



Bachelor of Science in Information Technology (B.Sc.-IT)
(Feb 2009)

1. Detailed curriculum of the course:

Subject Code	Subject Title	Book id	Name of the Books	No. of Credits	No. of Books
First Semester					
BT0062	Fundamentals of IT	B0946	Fundamentals of IT	4	01
BT0063	Mathematics for IT	B0947	Mathematics for IT	4	01
BT0064	Logic Design	B0948	Logic Design	4	01
BT0065	C Programming and Data Structures – Theory	B0949	C Programming and Data Structures	3	01
BT0066	Database Management Systems	B0950	Database Management Systems	3	01
BT0067	C Programming and Data Structures – Practical	B0951	C Programming and Data Structures Lab Manual	2	01
Second Semester					
BT0068	Computer Organization and Architecture	B0952	Computer Organization and Architecture	4	01
BT0069	Discrete Mathematics	B0953	Discrete Mathematics	4	01
BT0070	Operating Systems	B0954	Operating Systems	4	01
BT0071	Technical Communication – Theory	B0955	Technical Communication	2	01
BT0072	Computer Networks	B0956	Computer Networks	4	01
BT0073	OS and DBMS – Practical	B0957	Linux and DBMS Lab Manual	2	01
Third Semester					
BT0074	OOPS with Java	Yet to be finalized	OOPS with Java	4	01
BT0075	RDBMS and MySQL	-do-	RDBMS with MySQL	4	01
BT0076	TCP/IP	-do-	TCP/IP	4	01
BT0077	Multimedia Systems	-do-	Multimedia Systems	2	01
BT0078	Website Design	-do-	Website Design	2	01
BT0079	Mini Project	-do-	Mini Project	4	01
Fourth Semester					
BT0080	Fundamentals of Algorithms	Yet to be finalized	Fundamentals of Algorithms	4	01
BT0081	Software Engineering	-do-	Software Engineering	4	01
BT0082	Visual Basic	-do-	Visual Basic	4	01



BT0083	Server Side Programming – Theory	-do-	Server Side Programming	4	01
BT0084	Technical Communication – Practical	-do-	Technical Communication Lab Manual	2	01
BT0085	Server Side Programming – Practical	-do-	Server Side Programming Lab Manual	2	01
Fifth Semester					
BT0086	Mobile Computing	Yet to be finalized	Mobile Computing	4	01
BT0087	WML and WAP Programming – Theory	-do-	WML and WAP Programming	2	01
BT0088	Cryptography and Network Security	-do-	Cryptography and Network Security	4	01
BT0089	Elective 1				
BT8901	Object Oriented Systems	-do-	Object Oriented Systems	4	01
BT8902	E-Commerce	-do-	E-Commerce	4	01
BT8903	C# Programming	-do-	C# Programming	4	01
BT0090	Elective 2				
BT9001	Data Mining	-do-	Data Mining	4	01
BT9002	Grid Computing	-do-	Grid Computing	4	01
BT9003	Data Storage Management	-do-	Data Storage Management	4	01
BT0091	WML and WAP Programming – Practical	-do-	WML and WAP Programming Lab Manual	2	01
Sixth Semester					
BT0092	Software Project Management	Yet to be finalized	Software Project Management	4	01
BT0093	Elective 3				
BT9301	Computer Graphics	-do-	Computer Graphics	4	01
BT9302	Human Computer Interface	-do-	Human Computer Interface	4	01
BT9303	Design Patterns	-do-	Design Patterns	4	01
BT0094	Elective 4				
BT9401	Pattern Recognition	-do-	Pattern Recognition	4	01
BT9402	Artificial Intelligence	-do-	Artificial Intelligence	4	01
BT9403	Virtual Reality	-do-	Virtual Reality	4	01
BT0095	Project Work	-do-	Project Work	8	01



2. Detailed Syllabi:

B.Sc. IT - First Semester

BT0062- Fundamentals of IT (4 credits)

Unit 1: History of Information Technology

History of Computers; Generation of Computers; First Generation (1940-1956) Vacuum Tubes; Second Generation (1956-1963) Transistors; Third Generation (1965-1971) Integrated Circuits; Fourth Generation (1971-Present) Microprocessors; Fifth Generation Computer. Classification of Computers; Personal Computers; Minicomputers; Mainframes computers; Super computers; Laptop/Palmtop Computers; The Impact of Information Technology on Work and Society

Unit 2: Computer Concepts

Computer Structure; Input Unit; Central Processing Unit; Arithmetic Logic Unit; Control Unit; Memory Unit; Output Unit; Hardware; Computer Software; System Software; Program Software; Application Software; Computer Languages; Operating system

Unit 3: Number Systems

Decimal Number System; Binary Number System; Binary Addition and Subtraction; Binary Multiplication and Division; Conversion from Decimal Numbers to Binary; Converting Fractions Decimal Value to Binary; Negative Numbers; Representing Negative Numbers Using Complements; Complements in Binary Number System; Gates; OR Gate; AND Gate; NOT Gate.



Unit 4: Introduction to Operating Systems

Different Types of Operating Systems; Real-time Operating System; Multi-user and Single-user Operating Systems; Multi-tasking and Single-tasking Operating Systems; Distributed Operating System; Embedded System; Introduction to Windows-XP; Features of Windows XP; Windows XP; My Documents; My Recent Documents; My Pictures; My Music ;My Computer; Control Panel; Printers and Faxes; Help and Support Search; Run; All Programs; Log Off; Turn off Computer; Copying of Files/Folders ;Recycle Bin; Windows Media Player.

Unit 5: Hardware & Software

Computer Components; Computer Memory – Packaging; Cache Memory; Hard Drive(s) – Construction; Controller Interface Types; CD-ROM; Monitor; Keyboard and Mouse; Introduction to Software; Classification of Software; Computer Programming Languages; Translators [Language Processors]; Operating System; 4GL (Fourth Generation Language).

Unit 6: MS-WORD – I

Starting MS-WORD; Basic Units of MS Word; Closing the MS Word Document ;Closing MS Word ;Saving the Document; Create a new Document; Opening of an Existing Document; Copy; Cut (Move); Formatting the Document; Find ;Insertion; Inserting Tables; Merge Cells; Implementing Formula on Table Contents; Formatting the Contents of the Table ;Draw Table ;Headers and Footers; Change Case.

