

AFFILIATED INSTITUTION
ANNA UNIVERSITY, CHENNAI

CURRICULAM AND SYLLABI - REGULATIONS – 2010
B.Sc – INFORMATION TECHNOLOGY (3 YEARS)

SEMESTER I

Course Code	Course Title	L	T	P	C
THEORY					
YEN001	Technical English- I	4	0	0	4
YMA001	Applied Mathematics-I	3	1	0	4
YCS922	Basics of Electrical Engineering	3	0	0	3
YCS912	Computer Concepts & Problem Solving	3	0	0	3
YCS913	Programming in C	3	0	0	3
PRACTICALS					
YIT915	Electrical Engineering Laboratory	0	0	3	2
YCS915	Computer Concepts and Problem Solving Laboratory	0	0	3	2
YCS916	C Programming Laboratory	0	0	3	2
Total		16	1	9	23

SEMESTER II

Course Code	Course Title	L	T	P	C
THEORY					
YEN002	Technical English- II	4	0	0	4
YMA002	Applied Mathematics -II	3	1	0	4
YCS911	Digital Principles	3	0	0	3
YIT922	Operating Systems	3	0	0	3
YCS923	Data Structures	3	0	0	3
PRACTICALS					
YCS917	Digital Laboratory	0	0	3	2
YIT926	Operating Systems Lab	0	0	3	2
YCS927	Data Structures Laboratory	0	0	3	2
TOTAL		15	1	9	22

SEMESTER III

Course Code	Course Title	L	T	P	C
THEORY					
YMA003	Mathematical Structures	3	1	0	4
YSE931	Design and Analysis of Algorithms	3	1	0	4
YIT932	Object Oriented Programming	3	0	0	3
YCS933	Database Management Systems	3	0	0	3
YCS924	Computer Architecture	3	0	0	3
PRACTICALS					
YCS926	Object Oriented Programming Laboratory	0	0	3	2
YCS937	Database Management Systems Lab	0	0	3	2
YIT938	Algorithm Design Laboratory	0	0	4	2
TOTAL		15	2	10	23

SEMESTER IV

Course Code	Course Title	L	T	P	C
THEORY					
YMA004	Probability and Statistics	3	1	0	4
YSE932	Microprocessors and Interfacing	3	0	0	3
YSE941	Java Programming	3	0	0	3
YCS951	Computer Networks	3	0	0	3
E1	Elective - I	3	0	0	3
PRACTICALS					
YIT945	Microprocessors and Interfacing Lab	0	0	3	2
YIT946	Java Programming Laboratory	0	0	3	2
YCS957	Computer Networks Laboratory	0	0	3	2
TOTAL		15	1	9	22

SEMESTER V

Course Code	Course Title	L	T	P	C
Theory					
YCS934	Software Engineering	3	0	0	3
YCT954	Web Technology	3	0	0	3
YIT953	Embedded Systems	3	0	0	3
E2	Elective - II	3	0	0	3
E3	Elective - III	3	0	0	3
Practicals					
YIT955	Software Lab	0	0	2	2
YIT956	Web Technology Lab	0	0	2	2
YIT957	Embedded Systems Lab	0	0	2	2
TOTAL		15	0	6	21

SEMESTER VI

Course Code	Course Title	L	T	P	C
Theory					
YCS961	Principles of Management	3	0	0	3
YIT962	Communication Switching Techniques	3	0	0	3
E4	Elective IV	3	0	0	3
E5	Elective V	3	0	0	3
E6	Elective VI	3	0	0	3
Practicals					
YIT966	Project Work	0	0	12	6
TOTAL		15	0	12	21

TOTAL CREDITS TO BE EARNED FOR THE AWARD OF THE DEGREE = 132

ELECTIVES

SEMESTER - IV

Course Code	Course Title	L	T	P	C
YIT001	Multimedia Systems	3	0	0	3
YCS005	Client Server Computing	3	0	0	3
YIT002	Fundamentals of Digital Signal Processing	3	0	0	3
YIT003	Object Oriented Analysis and Design	3	0	0	3

SEMESTER - V

Course Code	Course Title	L	T	P	C
YCS015	Software Project Management	3	0	0	3
YIT004	Service Oriented Architecture	3	0	0	3
YIT005	Signals and Systems	3	0	0	3
YIT006	Network Security	3	0	0	3
YIT007	Data Warehousing	3	0	0	3
YCS013	Wireless Technology	3	0	0	3

SEMESTER - VI

Course Code	Course Title	L	T	P	C
YIT008	Unix Internals	3	0	0	3
YIT009	Mobile Communication	3	0	0	3
YIT010	Extreme Programming	3	0	0	3
YIT011	Open Source Computing	3	0	0	3
YCS002	Management Information Systems	3	0	0	3
YIT012	Enterprise Resource Planning	3	0	0	3
YCS014	Advanced DBMS	3	0	0	3
YCS016	Distributed Operating Systems	3	0	0	3
YCS011	Decision Support Systems	3	0	0	3
YCS008	Image Processing	3	0	0	3

SEMESTER I

YEN001	TECHNICAL ENGLISH- I	L	T	P	C
		4	0	0	4

UNIT I ENGLISH TODAY 12

Modern English : varieties of discourse—regional variations—accent and dialects—social variations—occupational varieties and scientific English—medium and attitude ; speaking and writing ; formal and informal style—language change—new ways of studying English.

UNIT II EXTENDING VOCABULARY: STRUCTURAL AND CONTENT WORDS 12

Principles of word formation; abbreviations and acronyms; foreign words and phrases; idioms and phrases—everyday computer—related words ; scientific and technical terms.

UNIT III GRAMMAR 12

Referring to people and things with the help of noun phrases- describing people and things with the help of determiners- adjectives and modifiers- making a message- varying the message: negation question exclamation inversion – expressing words referring to time, place and manner- reporting what people say or think – combining messages: coordination and subordination- making text- the structure of information.

UNIT IV RECEPTIVE SKILL 1—LISTENING 12

Developing guided note taking from a lecture, recognizing and using descriptive words and phrases, completing information in a table, practicing dictation and checking spelling, developing accuracy in listening, imitating standard spoken English through native speakers' talk and presentation, listening for general and specific information, listening to news in the media and relating information to issues and locales around the world.

UNIT V RECEPTIVE SKILL 2—READING 12

Predicting the content – skimming the text for gist- identifying the topic sentences – guessing the meaning of words from contexts – scanning for specific information – transfer of information – cloze reading.

TOTAL : 60 PERIODS

REFERENCE BOOKS:

1. Adrian Doff & Christopher Jones, "Language in use – intermediate", Cambridge University Press, 2003.
2. Gail Ellis and Barbara Sinclair, "Learning to learn English: A course in learner training", Cambridge University Press, 1989.

UNIT IV INDUCTION MACHINES

9

Construction - Types of motors - principle of operation - torque equation - slip torque characteristics of cage and wound rotor. Single phase induction motor- principle of operation.

UNIT V POWER SUPPLIES

9

Half and Full wave rectifier - Bridge rectifier - rectification efficiency – transformer utility factor -voltage regulator- introduction to SMPS and UPS.12

TOTAL : 45 PERIODS

REFERENCE BOOKS:

1. B.L.Theraja, "Electrical Technology" - Vol I&II – Nirja construction and development company, New Delhi.
2. V.N.Mittle, "Basic Electrical Engineering", Tata Mc.Graw Hill, New Delhi, 2006.

YCS912	COMPUTER CONCEPTS & PROBLEM SOLVING	L	T	P	C
		3	0	0	3

UNIT I FUNDAMENTALS OF COMPUTERS 9
 Evolution of Computers – Inputs/Outputs – Alternative Methods of Input – Organization of Modern Digital Computers – Operating System – Multitasking OS – Graphical User Interface.

UNIT II WORD PROCESSING 9
 Word Processing Programs and Their Uses – Word Processor's Interface – Editing Text – Formatting Text –Macro- Special Features of Word – Desktop Publishing Service – Converting doc into www pages.

UNIT III SPREADSHEET SOFTWARE 9
 Spreadsheet Programs – applications – Spreadsheet package features, attributes - structure, label, data, importing data, formula, functions – data handling – Managing workbooks.

UNIT IV INTRODUCTION TO COMPUTER PROBLEM SOLVING 9
 Introduction – Problem Solving aspects-Top-Down Design-Implementation of Algorithms – Program Verification-Efficiency of Algorithms-Analysis of Algorithm-fundamental algorithm-factorial computation-generation of Fibonacci sequence.

UNIT V FACTORING AND ARRAY TECHNIQUES 9
 Factoring Methods-finding the square root of a number-generating prime numbers-Array techniques-array order reversal-Finding the maximum number in a set- Removal of duplicates from an ordered Array-finding the kth smallest element.

TOTAL : 45 PERIODS

REFERENCE BOOKS:

1. Peter Norton, " Introduction to Computers",4th Edition, 2001, Tata McGraw Hill Ltd, New Delhi.
2. R.G. Dromey,"How to solve it by Computers",2007, Pearson Publishers, New Delhi.

UNIT I INTRODUCTION TO C LANGUAGE 9

Overview of 'C' language – Constants, Variables and Data Types – Operators, Expressions and Assignment statements – Managing Input/Output Operations – Formatted I/O – Decision Making - Branching – IF, Nested IF – Switch – goto - Looping- While, do, for statements.

UNIT II ARRAYS AND FUNCTIONS 9

Arrays – dynamic and multi-dimensional arrays - Character arrays and Strings – String handling Functions - User defined Functions – Categories of Functions – Recursion.

UNIT III STRUCTURES AND UNIONS 9

Basics of Structures-Declaring a Structure – Array of Structures –Passing Structures elements to Functions- Passing entire Structure to Function – Structures within Structures - Union – Union of Structures – Enumerated Data Types – typedef Statement.

UNIT IV POINTERS 9

Pointers – Declaration, Accessing a variable, dynamic memory allocation, Pointers versus Arrays, Array of pointers, Pointers to functions and structure Pointers.

UNIT V FILE MANAGEMENT 9

File Management in C – Data hierarchy- Files and Streams – Sequential access file- Random access file - Preprocessors.

TOTAL : 45 PERIODS

REFERENCES:

1. V.Rajaraman "Computer Programming in C" Prentice Hall of India, New Delhi, 2001
2. Kamthane, A.N., "Programming with ANSI and Turbo C", Pearson Education, Delhi, 2006.
3. Yashavant P. Kanetkar " Pointers In C" , BPB Publications, NewDelhi, 2002
4. E.Balagurusamy " Programming in ANSI C " , Tata McGraw Hill, 2004
5. Deitel and Deitel " C How to Program " , Addisson Wesley , 2001

PRACTICALS

YIT915

ELECTRICAL ENGINEERING LABORATORY

L	T	P	C
0	0	3	2

1. Verification of Ohm's and Krichoft Law
2. Verification of Circuit Theorem
3. Load Test on Single Phase Transformer
4. Load Test on D.C.Shunt Motor
5. Load Test on D.C. Shunt Generator
6. Swinburn's Test on D.C. Shunt Motor
7. OC & SC Test on Single Phase Transformer
8. Load Test on 1 Phase induction Motor
9. Study of SMPS
10. Study of Half Wave and Full Wave Rectifiers

TOTAL : 45 PERIODS

YCS915	COMPUTER CONCEPTS AND PROBLEM SOLVING LABORATORY	L	T	P	C
		0	0	3	2

1. Word Processing
2. Spreadsheet
3. Power point
4. Factorial
5. Fibonacci
6. Prime Generation
7. Removal of duplicates from an ordered Array
8. Finding the kth smallest element.

TOTAL : 45 PERIODS

C Programming

Implementation of

1. Input / output function
2. Control Functions
3. Functions
4. Arrays
5. Pointers
6. Structures and Unions
7. Files

Using case studies on : Roots of a quadratic equation, Measures of location – Matrix Operations – Evaluation of trigonometric functions – Pay roll problems. String operations like substring, concatenation, finding a string from a given paragraph, finding the number of words in a paragraph.

