns, Cell |
| 10 | II | Unit-4 | Menus, Creating worksheet, Formatting, Printing, establishing worksheet links, Table creating and printing graphs |
| 11 | III | Unit-4 | Macros, Using Built-in-functions |
| 12 | IV | Unit-4 | Revision and test |

**Lesson Plan of Internet & Web Designing for 4th Sem of MSc. for session**

**2021-22**

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| Date | Particulars |
| April, 2022 | Internet, Evolution of Internet, Types of Computer Network: LAN, WAN, MAN Internet Protocol, Internet Services, WWW, Working of Internet, Introduction to Intranet, DNS working, Configuring Internet Connection, Internet Connection Concepts, Connecting LAN to Internet; Client-Server environment: Single User, Multi User, Server, Workstation, Computer Network; Network Topologies; Network Protocols, E-Mail Concepts – Configuring E-Mail Program, Sending and Receiving Files through E-Mail, Fighting Spam, Sorting Mail, E-Mail mailing lists and avoiding E-Mail viruses **,**Popular web servers, Web Browsers; basic features of browsers: bookmarks, cookies, progress indicators |
| May, 2022 | Customization of browsers, browsing tricks, next generation web browsing, search engines; Hypertext Transfer Protocol (HTTP), URL.  Internet Tools: Online Chatting, Messaging, and Conferencing Concepts, Usenet newsgroup concepts: Reading usenet newsgroups, Instant messaging, Web-Based chat rooms and discussion boards, Voice and Video conferencing. Streamlining Browsing, Keeping track of Favorite Web Sites, Web Security, Privacy, and Site-Blocking. Understanding HTML, XHTML Syntax and Semantics, HTML Elements: Paragraph, Lists, Tables, Images, Frames, Forms, Linking to other Web Pages: External and Internal linking, E-mail Links; Working with Background colors and Images; Marquee; Text Alignment and Text Formatting, Advanced Layout with Tables; Publishing HTML Pages |
| June, 2022 | Cascading Style Sheets: Introduction, Inline, Internal, External CSS, Linking CSS to Web Page. Introduction to JavaScript, Basic Syntax, Variables and Data types, Statements, Operators, Literals, Functions, Objects, Arrays.  XML: Relation between XML and HTML, Goals of XML, Structure and Syntax of XML, Well Formed XML, DTD and its Structure, tree structures in data organization, Searching with XPath  Tests & Assignment |

Seema Rani

Assistant Professor, Computer Science

**Lesson Plan (Session 2021-22)**

**Subject:** Data Warehousing and data mining

**Class:** MSc. Computer Sc. 4th Sem  **Paper Code:** 17MCS24DA1

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| Date | Particulars |
| April, 2022 | **Unit-I** Data Warehouse: Need for data warehouse, Definition, Goals of data Warehouse, Challenges faced during Warehouse Construction, Advantages, Types of Warehouses: Data Mart, Virtual Warehouse and Enterprise Warehouse. Components of Warehouse: Fact data, Dimension data, Fact table and Dimension table, Designing fact tables. Pre-requisite Phases: Extract, Transform and load process. Warehouse Schema for multidimensional data: star, snowflake and galaxy schemas. **Unit-II** Data warehouse and OLAP technology, Difference between OLTP and OLAP, Strengths of OLAP, Applications of OLAP. Multidimensional data models: Data Cubes & Data Cuboids, Lattice. OLAP operations: Advantages, Types: Roll up, Drill down, Pivot, Slice & Dice operations, Applications. |
| May, 2022 | OLAP Server: Need, Types: ROLAP, MOLAP and HOLAP, Features. Data warehouse Implementation, Introduction to Efficient computation of data cubes. Unit-III Data preprocessing: Need, Integral steps of preprocessing: Data integration, Data transformation, Data reduction, Discretization and Concept Hierarchy Generation. Data mining primitives, Types of Data Mining Systems Data generalization & Summarization based characterization, Analytical characterization. Mining Association Rules in large databases: Association rule mining, Single dimensional Boolean association rules from Transactional Database Systems, Multi-level association rules and Multidimensional association rules from relational DBS and DWS. |
| June, 2022 | Unit-IV Classification and Prediction: Basic Classification & Prediction Model, Difference between Classification & Prediction. Classification Algorithms: Decision tree induction & Back propagation. Prediction Algorithms: Regression approach: Linear & Non-Linear regression. Cluster analysis: Purpose, Types: Partitioning and Hierarchical methods, Density based methods, Applications of Data Mining: Web mining, Temporal and Spatial data mining.  Revision, Test and Assignment. |