Unit 7: MS-Excel – I

Starting of Microsoft Excel; Part of MS-Excel Window; Cell and Cell Address; Components of an Excel Workbook; Closing the Excel Workbook;



Closing the Excel; Worksheets within Workbook ;Navigate Worksheet; Enter and Edit Data; Entering and Copying the Formula; Saving the Workbook; Create a New Workbook; Opening of an Existing Workbook; To Copy Cell Contents; Moving the Cell Content; Inserting Cells; Columns and Rows; To Insert One or More Columns; To Insert One or more Rows.

Unit 8: MS-Excel – Part - II

Ranges; Common Excel Functions; Logical Functions; Auto SUM; Auto Fill; Custom List Sheet Lay Out; Alignment; Changing the Column Width; Changing the Height of the Row; Formatting the Values in Cells; Database; Charts; Database Features of Excel; Sorting the Database.

Unit 9: MS - PowerPoint

Starting of Microsoft PowerPoint; Parts of Power Point Window; Creation of PowerPoint Presentation; Save the PowerPoint presentation; Including a chart in the slide ;Importing a Data Sheet from a file; Formatting Options; Slide Transition; Different Views of the Presentation.

Unit 10: Concepts of Media

Types of Media; Text; Graphics; Sound; Animation; Video; Applications of Multimedia; Design and Multimedia; inform your users; Provide Controls. Accessibility; Alternative Version.

Unit 11: Introduction to Internet

History of Internet; Chronological Development of the Internet; Concepts of Internet; Internet backbones; How Internet Works; Requirements for Internet; Uses of Internet; Internet Use; Education; Race; and Age; Internet Explorer; Netscape; Opera; Search Engines.



BT0063 -Mathematics for IT (4 Credits)

UNIT 1: Set theory

Sets and their representations; The empty set; finite and infinite sets; equal and equivalent sets; subsets; power set; universal set; Venn diagrams; complement of a set operations on sets; applications of sets.

UNIT 2: Mathematical Logic

Basic Logical connections; Conjunction; Disjunction; Negation; Negation of Compound Statements; Truth tables. Tautologies; Logical Equivalence; Applications.

UNIT 3: Modern algebra

Binary Operation; Addition Modulo n ; Multiplication modulo n ; semi group; properties of groups; subgroup.

UNIT 4: Trigonometry

Radian or circular Measure; Trigonometric Functions; Trigonometrical ratios of angle θ when θ is acute; trigonometrical ratios of certain standard angles; allied angles; compound angles; multiple and sub- multiple angle.

UNIT 5: Limits and Continuity

The real number system; The concept of limit; concept of continuity.

UNIT 6: Differentiation

Differentiation of powers of x ; Differentiation of e^x and $\log x$; differentiation of trigonometric functions; Rules for finding derivatives; Different types of differentiation; logarithmic differentiation; differentiation by substitution;



differentiation of implicit functions; differentiation from parametric equation.
Differentiation from first principles.

UNIT 7: Integrations

Integration of standard Functions; rules of Integration; More formulas in integration; Definite integrals.

UNIT 8: Differential equations

First order differential equations; practical approach to Differential equations; first order and first degree differential equations; homogeneous equations. Linear equations; Bernoulli's equation; Exact Differential Equations.

UNIT 9: Complex Numbers

Complex Numbers; Conjugate of a complex number; modulus of a complex Number; geometrical representation of complex number; De Moivre's theorem; n^{th} roots of a complex number.

UNIT 10: Matrices and Determinants

Definition of a matrix; Operations on matrices; Square Matrix and its inverse; determinants; properties of determinants; the inverse of a matrix; solution of equations using matrices and determinants; solving equations using determinants.

UNIT 11: infinite Series

Convergence and divergence; series of positive terms; binomial series; exponential series; logarithmic series.



UNIT 12: Probability

Concept of probability; sample space and events; three approaches of probability; kolmogorov's axiomatic approach to probability; conditional probability and independence of events; bay's theorem.

UNIT 13: Basics Statistics

Measures of central Tendency; Standard Deviation; Discrete series. Methods; Deviation taken from assumed mean; continuous series; combined standard deviation; coefficient of variation; variance.

BT0064 - Logic Design (4 Credits)

Unit 1: Number Systems

Decimal; Binary; Octal; Hexadecimal Number systems; Converting Techniques in Number systems: 1's Complements, 2's Complement; Complements Arithmetic.

Unit 2: Boolean algebra

Rules & Laws of Boolean algebra with derivations; Basic Gates (NOT, AND & OR) Universal Gates (NAND & NOR); Exclusive-OR & Exclusive-NOR Gates ; Exercises on Realizing Circuits with Universal Gates.

Unit 3: Techniques for Simplifying Boolean Expressions

Boolean algebra; Karnaugh Maps; Quine-McCluskey Method; Exhaustive Exercises on Each technique.

Unit 4 : Combinational Circuits

Definition of Combinational Circuits; Types of Combinational Circuits; Gray Code and its Properties; BCD Code and its Properties; Excess-3 Code and its Properties;



Unit 5 : Sequential Circuits and Applications

Definition of Sequential Circuits; Latch; Flip-Flop's-R Flip Flop-K Flip Flop; D-Flip Flop; J-K Master Slave Flip Flop; Real world Applications of Sequential Circuits .

Unit 6: Shift Registers and Applications

Definition of Shift Registers; Types; SISO (Serial In Serial Out);SIPO (Serial In Parallel Out); PIPO (Parallel in Parallel Out); Case Study IC's.

Unit 7: Basics of Counters & Design of Counters

Typical Counters; Johnson Counters; Ring Counters; Design of Modulo-n counters; Problem on Counter Design.

Unit 8 : Design of Real World Logic Circuits

Traffic Signal Systems; Two Way Switches; Electronic Tennis Scoring System; Temperature & Weather Forecast Systems.

Unit 9 : Digital Equipments

MODEM. Digital Multi-meter. Digital Versatile Disk.

Unit 10: Data Converter; DAC/ADC

Working Principle & Circuits of Analog to Digital; Digital to Analog Converters.



BT0065 – C Programming and Data Structures – Theory

(3 Credits)

Unit 1: Introduction to C Language

Historical Development of C language; Character Sets; Variables; Keywords; Data Types Constants; Operators and Expressions.

Unit 2: Algorithms & Flowcharts

Definition of Algorithm; Examples of Algorithms; Definition of Flowchart; Example of Flowcharts.

Unit 3: Introduction to Programming

Structure of C Program; Compilation and Execution of a C Program; Decision Making and Branching Statements; Break Statement; Continue Statement; Switch Statement; Goto Statement; Iterative Statements.