TOTAL : 45 PERIODS

YEN002

TECHNICAL ENGLISH-II

L	T	P	C
4	0	0	4

UNIT I ENGLISH TODAY 12

British and American Words – Communicating across cultures - Dealing with Discrimination – non verbal communication – values, beliefs & practices, Body language, The importance of Listening, Speaking and Interpersonal communication

– purpose of Messages in Organization.

UNIT II GRAMMAR (FOCUS ON LANGUAGE) 12

Identifying the lexical and contextual meaning of words – expanding nominal compounds – framing of questions ('Wh' pattern, yes/no questions, tag questions) Subject – verb agreement, use of articles, preposition and conditionals – impersonal passive – error detection and punctuation.

UNIT III RECEPTIVE SKILLS 1 & 2 – LISTENING AND READING 12

Gap filling activity while listening - intensive listening – listening to a discourse and filling up gaps in a worksheet – comprehension tasks based on listening. Reading the gist to identify the topic sentence – its role – sequencing of sentences – transcoding diagrams – understanding discourse coherence and cohesion.

UNIT IV PRODUCTIVE SKILL 1 – SPEAKING 12

Making Oral presentations – planning, kinds of presentation – adapting your ideas to audience, planning visual and other device to involve the audience – conducting language games to enrich spoken skills – facing interviews and negotiating benefits.

UNIT V PRODUCTIVE SKILL 2 – WRITING 12

One sentence definition of technical terms – descriptions, paragraph writing, process description, check list, job application & resume, business letters (Calling for quotation, placing orders, enquiry etc) – Instruction and recommendation.

TOTAL : 60 PERIODS

REFERENCE BOOKS :

1. Kitty O Locker, "Business Communication – Building critical Skills", Mc-Graw Hill, Third Edition 2007
2. Bridha Prabhakar, G. Subramanian, "Technical English for Engineering Students", Gems Publications, 2006.
3. Aysha Viswamohan, "English for Technical Communication", Tata McGraw Hill, 2007

UNIT I MULTIPLE INTEGRAL 12

Double integration- Cartesian and polar co-ordinates- Change of order of integration- Area as a double integral, Change of variables between Cartesian and polar co-ordinates- Triple integration- Volume as a triple integral

UNIT II FOURIER SERIES 12

Dirichlet's condition-General Fourier series-Odd and even functions-Half range Fourier series-Parseval's identity-Harmonic analysis

UNIT III COMPLEX DIFFERENTIATION 12

Functions of complex variable-analytic function- Necessary condition -Cauchy Riemann equation -Sufficient conditions(excluding proof) -Properties of analytic functions - Harmonic conjugate -Construction of analytic functions-Conformal Mapping- $w = z+a$, $w = az$, $w = 1/z$, $w = z^2$ - Bilinear Transformation.

UNIT IV COMPLEX INTEGRATION 12

Statement and applications of Cauchy's Integral theorem and formula-Taylor's and Laurent's expansions- Isolated singularities- Residues-Cauchy's residue theorem- Contour integration over unit circle and semi circular contour (excluding poles on boundaries)

UNIT V LAPLACE TRANSFORM 12

Laplace Transforms-Condition for existence-Transforms of Elementary functions-Basic properties-Derivatives and integrals of transforms- Transforms of derivatives and integrals - Initial and Final value theorem- Transform of unit step functions and impulse function-Transform of periodic function-Inverse Laplace transform- Convolution theorem-Solution of linear ODE of second order with constant coefficient, using Laplace transformation

L:45,T:15,TOTAL :60 PERIODS

REFERENCE BOOKS :

1. Kandasamy. P, Thilagavathy K and Gunavathy K, Engineering Mathematics for First year B.E/B.Tech, S.Chand and company Ltd, New Delhi-110055, Seventh Revised edition 2007
2. Veeraranjan T , Engineering Mathematics (for First year) Tata Mc Graw Hill Publishing co.New Delhi 110008 (2008)
3. Grewal B.S,Higher Engineering Mathematics 38th edition , Khanna Publishers New Delhi (2004)

YCS911

DIGITAL PRINCIPLES

L	T	P	C
3	0	0	3

UNIT I **9**

Binary Systems : Digital Systems, Binary Numbers, Number Base Conversions, Octal and Hexadecimal Numbers, Complements, Signed Binary Numbers, Binary Codes, Binary Storage and Registers, Binary Logic

Boolean Algebra and Logic Gates: Basic Theorems and Properties of Boolean Algebra, Boolean Functions, Canonical and Standard Forms, Digital Logic Gates.

UNIT II **9**

Minimization: K-Map Method – Table Method, POS - SOP, Don't Care Conditions, NAND, NOR Implementation, Introduction to HDL.

Combinational Logic: Combinational Circuits, Analysis and Design Procedure, Binary Adder, Subtractor, Decimal Adder, Binary Multiplier, Magnitude Comparator, Decoders, Encoders, Multiplexers.

UNIT III **9**

Synchronous Sequential Logic: Sequential Circuits - Latches, Flip-Flops, Analysis of Clocked Sequential Circuits, State Reduction and Assignment Design Procedure.

UNIT IV **9**

Registers and Counters: Registers, Shift Registers, Ripple Counters, Synchronous Counters, Ring Counters-Johnson Counter.

UNIT V **9**

Asynchronous Sequential Circuit : Introduction, Analysis Procedure, Circuits with Latches, Design Procedure, Reduction of State and Flow Tables, Race – Free State Assignment Hazards, Design Example.

TOTAL: 45 PERIODS

REFERENCE BOOKS:

1. M.Morris Mano, "Digital Design", 3rd edition, Pearson Education, Delhi, 2007
2. Donald P Leech, Albert Paul Malvino and Goutam Saha, "Digital Principles and Applications", Tata Mc Graw Hill, 2007.

YIT922	OPERATING SYSTEMS	L	T	P	C
		3	0	0	3
UNIT I	INTRODUCTION				9
	History of OS – Operating System Concepts- Functions- Structures- Types				
UNIT II	PROCESS MANAGEMENT				9
	Processes - Inter process communication -Scheduling criteria - algorithms - Process Synchronization – Deadlocks				
UNIT III	MEMORY MANAGEMENT				9
	Storage organization - contiguous – non-contiguous allocation - fixed partition multiprogramming - multiprogramming with variable partitions - Swapping - Virtual memory - Paging - Segmentation - Page replacement algorithms - Demand paging.				
UNIT IV	DEVICE AND FILE MANAGEMENT				9
	I/O hardware - I/O Software - Disks – Disk Scheduling – File organization - File system implementation - allocation methods- Security - Protection mechanism.				
UNIT V	CASE STUDY				9
	LINUX – Architecture - Kernel - Features - System calls - WINDOWS NT: Architecture – Features- Process Management				

TOTAL :45PERIODS

REFERENCE BOOKS :

1. Silberschatz A, Galvin, P. Gagne G "Operating System Concepts", John Wiley & Sons, 7th Edition, Singapore, 2004.
2. Deitel, H.M., "Operating Systems", Pearson Education, 3rd edition, New Delhi, 2004.
3. Andrew S. Tanenbaum, "Modern Operating Systems", Pearson Education, 3rd Edition, New Delhi, 2007
4. Achyut S. Godbole, "Operating Systems", Tata Mc-Graw Hill, 2nd edition, New Delhi, 2003.

YCS923	DATA STRUCTURES	L	T	P	C
		3	0	0	3

UNIT I PROBLEM SOLVING 9

Problem solving – Top-down Design – Implementation – Verification – Efficiency – Analysis – Sample algorithms.

UNIT II LISTS, STACKS AND QUEUES 9

Abstract Data Type (ADT) – The List ADT – The Stack ADT – The Queue ADT

UNIT III TREES 9

Preliminaries – Binary Trees – The Search Tree ADT – Binary Search Trees – AVL Trees – Tree Traversals – Hashing – General Idea – Hash Function – Separate Chaining – Open Addressing – Linear Probing – Priority Queues (Heaps) – Model – Simple implementations – Binary Heap

UNITIV SORTING 9

Preliminaries – Insertion Sort – Shellsort – Heapsort – Mergesort – Quicksort – External Sorting

UNIT V GRAPHS 9

Definitions – Topological Sort – Shortest-Path Algorithms – Unweighted Shortest Paths – Dijkstra’s Algorithm – Minimum Spanning Tree – Prim’s Algorithm – Applications of Depth-First Search– Undirected Graphs – Biconnectivity–Introduction to NP-Completeness

TOTAL: 45 PERIODS

REFERENCE BOOKS :

1. R. G. Dromey, “How to Solve it by Computer” (Chaps 1-2), Prentice-Hall of India, 2002.
2. M. A. Weiss, “Data Structures and Algorithm Analysis in C”, 2nd ed, Pearson Education Asia, 2002.
3. ISRD Group, “Data Structures using C”, Tata McGraw Hill, 2007
4. Richard F. Gilberg, Behrouz A. Forouzan, “Data Structures – A pseudocode Approach with C”, ThomsonBrooks / COLE, 1998.

YCS917

DIGITAL LABORATORY

L	T	P	C
0	0	3	2

LIST OF EXERCISES:

1 Binary and BCD counter

2 Verification of NAND, NOR, XOR, AND, OR Gate Logic

3 Parity Generator

4 Multiplexer / Demultiplexers

5 Adder / Subtractor

6 Code Converters

7 Up / Down 4 bit Binary Counter

8 Up / Down 4 bit Decimal Counter

9 Shift Register

10 Ring Counter

TOTAL : 45 PERIODS

YIT926

OPERATING SYSTEMS LAB

L	T	P	C
0	0	3	2

LIST OF EXERCISES

1. Concurrency in Unix/ C
- creating child processes using fork, exec
2. Implementation of Interprocess communication
3. Implementation of Process Scheduling Algorithms
4. Implementation of Process Synchronization
5. Design and Implementation of Deadlock algorithms
6. Implementation of Memory Management Algorithms
7. Implementation of Page replacement Algorithms
8. File system implementation
9. Directory implementation
10. Implementation of Disk Scheduling Algorithms

TOTAL : 45 PERIODS

LIST OF EXERCISES

Implement the following exercises using C:

1 Array implementation of List Abstract Data Type (ADT)

2 Linked list implementation of List ADT

3 Cursor implementation of List ADT

4 Array implementations of Stack ADT

5 Linked list implementations of Stack ADT

The following three exercises are to be done by implementing the following source files

(a) Program for 'Balanced Paranthesis'

(b) Array implementation of Stack ADT

(c) Linked list implementation of Stack ADT

(d) Program for 'Evaluating Postfix Expressions'

An appropriate header file for the Stack ADT should be #included in (a) and (d)

6 Implement the application for checking 'Balanced Paranthesis' using array implementation of Stack ADT (by implementing files (a) and (b) given above)

7 Implement the application for checking 'Balanced Paranthesis' using linked list implementation of Stack ADT (by using file (a) from experiment 6 and implementing file (c))

8 Implement the application for 'Evaluating Postfix Expressions' using array and linked list implementations of Stack ADT (by implementing file (d) and using file (b), and then by using files (d) and (c))

9 Queue ADT

10 Search Tree ADT - Binary Search Tree

11 Heap Sort

12 Quick Sort

TOTAL : 45 PERIODS

YMA003	MATHEMATICAL STRUCTURES	L	T	P	C
		3	1	0	4

UNIT I SET THEORY **12**

Set theory: set notations basic set operations - Venn diagram - laws of set theory principles of inclusion and exclusion - partition - minsets – mathematical induction.

UNIT II PROPOSITIONAL CALCULUS **12**

Propositions - Truth table-logical operators – Tautologies and contradiction- Logical equivalences and implications- laws of logic - normal forms- proofs in propositional calculus- Direct proof- conditional conclusion – indirect proof- Inconsistent set of premises.

