

Fourth Semester

BCA- S401: System Analysis and Design

UNIT-I

Introduction: System Concept and the need for system approach, Definition of system and system analysis, Factoring into subsystems, Black box system, Introduction to the basic elements of the system, Different types and behaviour of the system.

UNIT-II

The System Development Life Cycle and System Analyst: Source and inspiration of a new system development, Recognition and need, linear approach and prototype approach, Different phases in SDLC, Role of System Analyst.

UNIT-III

System Analysis: Importance of planning and control, Information Gathering: Various Methods, Tools of Structured Analysis: DFD, Decision Tree, Structured English, Decision Tables, Data Dictionary, Feasibility study. System Design: The Process of Design: Logical and Physical design, Methodologies: Structured, Form-Driven, IPO Charts etc., Input Output Form Design, File Organization: Sequential Indexed, inverted list, Database Design, Logical and Physical View of Data.

UNIT-IV

System Implementation: Need of Testing, Test Plan, Quality Assurance, Trends in Testing, Audit Trail, Post Implementation Review, Project Scheduling, Selection of Hardware and Software

UNIT-V

Security and Recovery in System Development: System Security: Definition, Threats to system security, Control measures, Disaster/ Recovery Planning, Ethics in System Development. Case Study.

Recommended books:

1. System Analysis and Design - E.M.Awad
2. System Analysis and Design - Dennis Wixom

BCA –S402: Fundamentals of Operating Systems

UNIT-I

Introduction: What is an operating system? Mainframe, desktop, multiprocessor, distributed, clustered, real-time and handheld systems.

Operating System Structures: System components, operating system services, system calls, systems programs, system structure, virtual machines.

UNIT-II

Process: Process concept, process scheduling, operations on processes, cooperating processes. Inter process communication.

CPU Scheduling: Basic concepts, scheduling criteria, scheduling algorithms, algorithm evaluation.

UNIT-III

Process Synchronization: The critical section problem, semaphores, classical problems of synchronization.

Deadlocks: Deadlock characterization, methods for handling deadlocks. Deadlock prevention, avoidance and detection. Recovery from deadlocks.

UNIT-IV

Memory Management: Swapping, contiguous memory allocation, paging, segmentation, segmentation with paging.

Virtual Memory: Demand paging, page replacement, allocation of frames, thrashing.

UNIT-V

Linux: History, design principles, kernel modules, process management, scheduling, memory management, file systems, input and output, inter process communication, network structure, security.

Recommended Books:

1. Silberschatz G.G., Operating System Concepts, John Wiley & Sons Inc.

BCA-S403: Object Oriented Programming using C++

UNIT – I

Different paradigms for problem solving, need for OOP, differences between OOP and procedure oriented programming, abstraction, overview of OOP principles- encapsulation, inheritance and data binding polymorphism, abstraction.

C++ basics: structure of a C++ program, data types, declaration of variables, expressions, operators, type conversions, pointers and arrays, strings, structures, references, flow control statement, functions- scope of variables, parameter passing, recursive functions, default arguments, inline functions, dynamic memory allocation and deallocation operators.

UNIT – II

C++ classes and data abstraction: class definition, class structure, class objects, class scope, this pointer, static class members, constant member functions, constructors and destructors, dynamic creation and destruction of objects, friend function and class, static class member.

Overloading : function overloading, operator overloading – unary, binary operators.

UNIT - III

Inheritance: defining a class hierarchy, different forms of inheritance, defining the base and derived classes, access to the base class members, base and derived class construction, destructors, virtual base class.

Polymorphism: static and dynamic bindings, base and derived class virtual functions, dynamic binding through virtual functions, virtual function call mechanism, pure virtual functions, abstract classes, implications of polymorphic use of classes, virtual destructors.

UNIT - IV

Templates - function templates and class templates, overloading of function template, static class member in class template.

Exception handling: benefits of exception handling, throwing an exception, the try block, catching an exception, exception objects, exception specifications, rethrowing an exception, catching all exceptions.

UNIT-V

File handling : stream classes hierarchy, stream I/O, file streams, opening and closing data file, creating a data file, read and write functions, error handling during file operations, formatted I/O, sequential and random file processing.

Standard template library (STL): component of STL, containers, iterators, algorithms, application of container classes.