Unit 4: Arrays

Formatted Output; Type Casting; Arrays; Language C Preprocessor; Macro Expansion; File Inclusion. Storage Class.

Unit 5: Functions

Functions; User Defined Functions; Library Functions. Recursion.

Unit 6: Structures; Unions & Pointers

Structures; Array of Structures; Union; Defining Union Types; Initializing Unions. Pointers; Dynamic Allocation of Memory; De allocation of Memory.



Unit 7: File Structures

Block Structure; Opening; Accessing and Closing Files; File Pointer; File Open Modes; File Open Functions; File Read & Write Functions; File Close Functions.

Unit 8: Overview of Data Structure

Example of Data Structure; Abstract Data Types (ADT); Levels of Data Structure; Type of Data Structure; Application of Data Structure.

Unit 9: Stack and Queues

Operations on Stack; Push operation ;Pop operation ;Display Items of a Stack ;Stack Implementation; Stack Implementation using arrays; Stack Implementation using structures. Applications of Stack. Polish Notation; Infix to Postfix Conversion; Postfix Evaluation; Operations on Queue; Different types of Queues; Ordinary Queue; Disadvantage of Ordinary Queue; Double Ended Queue (Dqueue); Circular Queue; Priority Queue; Applications of Queues.

Unit 10: Linked Lists

Type of Linked Lists; Singly Linked List; Circular Linked List; Doubly Linked Lists; Application of Linked List.

Unit 11: Trees and Their Applications

Tree Terminologies; Binary Tree; Balanced Tree (B Tree); AVL Tree; Application of Trees



Unit 12: Graphs and Their Applications

Graph Terminologies; Graph Representation; Adjacency Lists; Adjacency Matrix; Graph Traversal; Depth First Traversal; Breadth First Traversal. Spanning Trees; Kruskal's Algorithm; Prim's Algorithm.

Unit 13: Searching and Sorting

Basic Searching Techniques: Sequential Search/Linear search, Binary Search; Overview of Sorting Methods: Internal Sorting, Selection Sort, Bubble Sort, Insertion Sort, Quick Sort, Heap Sort, Shell Sort, Radix Sort, External Sorts, Merge Sort.

BT 0066 - Database Management Systems (3 Credits)

Unit 1: Basic Concepts of DBMS

What is Database? ; Database System Applications; Data Independence; Data Modelling for a Database; Entities and their attributes; Relationships and types. Advantages and Disadvantages of DBMS; DBMS Vs RDBMS.

Unit 2: Database System Architecture

The Three Level of the Architecture; The External Level; The conceptual Level; The Internal Level; Mapping. MySQL Architecture; SQL Server 2000 Architecture; Oracle Architecture ;Database Management System Facilities ;Database Management System Structure; Database Manager; Database Administrator; Data Dictionary Distributed Processing. Information and Communications Technology System (ICT); Client / Server Architecture.

Unit 3: Database Models and Implementation

Data Models; Relational Data Model; Hierarchical Model; Network Data Model; Object/Relational Model; Object-Oriented Model. Entity-Relationship



Model; Modelling using E-R Diagrams; Notation used in E-R Model; Relationships and Relationship Types. Associative Database Model.

Unit 4: Full Organization for Conventional DBMS

Storage devices and its characteristics; Magnetic Disks; Physical Characteristics of Disks; Performance Measures of Disks; Optimization of Disk-Block Access; File Organization; Fixed-Length Records; Variable-Length Records; Organization of records in files: Sequential file Organization, Indexed Sequential Access Method (ISAM), Virtual Storage Access Method (VSAM).

Unit 5: An Introduction to RDBMS

An informal look at the relational model; Relational Database Management System RDBMS Properties; Overview of Relational Query Optimization; System Catalog in a Relational DBMS; Information Stored in the System Catalog; How Catalogs are Stored.

Unit 6: An Introduction to SQL

Categories of SQL Commands; Data Definition; Data Manipulation Statements: SELECT - The Basic Form, Sub queries, Functions, GROUP BY Feature, Updating the Database; Data Definition Facilities; Views; EMBEDDED SQL: Declaring Variables and Exceptions, Embedding SQL Statements. Transactions: Consistency and Isolation, Atomicity and Durability.



Unit 7: Relational Algebra

Basic Operations; Union; Difference (-); Intersection (\cap); Cartesian Product (\times). Additional Relational Algebraic Operations; Projection (π); Selection (σ); Join (\Join); Division (\div).

Unit 8: Relational Calculus

Tuple Relational Calculus; Semantics of TRC Queries; Examples of TRC Queries; Domain Relational Calculus; Relational ALGEBRA vs. Relational CALCULUS.

Unit 9: Normalization

Functional Dependency; Anomalies in a Database; Properties of Normalized Relations; First Normalization; Second Normal Form Relation; Third Normal Form; Boyce-Codd Normal Form (BCNF); Fourth and Fifth Normal Form.

Unit 10: Distributed Databases

Structure of Distributed Database; Tradeoffs in Distributing the Database; Advantages of Data Distribution; Disadvantages of Data Distribution; Design of Distributed Databases; Data Replication; Data Fragmentation.

Unit 11: Introductions to Object Oriented Database Management System

What is Next Generation Data Base System? New Database Application; what is Object Oriented Database Management System? Features of Object Oriented System; Advantages of Object Oriented Database Management System; Deficiencies of Relational Database Management System; Difference between Relational Database Management System and Object Oriented Database Management System; Alternative Object Oriented Database Strategies.



BT 0067 – C Programming and Data Structures - Practical (2 Credits)

List of Programs

SNo	<i>Name of the Experiment</i>
1	A Simple C Program
2	Palindrome Number
3	Matrix Multiplication
4	Character Search
5	Calculator Implementation
6	Stack Implementation
7	Linked List Implementation
8	Prim's Algorithm
9	Dijkstra's Algorithm
10	Heapsort Algorithm

BScIT - SECOND SEMESTER

BT 0068 - Computer Organization and Architecture (4 Credits)

Unit 1: Data Representation in Computers

Digital Computers; Data Types; Complements; Fixed-Point Representation; Floating-Point Representation; Other Binary Codes;

Unit 2: Register Transfer and Micro operations

Register Transfer Language; Register Transfer; Bus and Memory Transfers; Arithmetic Microoperations; Logic Microoperations; Shift Microoperations; Arithmetic Logic Shift Unit.