UNIT III PREDICATE CALCULUS **12**

Predicates- statement function – variables and quantifiers- Predicate formulae- Free and bound variables- The Universe of discourse- logical implications and equivalence for quantified statements- Theory of inference of predicate calculus.

UNIT IV RELATIONS AND FUNCTIONS **12**

Relations- Properties of relations- Equivalence relation- composition of relations- closure operations on relations- Functions-Injective, surjective, bijective functions- composition of functions – inverse functions.

UNIT V FORMAL LANGUAGES AND AUTOMATA **12**

Four classes of grammars- Types of grammars-normal forms-Derivation trees- ambiguous and unambiguous grammars- finite state automata(FSA)- nondeterministic finite state automata(NFSA)- conversion of non-deterministic automata to deterministic finite state automata. acceptance of a regular set by an FSA construction of a right linear grammar from a finite automata.

L : 45, T : 15, TOTAL 60 PERIODS

REFERENCE BOOKS:

1. Kenneth H.Rosen, “ Discrete Mathematics and its Applications”, Tata Mc Graw Hill, Fourth Edition, 2002.
2. J.P.Tremblay and Manohar , “ Discrete Mathematical Structures with Applications to computer Science “, TMH ,1997.

YSE931	DESIGN AND ANALYSIS OF ALGORITHMS	L	T	P	C
		3	1	0	4

UNIT I INTRODUCTION 12

Fundamentals of algorithmic problem solving – important problem types – Fundamentals of the analysis of algorithm efficiency – analysis frame work – Asymptotic NOTATIONS – Mathematical analysis for recursive and non-recursive algorithms.

UNIT II DIVIDE AND CONQUER METHOD AND GREEDY METHOD 12

Divide and conquer methodology – Merge Sort – Quick Sort – Binary search – Binary Tree Traversal – Multiplication of large integers- Strassen’s matrix multiplication Greedy method – Prim’s algorithm – Kruskal’s algorithm – Dijkstra’s Algorithm.

UNIT III DYNAMICPROGRAMMING 12

Computing a binomial coefficient – Warshall’s and Floyd’s algorithm – Optimal binary search tree – Knapsack problem – Memory functions.

UNIT IV BACKTRACKING AND BRANCH AND BOUND 12

Backtracking – N-Queens problem – Hamiltonian circuit problem – subset sum problem-branch and bound – Assignment problem – Knapsack problem – Traveling salesman problem.

UNIT V NP-HARD AND NP-COMPLETE PROBLEMS 12

P & NP, problems – NP- complete problems – Approximation algorithms for NP-hard problems traveling salesman problem – Knapsack problem.

L:45, T:15, TOTAL 60 PERIODS

REFERENCES:

1. Anany Levitin “Introduction to the design and Analysis of Algorithms” Pearson Edition 2003.
2. Thomas H. Cormen, Charles E. Leiscrson, Ronald L. Rivest, “Introduction to algorithms” Prentice Hall 1990.

YIT932

OBJECT ORIENTED PROGRAMMING

L	T	P	C
3	0	0	3

UNIT I INTRODUCTION 9

Object-oriented paradigm, elements of object oriented programming – Merits and demerits of OO methodology – C++ fundamentals – data types, operators and expressions, control flow, arrays, strings, pointers and functions.

UNIT II PROGRAMMING IN C++ 9

Classes and objects – constructors and destructors, operator overloading – inheritance, virtual functions and polymorphism

UNIT III FILE HANDLING 9

C++ streams – console streams – console stream classes-formatted and unformatted console I/O operations, manipulators - File streams - classes file modes file pointers and manipulations file I/O – Exception handling

UNIT IV JAVA INTRODUCTION 9

An overview of Java, data types, variables and arrays, operators, control statements, classes, objects, methods – Inheritance.

UNIT V JAVA PROGRAMMING 9

Packages and Interfaces, Exception handling, Multithreaded programming, Strings, Input /Output.

TOTAL : 45 PERIODS

REFERENCES:

1. Herbert Schildt, "the Java 2 : Complete Reference", Fourth edition, TMH, 2002 (Unit IV, Unit-V)(Chapters 1-11,13,17)
2. Ira Pohl, "Object oriented programming using C++", Pearson Education Asia, 2003
3. Bjarne Stroustrup, "The C++ programming language", Addison Wesley, 2000
4. John R.Hubbard, "Progranning with C++", Schaums outline series, TMH, 2003
5. H.M.Deitel, P.J.Deitel, "Java : how to program", Fifth edition, Prentice Hall of India private limited.
6. E.Balagurusamy " Object Oriented Programming with C++", TMH 2/e

YIT933	DATABASE MANAGEMENT SYSTEMS	L	T	P	C
		3	0	0	3

UNIT I INTRODUCTION AND CONCEPTUAL MODELING 9

Introduction to File and Database systems- Database system structure – Data Models – Introduction to Network and Hierarchical Models – ER model – Relational Model – Relational Algebra and Calculus.

UNIT II RELATIONAL MODEL 9

SQL – Data definition- Queries in SQL- Updates- Views – Integrity and Security – Relational Database design – Functional dependences and Normalization for Relational Databases (up to BCNF).

UNIT III DATA STORAGE AND QUERY PROCESSING 9

Record storage and Primary file organization- Secondary storage Devices- Operations on Files- Heap File- Sorted Files- Hashing Techniques – Index Structure for files –Different types of Indexes- B-Tree - B+Tree – Query Processing.

UNIT IV TRANSACTION MANAGEMENT 9

Transaction Processing – Introduction- Need for Concurrency control- Desirable properties of Transaction- Schedule and Recoverability- Serializability and Schedules – Concurrency Control – Types of Locks- Two Phases locking- Deadlock- Time stamp based concurrency control – Recovery Techniques – Concepts- Immediate Update- Deferred Update - Shadow Paging.

UNIT V CURRENT TRENDS 9

Object Oriented Databases – Need for Complex Data types- OO data Model- Nested relations- Complex Types- Inheritance Reference Types - Distributed databases- Homogenous and Heterogenous- Distributed data Storage – XML – Structure of XML- Data-XML Document- Schema- Querying and Transformation. – Data Mining and Data Warehousing.

TOTAL : 45 PERIODS

REFERENCES:

1. Abraham Silberschatz, Henry F. Korth and S. Sudarshan- “Database System Concepts”, Fourth Edition, McGraw-Hill, 2002.
2. Ramez Elmasri and Shamkant B. Navathe, “Fundamental Database Systems”, Third Edition, Pearson Education, 2003.
3. Raghu Ramakrishnan, “Database Management System”, Tata McGraw-Hill Publishing Company, 2003.
4. Hector Garcia–Molina, Jeffrey D.Ullman and Jennifer Widom- “Database System Implementation”- Pearson Education- 2000.

YCS924	COMPUTER ARCHITECTURE	L	T	P	C
		3	0	0	3

UNIT I BASIC STRUCTURE OF COMPUTERS 9

YCS926	OBJECT ORIENTED PROGRAMMING LABORATORY	L	T	P	C
		0	0	3	2

C++

1. Programs Using Functions
 - Functions with default arguments
 - Implementation of Call by Value, Call by Address and Call by Reference
2. Simple Classes for understanding objects, member functions and Constructors
 - Classes with primitive data members
 - Classes with arrays as data members
 - Classes with pointers as data members – String Class
 - Classes with constant data members
 - Classes with static member functions
3. Compile time Polymorphism
 - Operator Overloading including Unary and Binary Operators.
 - Function Overloading
4. Runtime Polymorphism
 - Inheritance
 - Virtual functions
 - Virtual Base Classes
 - Templates
5. File Handling
 - Sequential access
 - Random access

JAVA

6. Simple Java applications
 - for understanding reference to an instance of a class (object), methods
 - Handling Strings in Java
7. Simple Package creation.
 - Developing user defined packages in Java
8. Interfaces
 - Developing user-defined interfaces and implementation
 - Use of predefined interfaces
9. Threading
 - Creation of thread in Java applications
 - Multithreading
10. Exception Handling Mechanism in Java
 - Handling pre-defined exceptions
 - Handling user-defined exceptions

TOTAL : 45 PERIODS

YCS937	DATABASE MANAGEMENT SYSTEMS LAB	L	T	P	C
		0	0	3	2

1. Data Definition Language (DDL) commands in RDBMS.
2. Data Manipulation Language (DML) and Data Control Language (DCL) commands in RDBMS.
3. High-level language extension with Cursors.
4. High level language extension with Triggers
5. Procedures and Functions.
6. Embedded SQL.
7. Database design using E-R model and Normalization.
8. Design and implementation of Payroll Processing System.
9. Design and implementation of Banking System.
10. Design and implementation of Library Information System.

TOTAL : 45 PERIODS

YIT938	ALGORITHM DESIGN LABORATORY	L	T	P	C
		0	0	4	2

1. Apply the divide and Conquer technique to arrange a set of numbers using merge sort method.
2. Perform Strassen's matrix multiplication using divide and conquer method.
3. Solve the knapsack problem using greedy method.
4. Construct a minimum spanning tree using greedy method.
5. Construct optimal binary search trees using dynamic programming method of problem solving.
6. Find the solution for traveling salesperson problem using dynamic programming approach.
7. Perform graph traversals.
8. Implement the 8-Queens Problem using backtracking.
9. Implement knapsack problem using backtracking.
10. Find the solution of traveling salesperson problem using backtracking

TOTAL : 60 PERIODS

SEMESTER IV

YMA004	PROBABILITY AND STATISTICS	L	T	P	C
		3	1	0	4

UNIT I STATISTICS 12

Introduction - Classification and tabulation of statistical data – Diagrammatic and graphical representation of data.

UNIT II MEASURES OF CENTRAL TENDANCY 12

Mean , Median and Mode (Revision) – Range – Quartile deviation – Mean deviation – Standard Deviation – Measures of Skewness

UNIT III CORRELATION AND REGRESSION 12

Karl Pearson's Coefficient of correlation – Spearman's Rank correlation – Regression lines and co-efficients.

UNIT IV PROBABILITY & DISTRIBUTIONS 12

Basic concepts - Conditional Probability- Addition and multiplication theorem – Random variables - Characteristics and applications of Binomial, Poisson and Normal distributions - simple problems.

UNIT V TESTING OF HYPOTHESIS 12

Concept of hypothesis – level of significance – testing difference between mean, proportions (Large and Small)- Chi-square distribution- Applications of test of independence of attributes and Goodness of fit – Testing of population variance. Statistical Quality Control: Introduction- Control charts for variables and attributes: - \bar{X} , R, np, p & c charts.

TOTAL : 60 PERIODS

REFERENCES:

1. S.C. Gupta & V.K. Kapoor, "Fundamentals of Mathematical Statistics", Sultan Chand and Sons, New Delhi, 2002
2. Veerarajan T., "Probability, Statistics and Random Processes", Tata McGraw-Hill, New Delhi, 2002.
3. Ronald E. Walpole et al "Probability & Statistics for Engineers & Scientists", Pearson Education, 2002.
4. Jay L.Devore, "Probability and Statistics for Engineering and the Sciences", Thomson Asia Pvt Ltd., Singapore, 2002.

YSE932	MICROPROCESSORS AND INTERFACING	L	T	P	C
		3	0	0	3

UNIT I 8-BIT MICROPROCESSOR 9

8085 Architecture and Memory interfacing, interfacing I/O devices, Instruction set, Addressing Modes, Assembly language programming, counters and time delays, interrupts, timing diagram, Microprocessor applications.