Ms. Prachi

Assistant Professor, Computer Science

**Dr. Rajesh Kumar**

**Assistant Professor, Computer Science**

**Lesson Plan of Software engineering for 2ndSem of MCA 204A for session**

**2021-22**

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| Date | Particulars |
| April, 2022 | Introduction to software engineering  Software Life cycle Models: Waterfall, spiral, prototype, Evolutionary development model, Iterative enhancement and object oriented models  Software requirements |
| May, 2022 | Software design: Basic concept of software design, Architectural, low level and modularization and various types of design strategies. Programming practices and coding standards.  Software testing: Introduction verification VS validation, Software reliability and others types of testing technique. Software quality assurance plan SQAP, Software project management planning, scheduling and estimation. |
| June, 2022 | Software risk management activities and methods. Software measurements and various types of metrics: Process, Project and product metrics. LOC, FP, Cyclomatic complexity and Software project estimation models. Software maintenance and configuration management. Case and Case tools  Revision, Test and Assignment. |

**Lesson Plan of Software Engg,**

**for 4th Sem of BCA for session**

**Kuldeep Singh Kohar,Associate Professor C.S.**

**2021-22**

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| Date | Particulars |
| April, 2022 | **UNIT – I**  **Introduction:** Software Crisis, Software Processes & Characteristics, Software life cycle models, Waterfall, Prototype, Evolutionary and Spiral Models.  **Software Requirements Analysis & Specifications:** Requirement engineering, requirement elicitation techniques like FAST, QFD, requirements analysis using DFD, Data dictionaries & ER Diagrams, Requirements documentation, Nature of SRS, Characteristics & organization of SRS .  **UNIT – II**  **Software Project Management Concepts:** The Management spectrum, The People The Problem, The Process, The Project.  **Software Project Planning:** Size Estimation like lines of Code & Function Count, Cost Estimation Models, COCOMO, Risk Management. |
| May, 2022 | **Introduction:** Software Crisis, Software Processes & Characteristics, Software life cycle models, Waterfall, Prototype, Evolutionary and Spiral Models.  **Software Requirements Analysis & Specifications:** Requirement engineering, requirement elicitation techniques like FAST, QFD, requirements analysis using DFD, Data dictionaries & ER Diagrams, Requirements documentation, Nature of SRS, Characteristics & organization of SRS .  **UNIT – II**  **Software Project Management Concepts:** The Management spectrum, The People The Problem, The Process, The Project.  **Software Project Planning:** Size Estimation like lines of Code & Function Count, Cost Estimation Models, COCOMO, Risk Management  **UNIT - III**  **Software Design:** Cohesion & Coupling, Classification of Cohesiveness & Coupling, Function Oriented Design, Object Oriented Design, Software Metrics: Software measurements: What & Why, Token Count, Halstead Software Science Measures, Design Metrics, Data Structure Metrics  **Software Implementation**: Relationship between design and implementation, Implementation issues and programming support environment, Coding the procedural design, Good coding style. |
| June, 2022 | **UNIT – IV**  **Software Testing:** Testing Process, Design of Test Cases, Types of Testing, Functional Testing, Structural Testing, Test Activities, Unit Testing, Integration Testing and System Testing, Debugging Activities.  **Software Maintenance:** Management of Maintenance, Maintenance Process, Reverse Engineering, Software Re-engineering, Configuration Management, Documentation. |