Unit 3: Basic Structure of a Digital Computer

Mechanical and Electromechanical Ancestors; Structure of a Computer System; Arithmetic Logic Unit; Control Unit; Bus Structure; on Neumann Architecture.

Unit 4: CPU and Register Organization

Registers; User-Visible Registers; Control and Status Registers; Program Status Word (PSW); CPU Organization; Fundamental Computer Architecture; CPU organization in 8085 microprocessor. Register Organization of different machine; The Zilog Z8000 machine; Intel 8086 machine; Motorola 68000 machine. Instruction cycles; Basic instruction cycle; Basic instruction Cycle state diagram.

Unit 5: Interconnection Structures

Types of exchange of information: Modules of a System, Different types of transfers; Types of Buses; Elements of Bus Design: Bus Types, Method of arbitration, Bus Timing, Bus width; Bus Speed; Bus Structure: Single Bus System, Two Bus Organization, The Bus Standard.

Unit 6: Instruction Sets; Addressing Modes and Formats

Instruction Characteristics: Instruction representation, Instruction types, Number of addresses; Instruction Set Design; Types of Operands: Data types, IBM 370 Data types, VAX Data types; Types of Operations: Data transfer, Arithmetic, Logical, Conversion; I/O, System control; Transfer of control, System Control ;Addressing Modes: Direct addressing mode, Immediate addressing mode, Indirect addressing mode, Register addressing mode, Register indirect addressing mode, Displacement addressing mode, Relative addressing mode.



Unit 7: Arithmetic Logic Unit

Arithmetic Logic Unit; Number Representations: On-negative Integers, Negative Integers; Infinite-Precision Ten's Complement, Finite-Precision Ten's Complement, Finite-Precision Two's Complement, Rational Numbers.

Unit 8: Binary Arithmetic

Binary Arithmetic: Overflow in Integer Arithmetic, Binary Addition, Subtraction, another Note on Overflow, Multiplication, Unsigned Integer Multiplication, Straightforward Method, Unsigned Integer Multiplication, A More Efficient Method, Positive Integer Multiplication; Signed Integer Multiplication, Division; Floating Point Numbers: Floating Point Variables, Floating Point Arithmetic, Addition of Floating-Point Numbers, Time for Floating-Point Addition, Pipelined Floating-Point Addition, Real Numbers.

Unit 9: Memory Unit – Part I

Characteristics of Memory Systems, Main Memory, Types of Random-Access Semiconductor Memory, Organization, Static and dynamic memories; Memory system considerations, Design of memory subsystem using Static Memory Chips, Design of memory subsystem using Dynamic Memory Chips; Memory interleaving.

Unit 10: Memory Unit – Part II

Cache Memory: Principles of cache memory, Structure of cache and main memory, Performance using cache memory, Elements of Cache Design. Mapping functions, Replacement algorithms; External Memory, Magnetic Disk, RAID; Virtual memory; Memory Management in Operating Systems.



Unit 11: Input / Output Basics

External Devices: Classification of external devices, Input / Output problems; Input / Output Module: I/O Module Function, I/O Module Decisions, Input Output Techniques; Programmed I/O:I/O commands, I/O instructions; Interrupt Driven I/O:Basic concepts of an Interrupt, Response of CPU to an Interrupt, Design Issues, Priorities,Interrupt handling, Types of Interrupts.

Unit 12: Direct Memory Access

Direct Memory Access: DMA Function and Operation, DMA Configurations; DMA Controller: DMA Transfer Types, DMA Transfer modes, DMA Controller Operation, Advantages. Synchronization Requirements for DMA and Interrupts: Synchronization with Interrupts, Synchronization with DMA.

BT 0069 - Discrete Mathematics (4 credits)

Unit 1: Mathematical Preliminaries.

Sets; Relations; Functions; Basic Number Theory.

Unit 2: Elementary Combinatory

Principle of Counting; Permutation of Distinct Things; Combinations; Partitions and Binomial Coefficients; Principle of Inclusion and Exclusion.

Unit 3: Recurrence Relations

Recurrence Relation; Particular Solution; Generating Functions; Applications of Recurrences Integer Functions.



Unit 4: Partially Ordered Sets

Partially ordered sets; diagram representation of posets

Unit 5: Lattices

Definitions and examples; properties and complemented lattices; distributive Lattices; distributive Lattices.

Unit 6: Algebraic Structures

Semi groups; Monoids; groups; permutation groups.

Unit 7: Propositional Calculus and Quantifiers

Equivalence of formulas; Normal forms; Logical Interference.

Unit 8: Predicate Calculus

Predicates; Quantifiers; Free and Bound Occurrences; rules of interference.

Unit 9: Finite Boolean Algebras

Boolean algebra; Functions of Boolean algebra; Gating Networks.

Unit 10: Formal Languages

Grammars and Languages; Classification of Grammars.

Unit 11: Finite Automata

Basic Terms; Deterministic Finite Automata (DFA); Transition System (Transition graph) Language Accepted by a DFA.

Unit 12: Basic Graph Theory

Definitions and Examples; Adjacency and Degree; Sub graphs; Trees; Properties of Trees Rooted Trees and Applications.

Unit 13: Algebraic Codes and Cryptography

Preliminaries; Hamming Distance; Linear Codes; Introduction to Cryptography.



BT 0070 - Operating Systems (4 credits)

Unit 1: Operating System - An Introduction

Definition and functions of Operating System; Evolution of Operating Systems: Simple Batch Operating Systems, Multi-programmed Batched Operating Systems, Time- Sharing operating Systems, Personal Computer Operating Systems, Multi-processor Operating Systems, Distributed Systems, Real-Time Systems; Operating system structures; Layered approach; The kernel based approach; The virtual machine approach.

Unit 2 : Process Management

What is process? Process State; Process Control Block; Process Scheduling: Schedulers, Context Switch, Operation on processes: Process Creation, Process Termination. Co-operating Processes. Threads: Why Threads? ; Advantages of Threads over Multiple processes; Disadvantages of Threads over Multiple processes; Types of Threads Combined ULT/KLT Approaches.

Unit 3: CPU Scheduling Algorithms

Basic Concepts of Scheduling: CPU-I/O Burst Cycle. CPU Scheduler, Pre-emptive / non pre-emptive scheduling, Dispatcher, Scheduling Criteria; Scheduling Algorithms, First come First Served Scheduling, Shortest-Job-First Scheduling, Priority Scheduling. Round-Robin Scheduling, Multilevel Queue Scheduling, Multilevel Feedback Queue Scheduling, Multiple-Processor Scheduling, Real-Time Scheduling; Evaluation of CPU Scheduling Algorithms, Deterministic Modelling, Queuing Models, Simulations, Implementation.