UNIT II MICROCONTROLLER: 9

Intel 8031/8051 Architecture, Special Function Registers (SFR), I/O pins, ports and circuits, Instruction set, Addressing Modes, Assembly Language Programming, Timer and Counter Programming, Serial Communication, Connection to RS 232, Interrupts Programming, External Memory interfacing, Introduction to 16 bit Microcontroller

UNIT III 80X86 PROCESSORS 9

8086 Architecture, Pin Configuration, 8086 Minimum and Maximum mode configurations, Addressing modes, Basic Instructions, 8086 Interrupts, Assembly levels programming. Introduction to 80186, 80286, 80386, 80486 and Pentium processors.

UNIT IV PERIPHERALS AND INTERFACING 9

Serial and parallel I/O (8251 and 8255), Programmable DMA Controller (8257), Programmable interrupt controller (8259), keyboard display controller (8279), ADC/DAC interfacing. Inter integrated circuits interfacing (I²C standard).

UNIT IV UNIT MICROPROCESSOR BASED SYSTEMS DESIGN, DIGITAL INTERFACING 9

Interfacing to alpha numeric displays, interfacing to liquid crystal display (LCD 16 x 2 line), high power Devices and Optical motor shaft encoders, stepper motor interfacing, Analog interfacing and industrial control, microcomputer based smart scale, industrial process control system, Robotics and Embedded control, DSP and Digital Filters.

TOTAL : 45 PERIODS

REFERENCES:

1. Ramesh S. Gaonkar, Microprocessor Architecture Programming and Applications with 8085. Fourth edition, Penram International Publishing 2000.
2. Muhammad Ali Mazidi, Janice Gillispie Mazidi, The 8051 Microcontroller, and Embedded Systems, Prentice Hall 2000.
3. Douglas V.Hall, Microprocessor and Interfacing, Programming and Hardware. Tata McGraw Hill, Second Edition. 1999.
4. Kenneth J.Ayala., "The 8051 Microcontroller Architecture Programming and Applications", Penram International Publishing (India). 1996.
5. Ray A.K.Bhurchandi.K.M, "Advanced Microprocessor and Peripherals", Tata McGraw-Hill, 2002.

YSE941	JAVA PROGRAMMING	L	T	P	C
		3	0	0	3
UNIT I	JAVA BASICS-REVIEW				9
	Java Streaming – Components and events handling – Threading concepts – Networking-features – Byte code interpretation – Media Techniques.				
UNIT II	JAVA DATA STRUCTURES				9
	Lists – Linear Structures – Ordered Structures – Sorting – Trees.				
UNIT III	ADVANCED NETWORKING AND BEANS				9
	Client-Sever computing – Sockets – Content and Protocols handlers – Developing distributed applications – RMI – Remote objects – Object serialization – Bean Concepts – Events in Bean Box – Bean customization and persistence.				
UNIT IV	JAVA DATABASE PROGRAMMING				9
	Connecting to Databases – JDBC principles – Databases access – Interacting – Database search – Accessing Multimedia databases – Database support in Web applications.				
UNIT V	RELATED JAVA TECHNIQUES				9
	3D graphics – JAR file format and creation – Internationalization – Swing Programming – Advanced Java Scripting Techniques.				

TOTAL : 45 PERIODS

REFERENCES:

1. Ken Arnold, James Gosling and David Holmes, “The JAVA Programming Language”, 3rd edition, Tata Mc-Graw Hill, 2007
2. Elliotte Rusty Harold, “ Java Network Programming”, O’Reilly publishers, 2000
3. Patrick Naughton, “Complete Reference: Java2”, 7th edition, Tata Mc-Graw Hill, 2003
4. H.M.Deitel, P.J.Deitel, “Java : how to program”, Fifth edition, Prentice Hall of India private limited.2005

YCS951	COMPUTER NETWORKS	L	T	P	C
		3	0	0	3

UNIT I DATA COMMUNICATIONS 9

Components – Direction of Data flow – networks – Components and Categories – types of Connections – Topologies – Protocols and Standards – ISO / OSI model – Transmission Media – Coaxial Cable – Fiber Optics – Line Coding – Modems – RS232 Interfacing sequences.

UNIT II DATA LINK LAYER 9

Error – detection and correction – Parity – LRC – CRC – Hamming code – low Control and Error control - stop and wait – go back-N ARQ – selective repeat ARQ- sliding window – HDLC. - LAN - Ethernet IEEE 802.3 - IEEE 802.4 - IEEE 802.5 - IEEE 802.11 – FDDI - SONET – Bridges.

UNIT III NETWORK LAYER 9

Internetworks – Packet Switching and Datagram approach – IP addressing methods – Subnetting – Routing – Distance Vector Routing – Link State Routing – Routers.

UNIT IV TRANSPORT LAYER 9

Duties of transport layer – Multiplexing – Demultiplexing – Sockets – User Datagram Protocol (UDP) – Transmission Control Protocol (TCP) – Congestion Control – Quality of services (QOS) – Integrated Services.

UNIT V APPLICATION LAYER 9

Domain Name Space (DNS) – SMTP – FTP – HTTP - WWW – Security – Cryptography.

TOTAL : 45 PERIODS

REFERENCES:

1. Behrouz A. Forouzan, “Data communication and Networking”, Tata McGraw-Hill, 2004.
2. James F. Kurose and Keith W. Ross, “Computer Networking: A Top-Down Approach Featuring the Internet”, Pearson Education, 2003.
3. Andrew S. Tanenbaum, “Computer Networks”, PHI, Fourth Edition, 2003.
4. William Stallings, “Data and Computer Communication”, Sixth Edition, Pearson Education, 2000.

YIT945	MICROPROCESSORS AND INTERFACING LAB	L	T	P	C
		0	0	3	2

1. Write an assembly language program to perform arithmetic operations on block of data using Hexadecimal numbers.
2. Write an assembly language program to perform arithmetic operations on block of data using BCD numbers.
3. Write an assembly language program to perform byte and string manipulation.
4. Write an assembly language program to interface Programmable Peripheral Interface.
5. Write an assembly language program to interface Programmable Timer.
6. Write an assembly language program to interface Programmable Communication Interface.
7. Write an assembly language program to interface Keyboard/Display Controller.
8. Write a program to Perform Power on Self Test.
9. Write a program for floppy disk trouble shooting.
10. Write a program for printer trouble shooting.

TOTAL : 45 PERIODS

YIT946	JAVA PROGRAMMING LABORATORY	L	T	P	C
		0	0	3	2

1. Implementation of Interfaces and package.
2. Implementation of Multithreading and Exception Handling concepts.
3. Implementation of Applets.
4. Front End Development using swing and AWT.
5. Message transfer using TCP/IP Protocol.
6. Developing a simple Application using Servlets.
7. Developing a simple Application using JSP.
8. Developing a simple Application using JDBC.

TOTAL : 45 PERIODS

YCS957	COMPUTER NETWORKS LABORATORY	L	T	P	C
		0	0	3	2

(All the programs are to be written using C)

1. Simulation of ARP / RARP.
2. Write a program that takes a binary file as input and performs bit stuffing and CRC Computation.
3. Develop an application for transferring files over RS232.
4. Simulation of Sliding-Window protocol.
5. Simulation of BGP / OSPF routing protocol.
6. Develop a Client – Server application for chat.
7. Develop a Client that contacts a given DNS Server to resolve a given host name.
8. Write a Client to download a file from a HTTP Server.
- 9 &10 Study of Network Simulators like NS2/Glomosim / OPNET

TOTAL : 45 PERIODS

SEMESTER V

YCS934	SOFTWARE ENGINEERING	L	T	P	C
		3	0	0	3
UNIT I SOFTWARE PROCESS					9
Introduction –S/W Engineering Paradigm – life cycle models (water fall, incremental, spiral, WINWIN spiral, evolutionary, prototyping, object oriented) - system engineering – computer based system – verification – validation – life cycle process – development process –system engineering hierarchy.					
UNIT II SOFTWARE REQUIREMENTS					9
Functional and non-functional - user – system –requirement engineering process – feasibility studies – requirements – elicitation – validation and management – software prototyping – prototyping in the software process – rapid prototyping techniques – user interface prototyping - S/W document. Analysis and modeling – data, functional and behavioral models – structured analysis and data dictionary.					
UNIT III DESIGN CONCEPTS AND PRINCIPLES					9
Design process and concepts – modular design – design heuristic – design model and document. Architectural design – software architecture – data design – architectural design – transform and transaction mapping – user interface design – user interface design principles. Real time systems - Real time software design – system design – real time executives – data acquisition system - monitoring and control system. SCM – Need for SCM – Version control – Introduction to SCM process – Software configuration items.					
UNIT IV TESTING					9
Taxonomy of software testing – levels – test activities – types of s/w test – black box testing – testing boundary conditions – structural testing – test coverage criteria based on data flow mechanisms – regression testing – testing in the large. S/W testing strategies – strategic approach and issues - unit testing – integration testing – validation testing – system testing and debugging.					
UNIT V SOFTWARE PROJECT MANAGEMENT					9
Measures and measurements – S/W complexity and science measure – size measure – data and logic structure measure – information flow measure. Software cost estimation – function point models – COCOMO model- Delphi method.- Defining a Task Network – Scheduling – Earned Value Analysis – Error Tracking - Software changes – program evolution dynamics – software maintenance – Architectural evolution. Taxonomy of CASE tools.					

TOTAL : 45 PERIODS

REFERENCES:

1. Roger S.Pressman, Software engineering- A practitioner's Approach, McGraw-Hill International Edition, 6th edition, 2007.
2. Ian Sommerville, Software engineering, Pearson education Asia, 6th edition, 2001.
3. Pankaj Jalote- An Integrated Approach to Software Engineering, Springer Verlag, 1997.
4. James F Peters and Witold Pedryez, "Software Engineering – An Engineering Approach", John Wiley and Sons, New Delhi, 2000.
5. Ali Behforooz and Frederick J Hudson, "Software Engineering Fundamentals", Oxford University Press, Noida, 2003.

YCT954

WEB TECHNOLOGY

L	T	P	C
3	0	0	3

UNIT I INTRODUCTION

9

Internet Principles – Basic Web Concepts – Client/Server model – Retrieving data from Internet – HTML and Scripting Languages – Standard Generalized Mark-up Language –Next Generation Internet – Protocols and applications.

UNIT II COMMON GATEWAY INTERFACE PROGRAMMING

9

HTML forms – CGI Concepts – HTML tags Emulation – Server-Browser communication – Email generation – CGI Client side Applets – CGI Server Side Applets – Authorization and security.

UNIT III SOCKET PROGRAMMING

9

Streaming – Networking principles – sockets – protocol handlers – content handlers – multicasting – Remote Method Invocation – activation – Serialization - Marshal Streams.

UNIT IV SERVER SIDE PROGRAMMING

9

Dynamic web content – cascading style sheets – DHTML – XML - Server side includes - communication – Active and Java Server Pages - Firewalls – proxy servers.

UNIT V ONLINE APPLICATIONS

9

Simple applications – On-line databases – monitoring user events – plug-ins – database connectivity – Internet Information Systems - EDI application in business – Internet commerce – Customization of Internet commerce .

TOTAL : 45 PERIODS

REFERENCES:

1. Rashim Mogha, Preetham.V.V., “ Java Web Services Programming”, Wiley Dreamtech, New Delhi, 2002.
2. Deitel ,“ XML How to Program”, first edition, Pearson Education, USA, 2002.
3. Jason Hunter, William Crawford, “Java Servlet Programming”, O’ Reilly Publications, USA, 1998.
4. Bhanu Pradhap, “ Understanding Active Server Pages “, Cyber Tech Publications, New Delhi, 2001.
5. James Conard,Patrick Dengler,Brain Franics Et Al, “ Introducing .NET “, Shroff Publishers, New Delhi, 2001.