Recommended books

1. Object Oriented Programming with C++: E. Balagurusamy
2. Tripathy PC And Reddy PN, "Principles of Management", Tata McGraw-Hill
3. B. P. Singh and T. N. Chabra , Management Concepts and Practices , Dhanpat Rai
4. W. S. Jawedkar: Management Information Systems, Tata McGraw-Hill
5. K. C. Laudon and J. P. Laudon, Management Information Systems, PHI

(BCA-404A) :Management and Information System

Unit I

Basic concepts of management: Introduction to Management: Meaning and definitions of management, Management – An art or science, Management As a Profession, Management Vs. Administration, Different schools of management thought – Behavioural and Scientific, Principles of Management, Managerial skills, Levels of Management

Functions of Management (Introductory ideas) – Planning, Organizing, Staffing, Directing, Controlling, Leadership, Decision making

Unit II

Motivation : Concept, Theories of Motivation : Maslow, Herzberg and McGregor, Financial and Non financial incentives.

Leadership : Concept, Functions of Leader, Leadership styles

Communication : Process, Communication channels and Barriers, Essentials of effective Communication

Decisions : Characteristics of Business decisions, Rational Decision Making and its problems, Herbert Simon Model of decision making, Types of Decisions

Staffing: Concept, Recruitment & Selection, Training & Development, Performance Appraisal

Unit III

Information : Definition, Attributes of Information, Classification of Information

Perspectives on Information System: What is an information system?, Dimensions of information system, Contemporary Approaches to information system : Technical approach, behavioral approach and socio technical approach .

Organizations and Information System: Impact of Information system on organizations: Economic Impact , Organizational and Behavioural Impact, Impact of IT on management decision making : How IT affects management decision making , The role of managers in Organizations, Models of Decision Making, Implications for the Design and understanding of Information system

Unit IV

Major Types of Systems in Organizations: Executive Support System (ESS) , Management Information System (MIS), Decision Support System (DSS) , Transaction Processing System (TPS).

Systems from a functional Perspective: Sales and Marketing Systems, Manufacturing and Production Systems, Finance and Accounting Systems, Human Resource Systems.

Management Information System: Definition, Role of MIS, Impact of MIS, Management as a control system, MIS : A Support to the management.

Development of MIS : Approaches to Development : Prototype Approach, Life Cycle Approach, Implementation of MIS

Unit V

Current Issues in Information Systems: E-commerce, Enterprise Resource Planning (ERP), Supply Chain Management (SCM), Customer Relationship Management (CRM), Expert System (ES) , Knowledge Management System (KMS)

Information Security Challenges in E- Enterprises : Introduction , Security Threats and Vulnerabilities , Controlling Security Threats and Vulnerabilities , Managing Security threat in E – Business, Disaster Management , MIS and security challenges

Recommended Books :

1. Tripathy PC And Reddy PN, “Principles of Management”, Tata McGraw-Hill
2. B. P. Singh and T. N. Chabra , Management Concepts and Practices , Dhanpat Rai
3. W. S. Jawedkar: Management Information Systems, Tata McGraw-Hill
4. K. C. Laudon and J. P. Laudon, Management Information Systems, PHI

BCA-S404B: BUSINESS ACCOUNTING

UNIT-I

Introduction: Financial Accounting-Definition and scope, objectives of financial accounting, Accounting vs book keeping. Terms used in accounting, users of accounting, information and limitations of Financial Accounting

Conceptual Framework: Accounting Concepts, principles and conventions, accounting standards-concept, objectives, benefits, brief review of accounting standards I India. Accounting policies, Accounting as a measurement discipline, variation principles, accounting estimates.

UNIT-II

Recording of transactions: Voucher system, Accounting process, journals, subsidiary books, ledger, cash book, Bank reconciliation statement, trial balance. Depreciation: Meaning, need and importance of depreciation, methods of charging depreciation

UNIT-III

Preparation of final accounts: Preparation of trading and profit & Loss Account and Balance sheet of sole proprietary business

UNIT-IV

Introduction to Company Final Accounts: Important provisions of companies Act 1956 in respect of preparation of Final Accounts. Understanding of final accounts of a company.

UNIT-V

Computerised Accounting: Computers and financial application, Accounting software packages, an overview of computerized accounting system. Salient features and significance, concept of grouping of accounts. Codification of accounts, maintaining hierarchy of ledger. Generating accounting reports.

PRACTICAL

Paper V: BCA- S405 OOPS LAB

Practical based on Paper-III

Paper VI: BCA- S406 LINUX & WINDOWS LAB

Practical based on Paper-II

Paper VII: BCA- 407A/407B Practical Electives (Choose One)

BCA 407A: ACCOUNTING SOFTWARE LAB

Professional training using TALLY

BCA 407B: ANIMATION LAB

Professional training on Animations

BCA-S408: Seminar: Seminar topics to be allotted in the beginning of the course by issuing schedule of seminars including faculty seminars