Unit 4: Process Synchronization.

Inter process Communication; Basic Structure, Naming: Direct Communication; Indirect Communication, Buffering; The Critical-section problem: Two Process Solution: Algorithm1, Algorithm2, Algorithm3; Multiple Process Solutions; Semaphores; Monitors; Hardware Assistance.

Unit 5: Introduction to Deadlocks

System Model: Deadlock Characterization: Necessary Conditions for Deadlock; Resource-Allocation Graph; Deadlock Handling; Deadlock Prevention; Deadlock Avoidance; Safe State; Resource-Allocation Graph Algorithm; Banker's Algorithm; Safety Algorithm; Resource Request Algorithm. Deadlock Detection; Single Instance of a Resource; Multiple Instances of a Resource; Recovery from Deadlock.

Unit 6: Memory Management

Logical versus Physical Address Space Swapping; Contiguous Allocation; Single partition Allocation; Multiple Partition Allocation: Fragmentation; Paging: Concept of paging; Page Table Implementation; Segmentation; Concept of Segmentation; Segmentation Hardware; External Fragmentation.

Unit 7: Virtual Memory

Need for Virtual Memory Technique; Demand Paging; Page Replacement; Page Replacement Algorithms; FIFO Page Replacement Algorithm; Optimal Algorithm; LRU page Replacement Algorithm. Thrashing; Causes for Thrashing; Working Set Model; Page Fault Frequency.



Unit 8: File System Interface and Implementation

Concept of a File Attributes of a File; Operations on Files; Types of Files; Structure of File; File Access Methods: Sequential Access, Direct Access, Indexed Sequential Access. Directory Structure: Single Level Directory, Two Level Directory; Tree Structured Directories; Allocation Methods: Contiguous Allocation, Linked Allocation, Indexed Allocation; Performance Comparison. Free Space Management ;Bit Vector; Linked List; Grouping; Counting ;Directory Implementation; Linear List Hash Table.

Unit 9: Operating Systems in Distributed Processing

Characteristics of Distributed Processing; Characteristics of Parallel processing; Centralized v/s Distributed Processing; Distributed Applications; Distribution of Data; Distribution of Control; Network Operating System (NOS) Architecture; Functions of NOS; Redirection; Communication Management; File / Printer Services; Network Management software; Global Operating System (GOS);Migration; Resource Allocation / De-allocation. Remote Procedure Call (RPC);Message Passing Schemes; Types of services; RPC; Calling Procedure; Parameter Representation; Ports; Distributed File Management.

Unit 10: Security and Protection

Attacks on Security; Authentication; Browsing; Invalid Parameters; Line tapping; Improper Access Controls; Rogue Software. Computer Worms. Computer Virus; Types of Viruses; Infection Methods; Mode of Operation; Virus detection; Virus Removal; Virus Prevention. Security Design Principles; Authentication; Protection Mechanism; Encryption; Security in Distributed Environment.



Unit 11: Multiprocessor Systems

Advantages of Multiprocessors; Multiprocessor classification; Multiprocessor Interconnections; Bus-Oriented Systems; Crossbar-Connected Systems; Hyper cubes; Multistage switch-based Systems. Types of Multi-processor operating Systems; Separate supervisors; Master / slave; Symmetric. Multiprocessor Operating System functions and requirements; Operating System design and implementation issues; Process Management and scheduling; Memory Management.

BT 0071 - Technical Communication - Theory (2 credits)

Unit 1: Technical Communication Overview

Meaning of Technical Writer; Role of Technical Writer; Evolution of Technical Communication Characteristics of Technical Communication; Essential Skills of Technical Communication; Indicators of Excellence in Technical Communication; Role of Technical Communication in Business and industry; Careers in Technical Communication.

Unit 2: Audience Analysis

Basic Classification of Readers: Primary Audience, Secondary Audience; Research on Readers: Environment and Expectations; Types of Audiences; Audience Analysis; Audience Adaptations; Audience Profile Sheet.

Unit 3: Research Interviews

Research Tools: Know your SME; Conducting SME Interviews: Pre-Interview, During Interview, After the Interview; Validation; Tips for collecting information from SMEs.



Unit 4: Technical Writing Structure

The Importance of Information Structures: Descriptions versus Instructions; Understanding Role of Description: Structure of object and Mechanism Description, Structure of Process Description; Hierarchical Structure: Horizontal and Vertical Structure, Linear and Non Linear Structure, Structural Clash, Information Chunk.

Unit 5: Technical Writing Style

Concise Communication: Common Errors while constructing sentences; Clarity and Precision: Guidelines to clear and specific writing; American and British English; Style Manual.

Unit 6: Technical Communication Editing

Meaning; Types of Editing; Role of a Technical Editor; Proof Reading: Proof reading symbols, Abbreviations:

Unit 7: Systems Development Life Cycle

Systems Development Life Cycle (SDLC) – Overview; SDLC Phases: Feasibility, Requirement Analysis and Design, Implementation, Testing, Maintenance; Strength and Weakness of SDLC.

Unit 8: Technical Communication Ethics

What is Legal & Ethical? Ethical Issues in Technical Communication; STC Code for Communicators.



BT 0072 - Computer Networks (4 Credits)

Unit 1: Introduction

Network Structures; Network Architecture; OSI Reference Model; An Overview; Network Services; TCP/IP Protocol Suite.

Unit 2: Physical Layer

Analog and Digital Signals; Periodic Analog Signals; Transmission Impairments; Data Rate Limits; Transmission Media; Transmission and Switching; ISDN – Integrated Services Digital Network.

Unit 3 : Medium Access Sub layer

LAN and WAN; ALOHA Protocols; LAN Protocols; IEEE 802 Standards for LANs; Fiber Optic Networks.

Unit 4 : Data Link Layer – I

Data Link Layer (DLL) Design Issues; Error Detection and Correction: Block Coding, Cyclic Codes, Checksum; Framing.

Unit 5: Data Link Layer – II

Noiseless Channels; Noisy Channels; High Level Data Link Control (HDLC); Point-to-Point Protocol (PPP); Channelization; IEEE 802.11; Connecting Devices.

Unit 6: Network Layer – I

Design issues of Network layer; Principles of Routing; Routing Algorithms; Comparison of Routing Algorithms.

Unit 7: Network Layer – II

IPV4 Addressing; IPV6 Addressing; Comparing IPV4 and IPV6 Addressing.