YIT953	EMBEDDED SYSTEMS	L	T	P	C
		3	0	0	3

UNIT I INTRODUCTION TO EMBEDDED SYSTEMS 9

Definition and Classification – Overview of Processors and hardware units in an embedded system – Software embedded into the system – Exemplary Embedded Systems – Embedded Systems on a Chip (SoC) and the use of VLSI designed circuits

UNIT II DEVICES AND BUSES FOR DEVICES NETWORK 9

I/O Devices - Device I/O Types and Examples – Synchronous - Iso-synchronous and Asynchronous Communications from Serial Devices - Examples of Internal Serial-Communication Devices Parallel Port Devices - Sophisticated interfacing features in Devices/Ports- Timer and Counting Devices - '12C', 'USB', 'CAN' and advanced I/O Serial high speed buses- and advanced buses.

UNIT III PROGRAMMING CONCEPTS 9

Programming in assembly language (ALP) vs. High Level Language - C Program Elements, Macros and functions -Use of Pointers - Multiple function calls in a Cyclic Order in the Main Function Pointers – Function Queues and Interrupt Service Routines Queues Pointers – Cross compiler – Optimization of memory codes.

UNIT IV REAL TIME OPERATING SYSTEMS – PART - 1 9

Definitions Of Process, Tasks And Threads – Clear Cut Distinction Between Functions – Isrs And Tasks By Their Characteristics – Operating System Services- Device Management – File System Organisation And Implementation – I/O Subsystems – Interrupt Routines Handling In RTOS, Real Time Operating Systems, Inter Process Communication And Synchronisation —Remote Procedure Calls.

UNIT V REAL TIME OPERATING SYSTEMS – PART - 2 9

Study of Micro C/OS-II or Vx Works or Any other popular RTOS – RTOS System Level Functions — Case Studies of Programming with RTOS – Understanding Case Definition – Multiple Tasks and their functions – Creating a list of tasks – Functions and IPCs – Exemplary Coding Steps.

TOTAL : 45 PERIODS

REFERENCES:

1. Rajkamal, Embedded Systems Architecture, Programming and Design, TATA McGraw- Hill, First reprint Oct. 2003
2. Steve Heath, Embedded Systems Design, Second Edition-2003, Newnes,
3. David E.Simon, An Embedded Software Primer, Pearson Education Asia, New Delhi, 2004.
4. Wayne Wolf, Computers as Components; Principles of Embedded Computing System Design – Harcourt India, Morgan Kaufman Publishers, New Delhi, 2006

YIT955

SOFTWARE LAB

L	T	P	C
0	0	2	2

1. Study of case tools such as rational rose or equivalent tools
2. **Requirements**
Implementation of requirements engineering activities such as elicitation, validation, management using case tools
3. **Analysis and design**
Implementation of analysis and design using case tools.
4. Study and usage of software project management tools such cost estimates and scheduling
5. Documentation generators - Study and practice of Documentation generators.
6. Data modeling using automated tools.
7. Practice reverse engineering and re engineering using tools.
8. Exposure towards test plan generators, test case generators, test coverage and software metrics.
9. Meta modeling and software life cycle management.

TOTAL : 45 PERIODS

YIT956

WEB TECHNOLOGY LAB

L	T	P	C
0	0	2	2

Creating applications using web development tools:

1. HTML & VB Script
2. XML – DTD
3. XML – XSL
4. XML – CSS
5. Translating EDifact document to XML
6. Active Server Pages
7. Java Server Pages
8. Java Servlets
9. .NET Platform
10. C# in .NET Platform

TOTAL : 45 PERIODS

YIT957

EMBEDDED SYSTEMS LAB

L	T	P	C
0	0	2	2

1. Study of 8051 Microcontroller kit and simulator
2. Arithmetic operations , Addition, Subtraction, Multiplication and Division
3. Interrupt programming
4. Design of moving display
5. Parallel interfacing , testing of I/O ports
6. Keyboard/display interface
7. Traffic light controller interface
8. ADC/DAC interface
9. Serial interfacing , Kit to PC communication
10. Interfacing a LCD display

TOTAL : 45 PERIODS

SEMESTER VI

YCS961	PRINCIPLES OF MANAGEMENT	L	T	P	C
		3	0	0	3

UNIT I HISTORICAL DEVELOPMENT 9

Definition of Management – Science or Art – Management and Administration – Development of Management Thought – Contribution of Taylor and Fayol – Functions of Management –Types of Business Organisation.

UNIT II PLANNING 9

Nature & Purpose – Steps involved in Planning – Objectives – Setting Objectives – Process of Managing by Objectives – Strategies, Policies & Planning Premises- Forecasting – Decisionmaking.

UNIT III ORGANISING 9

Nature and Purpose – Formal and informal organization – Organization Chart – Structure and Process – Departmentation by difference strategies – Line and Staff authority – Benefits and Limitations – De-Centralization and Delegation of Authority – Staffing – Selection Process - Techniques – HRD – Managerial Effectiveness.

UNIT IV DIRECTING 9

Scope – Human Factors – Creativity and Innovation – Harmonizing Objectives – Leadership – Types of Leadership Motivation – Hierarchy of needs – Motivation theories – Motivational Techniques – Job Enrichment – Communication – Process of Communication – Barriers and Breakdown – Effective Communication – Electronic media in Communication.

UNIT V CONTROLLING 9

System and process of Controlling – Requirements for effective control – The Budget as Control Technique – Information Technology in Controlling – Use of computers in handling the information – Productivity – Problems and Management – Control of Overall Performance – Direct and Preventive Control – Reporting – The Global Environment – Globalization and Liberalization – International Management and Global theory of Management.

TOTAL : 60 PERIODS

REFERENCES:

1. Harold Kooritz & Heinz Weihrich "Essentials of Management", Tata McGraw-Hill, 1998.
2. Joseph L Massie "Essentials of Management", Prentice Hall of India, (Pearson) Fourth Edition, 2003.
3. Tripathy PC And Reddy PN, " Principles of Management", Tata McGraw-Hill, 1999.
4. Decenzo David, Robbin Stephen A, "Personnel and Human Reasons Management", Prentice Hall of India, 1996

YIT962	COMMUNICATION SWITCHING TECHNIQUES	L	T	P	C
		3	0	0	3
UNIT I	COMPONENTS AND PRINCIPLES				9
Block diagram of switching system – Pulse and DTMF Dialing – Signaling Tones – Strowger Switching with design examples – Principles of common control, cross bar switching					
UNIT II	SPACE DIVISION AND TIME DIVISION SWITCHING				9
Stored program control – Centralized and distributed SPC, 2stage, 3 stage and N stage networks, Time division time and space switching, Time multiplexed time and space switching, combination switching					
UNIT III	TRAFFIC ENGINEERING				9
Network traffic load and parameters, Grade of service and blocking probability, Modeling switching systems, Blocking models and loss estimates, Delay models and queue analysis					
UNIT IV	DIGITAL SUBSCRIBER ACCESS				9
Integrated services digital network, High data rate digital subscriber loops, Digital loop carrier systems, Fiber in the loop, Voice band modems					
UNIT V	CELLULAR WIRELESS NETWORKS				9
Principles of cellular networks, frequency reuse, Channel assignment strategies, Handoff strategies, Cordless systems, Wireless local loop, Wireless application protocol BLUE TOOTH :Overview, Radio specification, Base band specification, Link manager specification, logical link control and adaptation protocol					

TOTAL : 45 PERIODS

REFERENCES:

1. Viswanathan.T., "Telecommunication Switching System and Networks", Prentice Hall, New Delhi, 2004.
2. William Stallings, "Wireless Communication and Networks", second edition, Pearson Education, New Delhi, 2004.
3. John. C. Bellamy, "Digital Telephony", John Wiley & Sons, Singapore, 2000.
4. Behrouz Forouzan, "Introduction to Data Communication and Networking", Tata McGraw Hill, New York, 1996.

YIT001	MULTIMEDIA SYSTEMS	L	T	P	C
		3	0	0	3
UNIT I	INTRODUCTION TO MULTIMEDIA				9
	Introduction to making Multimedia- Multimedia Skills and training- Text: Using text in Multimedia-Computer and Text- Font Editing and Design Tools- Hypermedia and Hypertext				
UNIT II	MULTIMEDIA FILE HANDLING				9
	Sound – Images – Animation – Video				
UNIT III	DIGITAL VIDEO AND IMAGE COMPRESSION				9
	Evaluating a compression system - Redundancy and visibility-Video compression techniques- Standardization of an algorithm - The JPEG image compression standard- ITU – T Standards - MPEG motion video compression standard-DVI Technology.				
UNITIV	HARDWARE, SOFTWARE AND MULTIMEDIA AUTHORIZING TOOLS				9
	Multimedia Hardware: Macintosh and Windows production platforms-Hardware Peripherels: Memory and Storage Devices, Input Devices, Output Devices, Communication Devices .Basic Software Tools				
UNIT V	MULTIMEDIA AND INTERNET				9
	Internetworking –connections -Internet services -Tools for WWW - Designing WWW.				
TOTAL : 45 PERIODS					

REFERENCES:

1. Multimedia: Making It Work, Tay Vaughan, 7th Edition, Tata Mc-Graw Hill. 2008.
2. Multimedia Systems, John F.Koegel Buford, Pearson edition, 2003. (unit III).
3. Ranjan Parekh, Principles of Multimedia, TMH, 2006.
4. Multimedia: Computing, Communication and applications, Ralf Steinmetz and Klara Nahrstedt, Pearson Edition, 2001.

YCS005	CLIENT SERVER COMPUTING	L	T	P	C
		3	0	0	3

UNIT I INTRODUCTION 9

Client Server Computing era, Real Client/Server, Fat Servers or fat clients, 2 tier Vs 3 tier, Intergalactic client server, client server for different models, building blocks

UNIT II CLIENT/SERVER OPERATING SYSTEMS 9

Anatomy of Server programs, Server needs from OS, Server scalability, Client anatomy, Client needs from OS, Client OS trends , MAC OS, Linux OS, Win OS, Server OS trends , NetWare, Win 2000 Server, OS/2 warp server

UNIT III CLIENT SERVER MIDDLEWARE 9

NOS Middleware, global directory services, X.500, LDAP, distributed time services, distributed security services, RPC messaging and peer to peer , Sockets, NetWare, NetBIOS, remote procedure call, messaging and queuing, MOM Vs RPC, Evolution of the NOS, DCE , The enterprise NOS, the internet as NOS

UNIT IV CLIENT SERVER TRANSACTION PROCESSING 9

ACID Properties, Transaction Models, TP Monitor, TP Monitor and OS, TP Monitor and Transaction Management, TP Monitor Client/ Server Interaction types, Transactional RPC, Queues, TP Lite or TP Heavy, TP Lite versus TP Heavy – Managing Heterogeneous networks, Process Management, client/server invocations, Performance

UNIT V CLIENT SERVER AND INTERNET 9

Client server and internet, Web client server, 3 tier client server web style, CGI , the server side of web, CGI and State, SQL database servers, Middleware and federated databases, data warehouses, EIS/DSS to data mining, GroupWare Server , what is GroupWare, components of GroupWare

TOTAL: 45 PERIODS

REFERENCES:

1. Robert Orfali, Dan Harkey & Jeri Edwards, "Essential Client/Server Survival Guide", second edition, John Wiley & Sons, Singapore, 2003.
2. James E. Goldman, Phillip T. Rawles, Julie R. Mariga, "Client/Server Information Systems, A Business Oriented Approach", John Wiley & Sons, Singapore, 2000.
3. Eric J Johnson, "A complete guide to Client / Server Computing", first edition, Prentice Hall, New Delhi, 2001.
4. Smith & Guengerich, "Client /Server Computing", Prentice Hall, New Delhi, 2002

YIT002	FUNDAMENTALS OF DIGITAL SIGNAL PROCESSING	L	T	P	C
		3	0	0	3

UNIT I SIGNALS AND SYSTEMS 9

Basic elements of digital signal Processing –Concept of frequency in continuous time and discrete time signals – Sampling theorem –Discrete time signals. Discrete time systems – Analysis of Linear time invariant systems –Z transform –Convolution and correlation.