Unit 8: Transport Layer

UDP; TCP; SCTP; Congestion; Congestion Control; Congestion Control Examples; Congestion avoidance.

Unit 9: Session Layer

Design Issues; Remote Procedure Calls.

Unit 10: Application Layer – I

Simple Mail Transfer Protocol; Send mail; Multipurpose Internet Mail Extensions (MIME) Post Office Protocol (POP).

Unit 11: Application Layer – II

Name Space; The Domain Name System; DNS Components; DNS Servers and the Internet; Name Resolution; Forwarders; Resource Records and Zones.

Unit 12: Internet Security

IPSecurity (IPSec); SSL / TLS; PGP; Firewalls.

BT 0073 – OS and DBMS - Practical (2 Credits)

List of Programs

SNo	Name of the Experiment
1	First Come First Served scheduling algorithm
2	The critical-section problem
3	Banker's Algorithm



4	The Dining Philosopher's Problem
5	Creation of tables
6	Report Generation
7	A PL/SQL program involving simple SQL Queries
8	A PL/SQL program using aggregate functions
9	Cursor Management
10	Library Management System

BScIT - THIRD SEMESTER

BT 0074 – OOPS with Java (4 Credits)

Unit 1: Introduction to Java

History of Java; Features of Java; Java Magic: Byte Code.

Unit 2: Java Basics

Keywords; Working of Java; Including Comments; Data Types in Java – Primitive Data Types, Abstract / Derived Data Types; Variables in Java; Using Classes in Java; Code to Display Test Value; The main Method; Invoking a method in Java; Saving, Compiling and Executing Java programs.

Unit 3: Operators and Control Statements

Operators - Arithmetic Operators, Increment and Decrement Operators, Comparison Operators, Logical Operators, Operator Precedence; Control Flow Statements - If-else Statement, Switch Statement, For Loop, While Loop, Do...While Loop, Break Statement, Continue Statement.



Unit 4: Arrays and Strings

String Handling; Special String Operations; Character Extraction; String Comparison; Searching Strings; String Modification; String Buffer.

Unit 5: Inheritance, Package and Interface

Inheritance - Types of Relationships, What is Inheritance? Why Generalize? Implementing Inheritance in Java, Access Specifiers, The Abstract Class; Packages - Defining a Package, Understanding CLASSPATH; Interface - Defining an Interface, Some Uses of Interfaces, Interfaces versus Abstract Classes.

Unit 6: Exception Handling

Definition of an Exception; Exception Classes; Common Exceptions; Exception Handling Techniques.

Unit 7: Streams in Java

Streams Basics; The Abstract Streams; Stream Classes; Readers and Writers; Random Access Files; Serialization.

Unit 8: Applets

What are Applets? The Applet Class; The Applet and HTML; Life Cycle of an Applet; The Graphics Class; Painting the Applet; User Interfaces for Applet; Adding Components to user interface; AWT Controls.

Unit 9: Event Handling

Components of an Event; Event Classes; Event Listener; Event-Handling; Adapter Classes; Inner Classes; Anonymous Classes.



Unit 10: JDBC

Java Data Base Connectivity; Database Management; Mechanism for connecting to a back end database; Loading the ODBC driver.

Unit 11: RMI, CORBA and Java Beans

Remote Method Invocation (RMI) – RMI Terminology; Common Object Request Broker Architecture (CORBA) – What is Java IDL? Example: The Hello Client-Server; Java Beans – The BeanBox, Running the BeanBox.

Unit 12: Java Server Pages and Servlets

Java Server Pages (JSP) – What is needed to write JSP based web application? How does JSP look? How to test a JSP? Servlets – History of Web Application, Web Architecture, Servlet Life Cycle.

Unit 13: Networking in Java

Networking in Java; URL Objects.

Unit 14: Java Development Kit

Tools with JDK; Advanced Debugging Commands.

BT 0075 – RDBMS with MySQL (4 Credits)

Unit 1: Basics of MySQL

Features of MySQL; Top 10 Reasons to use MySQL; MySQL Development Roadmap; Connecting to and Disconnecting from the Server; Accessing and Creating Databases and Tables; Loading Data.

Unit 2: Data Types

Numeric Types; String Types – The CHAR and VARCHAR Types, The BLOB and TEXT Types, The ENUM Type, The SET Type; Date and Time



Types – The DATETIME, DATE, and TIMESTAMP Types, The TIME Type, The YEAR Type, Y2K Issues and Data Types; Column Type Storage Requirements; Choosing the Right Type for a Column; Using Column Types from Other Database Engines.

Unit 3: Data Definition Language (DDL)

CREATE DATABASE; CREATE INDEX; CREATE TABLE; ALTER DATABASE; ALTER TABLE; DROP DATABASE; DROP INDEX; DROP TABLE; DESCRIBE.

Unit 4: Data Manipulation Language (DML)

Loading Data into a Table – INSERT, INSERT ... SELECT, INSERT DELAYED, LOAD DATA INFILE; Retrieving Information from a Table – Retrieving Specific Rows and Columns, Sorting Query Results, Grouping Query Results.

Unit 5: Advanced Data Manipulation Language

JOIN; UNION; DELETE; TRUNCATE; UPDATE; DO; HANDLER; REPLACE.

Unit 6: Subqueries

The Subquery as Scalar Operand; Comparisons Using Subqueries; Subqueries with ANY, IN, and SOME; Subqueries with ALL; Correlated Subqueries; EXISTS and NOT EXISTS; Row Subqueries; Subqueries in the FROM clause;

Unit 7: Operators and Functions

Operators – Parentheses, Comparison Operators, Logical Operators, Case Sensitive Operators; Control Flow Functions; String Functions; Numeric



Functions – Arithmetic Operators, Mathematical Functions; Date and Time Functions.

Unit 8: Advanced Functions

Full-text Search Functions – Boolean Full-text Searches, Full-text Searches with Query Expansion, Full-text Restrictions, Fine-tuning MySQL Full-text Search, Full-text Search TODO; Cast Functions; Other Functions – Bit Functions, Encryption Functions, Information Functions; Functions and Modifiers for Use with GROUP BY Clauses – GROUP BY (Aggregate) Functions, GROUP BY Modifiers.

Unit 9: Transaction Management

START TRANSACTION, COMMIT, and ROLLBACK Syntax; Statements that cannot be Rolled back; Statements that cause an Implicit Commit; SAVEPOINT and ROLLBACK TO SAVEPOINT Syntax; LOCK TABLES and UNLOCK TABLES Syntax; SET TRANSACTION Syntax.

Unit 10: Stored Procedures

Stored Procedure and Routines; Maintaining Stored Procedures – CREATE PROCEDURE and CREATE FUNCTION, ALTER PROCEDURE and ALTER FUNCTION, DROP PROCEDURE and DROP FUNCTION, SHOW CREATE PROCEDURE and SHOW CREATE FUNCTION; SHOW PROCEDURE STATUS and SHOW FUNCTION STATUS; CALL Statement.

Unit 11: Control Statements

BEGIN ... END Compound Statement; DECLARE Statement; Variables in Stored Procedures; Variable SET Statement; SELECT ... INTO Statement; DECLARE Conditions and Handlers; Flow Control Constructs – IF Statement, CASE Statement, LOOP Statement, LEAVE Statement,



ITERATE Statement, REPEAT Statement, WHILE Statement; Cursors – Declaring Cursors, Cursor OPEN Statement, Cursor FETCH Statement, Cursor CLOSE Statement.

Unit 12: User Account Management

Adding New User Accounts to MySQL; MySQL Usernames and Passwords; Securing the Initial MySQL Accounts; Removing User Accounts from MySQL; Limiting Account Resources; Assigning Account Passwords; Keeping Your Password Secure; Account Management Statements – DROP USER Syntax, GRANT and REVOKE Syntax, SET PASSWORD Syntax.

Unit 13: General Security Issues

General Security Guidelines; Making MySQL Secure Against Attackers; Startup Options for mysqld concerning security; Security Issues with LOAD DATA LOCAL.

Unit 14: Log Files

Error Log; The General Query Log; The Binary Log; The Slow Query Log; Log File Maintenance.

BT 0076 – TCP / IP (4 Credits)

Unit 1: Architecture of TCP / IP

The Internet Standard Process; Requests for Comments (RFCs); TCP/IP Terminology; The TCP/IP Protocol Suite – Network Interface Layer, Internet Layer, Transport Layer, Application Layer.



Unit 2: Network Interfaces

Ethernet and IEEE 802 Local Area Networks (LANs) – Gigabit Ethernet; Fiber Distributed Data Interface (FDDI); Serial Line IP (SLIP); Point-to-Point Protocol (PPP) – Point-to-point Encapsulation; Integrated Services Digital Network (ISDN); X.25; Frame relay – Frame Format, Interconnect issues, Data link layer parameter negotiation; PPP over SONET and SDH Circuits – Physical Layer; Asynchronous Transfer Mode (ATM) – Address Resolution, Classical IP over ATM.

Unit 3: Internetworking Protocols

Internet Protocol (IP) – IP Datagram, IP Datagram Format, Fragmentation, IP Datagram Routing Options, IP Addressing; Internet Control Message Protocol (ICMP) – ICMP Messages; Internet Group Management Protocol (IGMP); Address Resolution Protocol (ARP) – ARP Overview, ARP Detailed Concept; Reverse Address Resolution Protocol (RARP) – RARP Concepts; Bootstrap Protocol (BOOTP) – BOOTP Forwarding; Dynamic Host Configuration Protocol (DHCP) – The DHCP Message Format, DHCP Message Types, Allocating a new network address, DHCP Lease Renewal Process, Reusing a previously allocated network address.

Unit 4: Transport Protocols

Ports and Sockets – Ports, Sockets; User Datagram Protocol (UDP) – UDP Datagram Format, UDP Application Programming Interface; Transmission Control Protocol (TCP) – TCP Concepts, TCP Congestion Control Algorithms.



Unit 5: Domain Name System

The Hierarchical Namespace; Fully Qualified Domain Names (FQDNs) – Generic Domains, Country Domains; Mapping domain names to IP addresses; Mapping IP Addresses to Domain Names: Pointer Queries; The Distributed Name Space; Domain Name Resolution, Domain Name Full Resolver, Domain Name Stub Resolver, Domain Name Resolver Operation; Domain Name Server Operation; Domain Name System Resource Records; Domain Name System Messages – Message Compression; Using the DNS Uniform Resource Identifiers (URI); A Simple Scenario.

Unit 6: Remote Execution

Telnet – Telnet Operation, Network Virtual Terminal, Telnet Command Structure, Option Negotiation, Telnet Basic Commands; Remote Execution Command Protocol (REXEC and RSH) – Principle of Operation.

Unit 7: FTP and TFTP

File Transfer Protocol (FTP) – An overview of FTP, FTP Operations; Trivial File Transfer Protocol (TFTP) – TFTP Usage, Protocol Description, TFTP Packets, Data Modes, TFTP Multicast Option, Security Issues.

Unit 8: Mail Applications

Simple Mail Transfer Protocol (SMTP) – How SMTP Works? SMTP Messages, The SMTP Destination Address, Mail Header Format, Mail Exchange, SMTP Mail Transaction Flow, An Additional Example; Post Office Protocol (POP) – Connection States, POP3 Commands and Responses; Internet Message Access Protocol (IMAP4) – Fundamental IMAP4 Electronic mail models, IMAP4 states, IMAP4 commands and response interaction, IMAP4 messages.



Unit 9: The Web

Web browsers; Web servers; Hypertext Transfer Protocol (HTTP) – Overview of HTTP, HTTP operation.

Unit 10: Network Management

The Simple Network Management Protocol (SNMP) – The Management Information Base (MIB), The SNMP Agent, The SNMP Manager, The SNMP Subagent, The SNMP Model, SNMP Traps, SNMP Versions, Single Authentication and Privacy Protocol; The NETSTAT Utility – Common NETSTAT Options, Sample NETSTAT Report Output.

BT 0077 – Multimedia Systems (2 Credits)

Unit 1: Introduction to Multimedia

History of Multimedia; Multimedia Elements; Digital Multimedia; Analog and Digital Conversion; Digital media challenges; CD-ROM Delivers; CD-ROM Data Storage; Data Encoding and Reading; Interactivity – Elements of interactivity, Creating Interactive material, Using Interactivity Appropriately; Internet Vs Multimedia Vs Entertainment; Multimedia Applications; Use of Multimedia in the Classroom; Multimedia Application: Design Training, Entertainment; Hypertext / Hypermedia; Hotspots; Digital Encyclopaedia; Browsing the World of information; Multimedia Atlases; Control the World; Multimedia Future and Emerging Technologies; Social Software.