UNIT II FAST FOURIER TRANSFORMS 9

Introduction to DFT – Efficient computation of DFT Properties of DFT – FFT algorithms – Radix-2 and Radix-4 FFT algorithms – Decimation in Time – Decimation in Frequency algorithms –Use of FFT algorithms in Linear Filtering and correlation.

UNIT III IIR FILTER DESIGN 9

Structure of IIR – System Design of Discrete time IIR filter from continuous time filter – IIR filter design by Impulse Invariance. Bilinear transformation – Approximation derivatives – Design of IIR filter in the Frequency domain.

UNIT IV FIR FILTER DESIGN 9

Symmetric & Antisymmetric FIR filters – Linear phase filter – Windowing technique – Rectangular, Kaiser windows – Frequency sampling techniques – Structure for FIR systems.

UNIT V FINITE WORD LENGTH EFFECTS 9

Quantization noise – derivation for quantization noise power – Fixed point and binary floating point number representation – comparison – over flow error – truncation error – co-efficient quantization error - limit cycle oscillation – signal scaling – analytical model of sample and hold operations – Application of DSP – Model of Speech Wave Form – Vocoder.

TOTAL : 45 PERIODS

REFERENCES:

1. John G Proakis and Dimtris G Manolakis, "Digital Signal Processing Principles, Algorithms and Application", PHI/Pearson Education, 2000, 3rd Edition.
2. Alan V Oppenheim, Ronald W Schafer and John R Buck, "Discrete Time Signal Johny R.Johnson, "Introduction to Digital Signal Processing", Prentice Hall of
3. India/Pearson Education, 2002.
4. Sanjit K.Mitra, "Digital Signal Processing: A Computer – Based Approach", Tata McGraw-Hill, 2001, Second Edition.

YIT003	OBJECT ORIENTED ANALYSIS AND DESIGN	L	T	P	C
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3	0	0	3
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UNIT I INTRODUCTION 9

Object model – Elements – Class and object – Nature of object/class – Relationship among objects – Relationship among classes – Quality classes and objects. Classification and Process - Classification – classical categorization –Conceptual clustering.

UNIT II ANALYSIS AND DESIGN 9

Prototype theory – Analysis and design – Activities – Classical approaches – First principles –The Micro development process – The Macro Development process. UML Notations – UML model – Introduction –Use case – Usage –Class diagrams – Perspectives.

UNIT III UML MODELS 9

Perspectives – Associations – Attributes – Operations – CRC cards – Usage – Interaction diagrams – Sequence diagrams – Collaboration diagrams – Package diagrams – Concurrent state diagram – Activity diagram – Decomposing and activity – Domain model – Specification model – System design – Detailed design – Coding

UNIT IV OBJECT ORIENTED TECHNIQUES 9

Object Oriented model traditional techniques - Current techniques - Approach to identify attribute – Service – Method. Behaviour Specifications – Static behaviour specification techniques Control – Documenting control.

UNIT V STATIC AND DYNAMIC BEHAVIOR 9

Documenting static behaviour - Dynamic behaviour identification - Specification techniques - Documenting - Event specifications - Identifying relationships.

TOTAL : 45 PERIODS

REFERENCES:

1. Martin Fowler, Kendall Scott, "UML Distilled - Applying the standard object modeling language", Addison Wesley, 1997.
2. Richard C Lee, William M Tepfenhart, "UML and C++ - A practical guide to object oriented development", PH, 1997.
3. Grady Booch, "Object Oriented Analysis and Design with applications" II Edition Addison Wesley, 1994.
4. James Martin & James J. Odell, "Object Oriented Methods - A foundation", Prentice Hall, 1997.

SEMESTER V

YCS015	SOFTWARE PROJECT MANAGEMENT	L	T	P	C
		3	0	0	3
UNIT I	INTRODUCTION TO SOFTWARE PROJECT MANAGEMENT				9
	Project Definition – Contract Management – Activities Covered by Software Project Management – Overview Of Project Planning – Stepwise Project Planning.				
UNIT II	PROJECT EVALUATION				9
	Strategic Assessment – Technical Assessment – Cost Benefit Analysis – Cash Flow Forecasting – Cost Benefit Evaluation Techniques – Risk Evaluation. – software effort estimation				
UNIT III	ACTIVITY PLANNING				9
	Objectives – Project Schedule – Sequencing and Scheduling Activities – Network Planning Models – Forward Pass – Backward Pass – Activity Float – Shortening Project Duration – Activity on Arrow Networks – Risk Management – Nature Of Risk – Types Of Risk – Managing Risk – Hazard Identification – Hazard Analysis – Risk Planning and Control.				
UNIT IV	MONITORING AND CONTROL				9
	Resource allocation - identifying and scheduling resources – publishing resource and cost schedule – scheduling sequence - Creating Framework – Collecting The Data – Visualizing Progress – Cost Monitoring – Earned Value – Prioritizing Monitoring – Getting Project Back To Target – Change Control – Managing Contracts – Introduction – Types Of Contract – Stages In Contract Placement – Typical Terms Of A Contract – Contract Management – Acceptance.				
UNIT V	MANAGING PEOPLE AND ORGANIZING TEAMS				9
	Introduction – Understanding Behavior – Organizational Behaviour - Selecting The Right Person For The Job – Instruction In The Best Methods – Motivation – The Oldman – Hackman Job Characteristics Model – Working In Groups – Becoming A Team – Decision Making – Leadership – Organizational Structures – Stress – Health And Safety – Case Studies.				
TOTAL : 45 PERIODS					

REFERENCES:

1. Gopaldaswamy Ramesh, "Managing Globle Software Projects" Tata McGraw Hill Publishing Company Ltd, New Delhi, 2002
2. Bob Hughes and Mike Cotterell "Software Project Management"2nd edition, Tata McGraw Hill Publishing Company Ltd., New Delhi, 2002.
3. Pressman, Roger, "Software Engineering ", A Practitioner's approach, 7th edition, Tata Mc- Graw Hill, 2006

YIT004	SERVICE ORIENTED ARCHITECTURE	L	T	P	C
		3	0	0	3

UNIT I THE TECHNOLOGY OF ENTERPRISE SOA 9

The goal of loose coupling-Web services overview-Introducing Service oriented Architecture: Enterprise architecture-The service oriented architecture

UNIT II ENTERPRISE APPLICATION INTEGRATION AND B2B COMMERCE 9

EAI-web services in portals and software development-managing the supply chain-Building hubs-Partner to Partner-Government and scientific SOA

UNIT III REAL TIME OPERATIONS AND SECURITY: REAL TIME OPERATIONS 9

Goal of the real time enterprise-Delivering real time with the SOA –Real time virtual data warehouse-business level agreements. **SECURITY:** Risk of loose coupling-layers of SOA security-Solutions to SOA security

UNIT IV SOA MANAGEMENT SOLUTION AND SOA NETWORKS 9

Problems in the unmanaged SOA-web services management solutions-Managing the SOA network-Securing the SOA network and solutions-SOA network management-Utility computing in the SOA

UNIT V PEOPLE AND PROCESS OF ENTERPRISE SOA 9

Exploring an SOA for titan-achieving consensus at titan-Grouping for SOA Training success .Services discovery-Service creation-Selecting a platform-Forming an SOA plan and proceed

TOTAL : 45 PERIODS

REFERENCES:

1. Eric Pulier,Hugh Taylor, “ Understanding Enterprise SOA”, Dreamtech press, New Delhi, 2005.
2. Chris Peiris and Dennis Mulder, ”Pro WCF Practical Microsoft SOA implementation”, Apress, Berkeley, CA, USA, 2007.
3. Greg Lomow, Eric Newcomer, “Understanding SOA with Web Services”, Pearson Education, New Delhi, 2005.
4. Dan Woods, Thomas Mattern, “Enterprise SOA: Designing it for Business Innovation”, Shroff publishers, 2006.

YIT005	SIGNALS AND SYSTEMS	L	T	P	C
		3	0	0	3

UNIT I INTRODUCTION 9

Representation and classification of continuous time (CT) and discrete time (DT) signals, basic CT and DT signals, basic operations on CT and DT signals, description of CT and DT systems

UNIT II CONTINUOUS TIME SIGNALS AND SYSTEMS 9

Linear time invariant (LTI) systems, convolution integral, causality and stability, CT system representation by differential equations

UNIT III FOURIER ANALYSIS OF THE CT, DT SIGNALS AND SYSTEMS 9

Continuous Time Fourier Series (CTFS) and Fourier transform (CTFT), properties, inverse CTFT, frequency domain characterization of linear time invariant systems Fourier series representation of DT periodic signals (DTFS), properties, representation of DT aperiodic signals by Discrete Time Fourier Transform (DTFT), Properties, inverse DTFT, frequency response of systems characterized by difference equations

UNIT IV SAMPLING AND RECONSTRUCTION OF SIGNALS 9

Sampling theorem, effect of under sampling, aliasing error, sampling methods, impulse, natural and flat top sampling, reconstruction of sampled signals, sample and hold, decimation and interpolation, discrete time processing of CT signals

UNIT V DISCRETE TIME SIGNALS AND Z TRANSFORM 9

Linear Shift Invariant (LSI) systems, convolution sum, causality and stability, DT system representation by difference equations The WAP Architecture, Wireless Application Environment, Wireless Markup Language, WAP Binary XML Content Format, WAP Gateway, Wireless Gateway, Transcoding, InfoPyramid Framework, ProxiNet Transcoding Gateway, Z transforms and its properties, inverse Z-transform, analysis of LSI systems using Z-transform, stability and causality

TOTAL : 45 PERIODS

REFERENCES:

1. Alan V Oppenheim, Alan S Wilsky., and Hamid Nawab S., "Signals and Systems", Second edition, Prentice Hall, New Delhi, 2005.
2. Simon Haykin and Barry Van Veen, "Signals and Systems", second edition, John Wiley & Sons Inc., New York, 2003.
3. Ashok Ambardar, "Introduction to Analog and Digital Signal Processing", second edition, Thomson learning, New Delhi, 2004.
4. Dimitris G Monalakis, John G Proakis, "Digital Signal Processing, Principles, Algorithms and Applications", fourth edition, Pearson Education, New Delhi, 2006.

YIT006	NETWORK SECURITY	L	T	P	C
		3	0	0	3
UNIT I	CONVENTIONAL AND MODERN ENCRYPTION				9
Services – Attacks – Steganography - Classical Encryption Techniques – DES – Differential and Linear Cryptanalysis – Modes of operation – Encryption Algorithms –Triple DES – Blowfish – CAST128					
UNIT II	PUBLIC KEY ENCRYPTION				9
Uniqueness – Number Theory concepts – Primality – Modular Arithmetic – Fermat & Euler Theorem – Euclid Algorithm – RSA Algorithm – Elliptic Curve Cryptography – DiffieHellmanKeyExchange					
UNIT III	AUTHENTICATION AND SECURITY PRACTICE				9
Digests – Requirements – MAC – Hash function – Security of Hash and MAC – Birthday Attack – MD5 – SHA – RIPEMD – Digital Signature Standard - Authentication applications – Kerberos– Kerberos Encryption Techniques – PGP– IP Security Architecture– Web security – SSL – TLS– SET					
UNIT IV	PUBLIC- KEY INFRASTRUCTURE				9
Legislation - Regulation and Guidelines, Non-repudiation - Certification Policies and Practices- Public-Key Infrastructure Assessment and Accreditation					
UNIT V	SYSTEM SECURITY & STANDARDS				9
Intruders and Intrusion – Viruses and Worms – OS Security – Firewalls – Design Principles – Packet Filtering – Application gateways – Trusted systems – Counter Measures. Blueprint for Security – Information Security Policy – Standards and Practices – ISO 17799/BS 7799 – NIST Models – VISA International Security Model – Design of Security Architecture – Planning for Continuity.					
TOTAL : 45 PERIODS					

REFERENCES:

1. William Stallings, "Cryptography & Network Security", Pearson Education, 5th edition. New Delhi 2005.
2. Charlie Kaufman, Radia Perlman, Mike Speciner, "Network Security, Private Communication in a Public World", Prentice Hall of India, 1st edition, New Delhi, 2002.
3. Bruce Schneier, Niels Ferguson, "Practical Cryptography", Wiley Dreamtech India Pvt Ltd, 1st edition, New Delhi, 2003.