Unit 2: Concepts of Drawings

Elements of drawing; Creating drawing; Types of drawing; Drawing Composition – Depth Cues; Perspective Drawings; Multi View Drawing; Diagrams; Presentation Drawings.



Unit 3: Concepts of Colours

What is Colour? Characteristics of colour; The colour wheel; Primary colours; Secondary colours; Analogous colours; Complementary colours; Black and White; Tertiary Colours; Warm Colours; Cool Colours; Hue, Saturation and Value; Tint, Shade and Tone; Transparent, Opaque and Colour Harmony; Colour modes and models – HSB model, RGB model, CMYK model, L*a*b model, Lab model, Bitmap mode, Gray-scale mode.

Unit 4: Typography

Ancient Writing System; Clear communication and good design; The world of typography; Current Overview: 20th Century Overview; Typeface and Fonts – Measuring / Spacing Type, Type Height, Understanding the Basics; Type Alignment; Type Width; Tracking and kerning; Tracking is Overall Letter spacing – Creative Letter spacing with Kerning and Tracking; Optical Adjustments to typefaces; Font Family; True type fonts – True Type fonts on the PC and the Mac, PostScript fonts; Bitmapped and Outline (scalable fonts); Classification of font; Font Styles; Readability / Legibility; The Flow in Typography – Text Formatting; How to select font? Calligraphy; Text in multimedia application.

Unit 5: Laws of Design

The law of balance; Symmetrical Balance; The law of rhythm; The law of emphasis; The law of unity; The law of proportion.

Unit 6: Resolution

Image Resolution; Pixel and Resolution; Image Classification; Image resolution Vs Computer Monitor – Image quality, Rule of thumb for print size



Vs resolution, Device resolution / output resolution; Monitor Resolution; Printer Resolution; Screen frequency; File Size – Bit depth; Scanning Images – Dynamic range, 8 bit, 16 bit and 24 bit colour depth in scanner, 36 bits Vs 24 bits; Interpolated Resolution; Graphics file formats.

Unit 7: Graphic Image Files Formats

Graphic file formats – GIF (Graphic Interchange Format), JPEG (Joint Photographic Experts Group), PNG (Portable Network Graphics), BMP, PDF, TIFF, PICT Resource, PIXAR, Photoshop Format, Photoshop 2.0 (Photoshop), AVI (ImageReady), Photoshop EPS, EPS TIFF or EPS PICT Preview, Filmstrip, PCS, PICT File, Quick Time Movie (ImageReady), Raw (Photoshop), Scitex CT (Photoshop), Targa; Converting Formats; Compressing Data.

BT 0078 – Website Design (2 credits)

Unit 1: Introduction to Internet

What is Internet? – Definition, Internet from practical and technical angle, Who owns and cares for the Internet? What is TCP/IP? Introduction to RFC, How Internet Works? Internet Applications; Concepts of Server – Client Server Model, Servers; Getting Connected – Different Types of Connections, Requirements for Connections; Internet Service Providers; Address in Internet – The Domain Name System and DNS Servers, IP Addresses; Resource Addressing – URL (Uniform Resource Locator), URLs and HOST Names, URLs and Port Numbers, Pathnames; Email – Email Basics, Mail protocols, How to access the Mail System?

Unit 2: Website Development with HTML - I

HTML Fundamentals 1 – Architecture of Web Page Contents, Browser Specific Tags, Structure Tags, Physical Tags, Logical Tags, HTML Tags,



Tools for HTML Validation; Using Graphics – Tools for creating and manipulating Web Graphics, Image Tags and Attributes, Sources for web site graphics, Introduction to Client-Side Image Maps, Tools for creating image maps, GIF, JPEG, and PNG Formats, Transparent Graphics, Transparency and Interlacing of Graphics, Creating Animated Graphics, Interactive Graphics; Constructing Forms; Marketing Your Site – Characteristics of Search Engines, Registering with Search Engines and Directories, The <meta> Tags and Attributes keywords, description and robots, Creating Effective <title> tags, Designing your site for effective Search Engine Optimization.

Unit 3: Website Development with HTML - II

Frames – The <frame> Tags and Attributes, The <frameset> Tags and Attributes, Frame Construction, Frame Navigation; Creating and Managing Styles – Cascading Style Sheets (CSS), <style> Tags and Attributes, Defining Styles, Creating CSS Rules, Using Style Sheets to Support Multiple Browsers, Creating Custom Styles (classes), Using <div> and Tags; Tables – Purpose of Tables, Table Tags, Table Attributes, Using Tables for Page Layout and Structure, Creating Nested Tables; Website Layout and Design – Layout and design Heuristics, Content Organization, Page Size and Load Time Optimization, Navigation Styles, Providing Navigational Feedback, Tables Vs CSS, Use of Color and Graphics; Managing Source Files – Recommended Folder Structure, Testing and Production Folders, Development Steps, File Naming, Version Control; Foundations of Dynamic HTML – DHTML Capabilities, Netscape Vs Microsoft Support for DHTML, <link> Tags and External Styles, Creating Custom Styles (classes), <layer> Tags, Positioning Layers, HTML Vs DHTML.



Unit 4: XML Programming - I

The Need for XML – Introduction, Structured Data and Formatting, Advantages of XML, SGML, XML, and HTML, World Wide Web Consortium (W3C) Specifications and Grammars, XML Applications and Tools, Creating and Viewing XML Documents, Transforming XML Documents; XML Document Syntax; Validating XML Documents with DTDs; XML Namespaces.

Unit 5: XML Programming - II

Validating XML Documents with Schemas; Introduction to Simple Object Access Protocol (SOAP) – SOAP's use of XML and schemas, Elements of a SOAP Message, Sending and Receiving SOAP Messages (SOAP Clients and Receivers), Handling SOAP Faults, Current SOAP Implementations; Introduction to Web Services – Architecture and Advantages of Web Services, Purpose of Web Services Description Language (WSDL), WSDL Elements, Creating and Examining WSDL Files, Overview of Universal Description, Discovery, and Integration (UDDI), UDDI Registries (Public and Private), Core UDDI Elements, Deploying and Consuming Web Services, ebXML Specifications, ebXML Registry and Repository; Introduction to the XML Document Object Model (XMLDOM).

Unit 6: XML Programming - III

Transforming XML Documents with XSLT and XPath; Formatting XML Documents with XSL-FO – Purpose of XSL Formatting Objects (XSL-FO), XSL-FO Documents and XSL-FO Processors, XSL-FO Namespace, Page Format Specifiers, Page Content Specifiers.