YIT007	DATA WAREHOUSING	L	T	P	C
		3	0	0	3

UNIT I INTRODUCTION TO DATA WAREHOUSING 9

Introduction , Definition and description , Need for Data Ware Housing, Need for strategic information , Failures of past Decision Support Systems , OLTP vs DWH – DWH Requirements – Trends in DWH – DWH Framework, Information Systems Framework (Zachman Framework)– Applications of DWH.

UNIT II DATA WAREHOUSING ARCHITECTURE & DESIGN 9

Reference Architecture , Components of Reference Architecture – Data Ware House Building Blocks – Implementation , Physical Design Process, DWH Deployment Process. DATABASE DESIGN : Dimensional Modeling , Basics , STAR Schema, Star Schema keys ,Advantages of STAR Schema.

UNIT III INTRODUCTION TO DATA MINING 9

Data Mining Tasks – Data Mining Vs KDD – Issues in Data Mining – DM Metrics – Data Mining and Databases – Data Mining Architecture – Future Trends. Data Cleaning – Data Transformation – Data Reduction.

UNIT IV DATA MINING PRIMITIVES & LANGUAGES 9

Data Mining primitives – Data Mining Query Languages. Association Rules – Mining Single Dimensional Boolean Association Rules from Transactional Databases – Mining Multi Dimensional Association from Data Ware Houses.

UNIT V CLASSIFICATION, PREDICTION & CLUSTER ANALYSIS 12

Issues regarding classification and prediction – Decision Tree – Bayesian Classification – Classifier Accuracy. Types of Data – Partitioning Methods – Hierarchical Methods. Mining Event Sequences – Visual DM – Text Mining – Web Mining.

TOTAL : 45 PERIODS

REFERENCES:

1. Paulraj Ponniah, "Data WareHousing Fundamentals ", John Wiley & Sons, 1st edition, 2003.
2. M.H.Dunham , "Data Mining : Introductory and Advanced Topics", Prentice Hall , 2003
3. Arun k Pujari , "Data Mining Techniques", University Press, 1st edition, New Delhi, 2003.
4. Mehmed Kantardzic, "Data Mining Concepts , Methods and Algorithms ", John Wiley & Sons , 1st edition, New Delhi, 2003.

YCS013	WIRELESS TECHNOLOGY	L	T	P	C
		3	0	0	3
UNIT I	WIRELESS MEDIUM				9
Air Interface Design – Radio propagation mechanism – Pathloss modeling and Signal Coverage – Effect of Multipath and Doppler – Channel Measurement and Modelling – Simulation of Radio Channel					
UNIT II	WIRELESS MEDIUM ACCESS				9
Fixed Assignment Access for Voice Networks – Random Access for Data Networks – Integration of Voice and Data Traffic					
UNIT III	WIRELESS NETWORK OPERATION				9
Wireless Network Topologies – Cellular Topology – Cell fundamentals – Signal to Interference Ratio – Capacity Expansion – Mobility Management – Resources and Power Management – Security in Wireless Networks.					
UNIT IV	WIRELESS WAN				9
GSM and TDMA Technology – Mobile Environment – Communication in the Infrastructure – CDMA Technology – IS95 – IMT2000 – Mobile Data Networks – CDPD Networks – GPRS – Mobile Application Protocol					
UNIT V	WIRELESS LANS AND HIPERLANS				9
Introduction to wireless LANs – IEEE 802.11 – WPAN IEEE 802.15 – Wireless Home Networking – Concepts of Bluetooth Technology – Wireless Geolocation.					

TOTAL : 45 PERIODS

REFERENCES

1. Kaveth Pahlavan, K.Prasanth Krishnamurthy, "Principles of Wireless Networks" Pearson Education Asia, 1st edition, New Delhi, 2002
2. William Stallings, "Wireless Communications and Networks", Prentice Hall, 2nd Edition, New Delhi, 2002.
3. Neeli Prasad, Anand Prasad, "WLAN System & Wireless IP for Next Generation Communications", Artech House, 1st edition, USA, 2002
4. Assuncion Santamaria, Francisco Lopez-Hernandez, "Wireless LAN Standards and Applications", Artech House, 1st Edition, USA, 2001

SEMESTER VI

YIT008

UNIX INTERNALS

L	T	P	C
3	0	0	3

UNIT I GENERAL OVERVIEW OF THE SYSTEM 9

History – System structure – User perspective – Operating system services – Assumptions about hardware. Introduction to the Kernel : Architecture of the UNIX operating system – Introduction to system concepts – Kernel data structures – System administration – Summary and Preview.

UNIT II BUFFER CACHE 9

Buffer headers – Structure of the buffer pool – Advantages and disadvantages of the buffer cache. Internal representation of files : Inodes – Structure of a regular file – Directories – Conversion of a path name to an Inode – Super block – Other file types.

UNIT III SYSTEM CALLS FOR FILE SYSTEM 9

Open – Read – Write – File and record locking – Adjusting the position of file I/O – LSEEK – Close – File creation – Creation of special files – Pipes – Dup – Mounting and unmounting file systems

UNIT IV THE STRUCTURE OF PROCESSES 9

Process states and transitions – Layout of system memory – The context of a process – Saving the context of a process. Process Control: Process creation – Signals – Process termination – Awaiting process termination – Invoking other programs – The shell – System boot and the INIT process.

UNIT V PROCESS SCHEDULING AND MEMORY MANAGEMENT POLICIES 9

Process Scheduling – Memory Management Policies : Swapping – A hybrid system with swapping and demand paging. The I/O Subsystem : Driver Interfaces– Disk Drivers– Terminal Drivers.

TOTAL : 45 PERIODS

REFERENCES:

1. Maurice J. Bach, "The Design of the Unix Operating System", Prentice Hall of India, 2004.
2. Vahalia, "Unix Internals: The New Frontiers", Pearson Education Inc, 2003

YIT009	MOBILE COMMUNICATION	L	T	P	C
		3	0	0	3

UNIT I INTRODUCTION 9

Mobile Communication, Mobile Computing, Mobile Computing Architecture, Mobile Devices, Mobile System Networks, Data Dissemination, Mobility Management, Security. Introduction to Cellular Systems, Global System for Mobile Communication (GSM), General Packet Radio Services(GPRS) and their architectures

UNIT II WIRELESS MEDIUM ACCESS CONTROL 9

Interference in Cellular Systems, Frequency Management, Channel Assignment, Location management in cellular networks, Medium Access Control, Introduction to CDMA based systems, Spread Spectrum in CDMA systems, Coding Methods in CDMA

UNIT III MOBILE IP NETWORK LAYER 9

Mobile IP Protocol Overview, Route Optimization, Mobility support for IPV6, Connectivity with 3G Networks, Packet Delivery and Handover Management, location Management, Registration, Tunneling and Encapsulation, Route Optimization, Dynamic Host Control protocol

UNIT IV MOBILE TRANSPORT LAYER 9

Conventional TCP/IP protocols, Indirect TCP, Snooping TCP, Mobile TCP, Other methods of TCP layer transmission for Mobile networks . MOBILE OPERATING SYSTEMS- Palm OS, Windows CE, Symbion OS, Linux for Mobile Devices

UNIT V DATA SYNCHRONIZATION AND MOBILE INTERNET 9

Synchronization, Synchronization software, Synchronization Protocols, SyncML – Synchronization Language for Mobile Computing, Synchronized Multimedia markup Language.MOBILE INTERNET- The WAP Architecture, Wireless Application Environment, Wireless Markup Language, WAP Binary XML Content Format, WAP Gateway, Wireless Gateway, Transcoding, InfoPyramid Framework, ProxiNet Transcoding Gateway

TOTAL : 45 PERIODS

REFERENCES:

1. Raj Kamal, "Mobile Computing", Oxford University Press, New Delhi, 2007.
2. Jochen H. Schller, "Mobile Communications", second edition, Pearson Education, New Delhi, 2007.
3. Jon W. Mark, Weihua Zhuang, "Wireless Communications and Networking", Prentice Hall, New Delhi, 2007.
4. Dharma Prakash Agarval, Qing , An Zeng, "Introduction to Wireless and Mobile systems", Thomson Asia Pvt Ltd, Singapore, 2005.

YIT010	EXTREME PROGRAMMING	L	T	P	C
		3	0	0	3

UNIT I INTRODUCTION 9

Introducing C# - Understanding .Net: The C# environment – Overview of C# - Literals, Variables and Data Types – Operators and Expressions.

UNIT II DECISION MAKING 9

Decision Making, Branching and Looping – if, if...else, switch, ...? : operators, while, do, for, foreach and jump in loops, Methods in C# - declaring methods, the main method, invoking methods, nesting methods, method parameters, pass by value and pass by reference, output parameters, Variable argument lists – Overloading methods.

UNIT III ARRAYS 9

Arrays – Creating an array, Variable size arrays, Array list class – Manipulating Strings – Structures, Nested Structures – Enumerations, Initialization, base types and type conversion.

UNIT IV CLASSES AND OBJECTS 9

Classes and Objects – Definition, Creating objects, Constructors and destructors, Nesting, Overloaded constructors, Inheritance and Polymorphism – classical, multilevel, hierarchical inheritances, Subclass, Subclass constructors, Overriding methods, Abstract Classes and Methods, Interfaces, Interfaces and Inheritance – Operator Overloading.

UNIT V DELEGATES AND DECLARATION METHODS 9

Delegates – Declaration Methods, Initialization and Invocation, Multicast delegates, I/O operations – Console Input/Output, Formatting, Errors and Exceptions, Type of Errors – Exceptions – Exception for debugging.

TOTAL : 45 PERIODS

REFERENCES:

1. E. Balagurusamy, Programming in C#, Tata Mc-Graw Hill Publishing Company, New Delhi, 2002.
2. Selvi, T. A Text book on C# : A Systematic approach to object oriented programming, Pearson Education, Delhi, 2003.
3. Lippman, C# Primer, 3rd Edition, Pearson Education, Delhi, 2002.
4. Liberty, J. Programming C#, Second Edition, O'Reilly & Associates Inc., California, 2002.
5. Albahari, B. Prayton, P. and Marill, B. C# Essentials, O'Reilly & Associates Inc., California, 2002.

YIT011	OPEN SOURCE COMPUTING	L	T	P	C
		3	0	0	3

UNIT I INTRODUCTION 9

Introduction of Open Sources – Need of Open Sources – Advantages and applications of Open sources – Commercial aspects of Open source movement

UNIT II OPEN SOURCE OS: LINUX 9

Introduction – General Overview – Kernel Mode and user mode – Process – Advanced concepts – Scheduling – Cloning – Signals

UNIT III SOLARIS 9

Fundamentals - The Solaris 8 Operating Environment Components - Accessing Directories and Files - Using File Security - Creating Archive Files - Connecting Remotely - Managing System Processes - Using the Korn Shell and the CDE

UNIT IV OPEN SOURCE DATABASE: MySQL 9

Introduction – SQL programs – Selection – Strings – Date and Time – Working with metadata –Sequences – MySQL and web

UNIT V OPEN SOURCE PROGRAMMING LANGUAGES: PHP 9

Introduction – Programming in web environment – Variables – Constants – Datatypes – Operators – Statements – Functions – Arrays – OOP – String manipulation – File handling and data storage – PHP and SQL database – PHP connectivity – Debugging and error handling – Security – Templates – Apache web server – Working with Web Server – Configuring and using apache web services – Eclipse IDE platform

TOTAL : 45 PERIODS

REFERENCES:

1. Remy Card, Eric Dumas, Frank Mevel, "The Linux Kernel Book", second edition, John Wiley Publications, New York, 2003.
2. Darry, Gove, " Solaris Application Programming", first edition, Prentice Hall, New Delhi, 2007.
3. Steve Suehring, "MySQL Bible", first edition, John Wiley & Sons, New York, 2002.
4. Rasmus Lerdorf, Levtin Tatroe, "Programming PHP", second edition, O'Reilly Publications, USA, 2002.
5. Peter Wainwright, "Professional Apache", third edition, Wrox Press, USA, 2002.

YCS002	MANAGEMENT INFORMATION SYSTEMS	L	T	P	C
		3	0	0	3

UNIT I INTRODUCTION 9

Overview – Structure of MIS – Survey of Information System Technology – Hardware, Software and Communication or Information – Storage and Retrieval of Data – Transactions Processing ,Office Automation and Information Processing Control Function.

UNIT II CONCEPTIONAL FOUNDATIONS 9

Design making Process – Concept of Information – Human as Information Processors – System Concepts – Concepts of Planning and Control – Organizational Structure and Management Concepts.

UNIT III INFORMATION BASED SUPPORT SYSTEMS 9

Support System for Planning , Control and Decision making – Support System for Management for Knowledge work – Decision Support Systems.

UNIT IV INFORMATION SYSTEM REQUIREMENTS 9

Developing a long range Information System – Plan Strategies for the determination of Information requirement – Database requirement – User interface requirements.

UNIT V DEVELOPMENT,IMPLEMENTATION AND MANAGEMENT OF INFORMATION SYSTEM RESOURCES 9

Developing and Implementing Application Systems – Quality Assurance and Evaluation of Information Systems – Organization and Management of the Information Resources – Further Development and their Organizational and Social Implications

TOTAL : 45 PERIODS

REFERENCES:

1. Gordan B Davis and Megrette H Olson, "Management Information Systems", McGraw Hill, 1997
2. Murdick and Ross, "Information System for Modern Management", Prentice Hall of India, 1997.
3. David Kroenke, "Management Information Systems", McGraw Hill International Editions, 1989.

YIT012	ENTERPRISE RESOURCE PLANNING	L	T	P	C
		3	0	0	3

UNIT 1 INTRODUCTION 9

ERP: An Overview, Enterprise – An Overview, Benefits of ERP, ERP and Related Technologies, Business Process Reengineering (BPR), Data Warehousing, Data Mining, OLAP, SCM

UNIT II ERP IMPLEMENTATION 9

ERP Implementation Lifecycle, Implementation Methodology, Hidden Costs, Organizing the Implementation, Vendors, Consultants and Users, Contracts with Vendors, Consultants and Employees, Project Management and Monitoring

UNIT III THE BUSINESS MODULES 9

Business modules in an ERP Package, Finance, Manufacturing, Human Resources, Plant Maintenance, Materials Management, Quality Management, Sales and Distribution

UNIT IV THE ERP MARKET 9

ERP Market Place, SAP AG, Peoplesoft, Baan, JD Edwards, Oracle, QAD, SSA

UNIT V ERP – PRESENT AND FUTURE 9

Turbo Charge the ERP System, EIA, ERP and e-Commerce, ERP and Internet, Future Directions

TOTAL : 45 PERIODS

REFERENCES:

1. Alexis Leon, “ERP Demystified”, Tata McGraw Hill, New Delhi, 2000
2. Joseph A Brady, Ellen F Monk, Bret Wagner, “Concepts in Enterprise Resource Planning”, Thompson Course Technology, USA, 2001.
3. Vinod Kumar Garg and Venkitakrishnan N K, “Enterprise Resource Planning – Concepts and Practice”, PHI, New Delhi, 2003

YCS014	ADVANCED DBMS	L	T	P	C
		3	0	0	3

UNIT I DATABASE MANAGEMENT 9

Relational Data Model – SQL - Database Design - Entity-Relationship Model – Relational Normalization – Embedded SQL – Dynamic SQL – JDBC – ODBC.

UNIT II ADVANCED DATABASES 9

Object Databases - Conceptual Object Data Model – XML and Web Data – XML Schema – Distributed Data bases – OLAP and Data Mining – ROLAP and MOLAP

UNIT III QUERY AND TRANSACTION PROCESSING 9

Query Processing Basics – Heuristic Optimization – Cost, Size Estimation - Models of Transactions – Architecture – Transaction Processing in a Centralized and Distributed System –TP Monitor.

UNIT IV IMPLEMENTING AND ISOLATION 9

Schedules – Concurrency Control – Objects and Semantic Commutativity – Locking – Crash, Abort and Media Failure – Recovery – Atomic Termination – Distributed Deadlock – Global Serialization – Replicated Databases – Distributed Transactions in Real World.

UNIT V DATABASE DESIGN ISSUES 9

Security – Encryption – Digital Signatures – Authorization – Authenticated RPC - Integrity - Consistency - Database Tuning - Optimization and Research Issues.

TOTAL : 45 PERIODS

REFERENCES:

1. Philip M. Lewis, Arthur Bernstein, Michael Kifer, “Databases and Transaction Processing: An Application-Oriented Approach”, Addison-Wesley, 2002
2. R. Elmasri and S.B. Navathe, Fundamentals of Database Systems, 3rd Edition, Addison Wesley, 2004
3. Abraham Silberschatz, Henry. F. Korth, S.Sudharsan, Database System Concepts, 4th Edition., Tata McGraw Hill, 2004
4. Raghu Ramakrishnan & Johannes Gehrke, “Database Management Systems”, 3rd Edition,

YCS016	DISTRIBUTED OPERATING SYSTEMS	L	T	P	C
		3	0	0	3

UNIT I INTRODUCTION 9

Fundamentals – evolution – System Models – Distributed operating System – Issues – Distributed Computing environment Message passing – Introduction – Features – Issues – Synchronization – Buffering – Message – Encoding – Decoding – Process addressing – Failure Handling.

UNIT II REMOTE PROCEDURE CALL 9

Introduction – Model – Transparency – Implementation – Stub Generation – Messages – Marshaling Arguments and results –server Management – Parameter passing Semantics – Call Semantics – Communication Protocols – Complicated RPC's – Client – Server Binding – Exception handling – Security Distributed shared Memory – Introduction – Architecture – Issues – Granularity Structure – Consistency Models – Replacement Strategy – Thrashing.

UNIT III SYNCHRONIZATION 9

Introduction – Clock Synchronization – Event ordering – Mutual Exclusion – Deadlock – Election Algorithms.

UNIT IV RESOURCE MANAGEMENT 9

Introduction – Features – Task Assignment approach – Load-Balancing Approach - Load - Sharing Approach Process Management – Introduction – Process Migration – Threads.

UNIT V DISTRIBUTED FILE SYSTEMS 9

Introduction – Features – File Models – Accessing Models – Sharing Semantics – Caching Schemes – File Replication – Fault Tolerance – Atomic Transactions – Design Principles Naming – Introduction – Features – Terminologies – Concepts.

TOTAL : 45 PERIODS

REFERENCES:

1. Pradeep K. Sinha, "Distributed Operating Systems, Concepts and Design" Prentice Hall of India, New Delhi, 2001.
2. Andrew S. Tanenbaum "Distributed Operating Systems", Pearson Education, New Delhi, 2002
3. Mukesh Singhal and Nirajan G.Shivaratri "Advanced Concepts in Operating Systems", Tata McGraw Hill Publishing Company Ltd., New Delhi, 2001

YCS011	DECISION SUPPORT SYSTEMS	L	T	P	C
		3	0	0	3
UNIT I	DECISION-MAKING AND COMPUTERIZED SUPPORT				9
	Management Support Systems: An Overview, Decision Making, Systems, Modeling, and Support.				
UNIT II	DECISION SUPPORT SYSTEMS				9
	An Overview, Data Management: Warehousing, Access, and Visualization , Modeling and Analysis , Knowledge based Decision Support and Artificial Intelligence , User Interface and Decision Visualization Applications , Constructing a Decision Support System and DSS Research.				
UNIT III	COLLABORATION, COMMUNICATION, AND ENTERPRISE SUPPORT SYSTEMS				9
	Networked Decision Support: The Internet, Intranets, and Collaborative Technologies, Group Decision Support Systems, Executive Information and Support Systems.				
UNIT IV	FUNDAMENTALS OF EXPERT SYSTEMS AND INTELLIGEN SYSTEMS				9
	Fundamentals of Expert Systems, Knowledge Acquisition and Validation, Knowledge Representation, Inferences, Explanations, and Uncertainty, Building Expert Systems: Process and Tools.				
UNIT V	CUTTING-EDGE DECISION SUPPORT TECHNOLOGIES				9
	Neural Computing: The Basics, Neural Computing Applications, Genetic Algorithms, Fuzzy Logic, and Hybrid Intelligent Systems , Intelligent Agents and Creativity , Implementing and Integrating Management Support Systems , Organizational and Societal Impacts of Management Support Systems.				
TOTAL : 45 PERIODS					

REFERENCES:

1. Efraim Turban, Jay E. Aronson, "Decision Support Systems and Intelligent Systems", Prentice Hall, New Delhi, 2004
2. George Marakas, "Decision Support Systems in the 21st Century", Prentice Hall, New Delhi, 2003
3. Robert J Thierauf, "User Oriented Decision Support Systems", Prentice Hall, New Delhi, 1998

YCS008

IMAGE PROCESSING

L	T	P	C
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UNIT I DIGITAL IMAGE FUNDAMENTALS AND TRANSFORMS 9

Elements of visual perception – Image sampling and quantization Basic relationship between pixels – Basic geometric transformations-Introduction to Fourier Transform and DFT – Properties of 2D Fourier Transform – FFT – Separable Image Transforms -Walsh – Hadamard – Discrete Cosine Transform, Haar, Slant – Karhunen – Loeve transforms.

UNIT II IMAGE ENHANCEMENT TECHNIQUES 9

Spatial Domain methods: Basic grey level transformation – Histogram equalization – Image subtraction – Image averaging –Spatial filtering: Smoothing, sharpening filters – Laplacian filters – Frequency domain filters : Smoothing – Sharpening filters – Homomorphic filtering.

UNIT III IMAGE RESTORATION: 9

Model of Image Degradation/restoration process – Noise models – Inverse filtering -Least mean square filtering – Constrained least mean square filtering – Blind image restoration – Pseudo inverse – Singular value decomposition.

UNIT IV IMAGE COMPRESSION 9

Lossless compression: Variable length coding – LZW coding – Bit plane coding- predictive coding-DPCM. Lossy Compression: Transform coding – Wavelet coding – Basics of Image compression standards: JPEG, MPEG,Basics of Vector quantization.

UNIT V IMAGE SEGMENTATION AND REPRESENTATION 9

Edge detection –Thresholding - Region Based segmentation – Boundary representation: chain codes- Polygonal approximation –Boundary segments –boundary descriptors: Simple descriptors-Fourier descriptors - Regional descriptors –Simple descriptors- Texture

TOTAL : 45 PERIODS

REFERENCES:

1. Rafael C Gonzalez, Richard E Woods 2nd Edition, Digital Image Processing - Pearson Education 2003.
2. William K Pratt, Digital Image Processing John Willey (2001)
3. Image Processing Analysis and Machine Vision – Millman Sonka, Vaclav hlavac, Roger Boyle, Broos/colic, Thompson Learniy (1999).
4. A.K. Jain, PHI, New Delhi (1995)-Fundamentals of Digital Image Processing.
5. Chanda Dutta Magundar – Digital Image Processing and Applications, Prentice Hall of India, 2000