

SYLLABUS FOR
Master of Computer Applications (MCA)
(For the batches joining in 2011-2012 and afterwards)



Department of Computer Science & Applications
Gandhigram Rural Institute (Deemed University)
Gandhigram-624 302
Dindigul District
Tamil Nadu
India.

ANNEXURE - I

THE GANDHIGRAM RURAL INSTITUTE (DEEMED UNIVERSITY) MASTER OF COMPUTER APPLICATIONS (Under Choice Based Credit System) SUBJECTS OF STUDY AND SCHEME OF EXAMINATION (For the batches joining in 2011-2012 and afterwards)

Code No.	Subject	Lecture Hrs/ Week	Lab. Hrs/ Week	Exam Duration	Evaluation CFA %	ESE %	Credits
Semester-I							
11CSP0101	Programming in C	4	-	3	40	60	4
11CSP0102	Computer Organisation	4	-	3	40	60	4
11CSP0103	Accounting and Financial Management	4	-	3	40	60	4
11CSP0104	Mathematical Foundation of Computer Science	4	-	3	40	60	4
11CSP0105	Design and Analysis of Algorithms	4	-	3	40	60	4
11CSP0106	Lab-I: C & Algorithm	-	2(+1)	-	75	25	1
11CSP0107	Lab-II: IT + GUI	-	2(+1)	-	75	25	1
11CSP0108	Village Placement Programme	-	-	-	100	-	4
Semester-II							
11CSP0201	Software Engineering	4	-	3	40	60	4
11CSP0202	Data and File Structure	4	-	3	40	60	4
11CSP0203	Object Oriented Programming & C++	4	-	3	40	60	4
11CSP0204	Numerical and Statistical Methods	4	-	3	40	60	4
11CSP0205	Database Management Systems	4	-	3	40	60	4
11CSP0206	Lab-III: DFS using C++	-	2(+1)	-	75	25	1
11CSP0207	Lab-IV: RDBMS	-	2(+1)	-	75	25	1
11CSP0208	Gandhiji for Everyday's life	2			100		2
Semester-III							
11CSP0301	Principles of Operating System	4	-	3	40	60	4
11CSP0302	OOAD and UML	4	-	3	40	60	4
11CSP0303	Operations Research	4	-	3	40	60	4
11CSP0304	Microprocessors and Applications	4	-	3	40	60	4
11CSP0305	Elective-I	4	-	3	40	60	4
11CSP0306	Lab-V: Lab for Elective	-	2(+1)	-	75	25	1
11CSP0307	Lab-VI: OS +ALP	-	2(+1)	-	75	25	1
11CSP0308	Communication Skills	2	-	-	75	25	2
11CSP0309	Village Placement Programme	-	-	-	100	-	4

CFA - Cumulative Formative Assessment (Internal Evaluation)

ESE - End Semester Examination (External Evaluation)

Code No.	Subject	Lecture Hrs/ Week	Lab. Hrs/ Week	Exam Duration	Evaluation CFA %	ESE %	Credits
Semester-IV							
11CSP0401	Computer Networks	4	-	3	40	60	4
11CSP0402	Computer Graphics	4	-	3	40	60	4
11CSP0403	Java Programming	4	-	3	40	60	4
11CSP0404	Elective-II	4	-	3	40	60	4
11CSP0405	Elective-III	4	-	3	40	60	4
11CSP0406	Lab-VII: Networks	-	2(+1)	-	75	25	1
11CSP0407	Lab-VIII: Java	-	2(+1)	-	75	25	1
11CSP0408	Mini Project	-	2	-	75	25	1
Semester-V							
11CSP0501	Internet Programming	4	-	3	40	60	4
11CSP0502	Client / Server Computing	4	-	3	40	60	4
11CSP0503	IT for Rural Development	2	-	-	50*	-	2
11CSP0504	Elective - IV	4	-	3	40	60	4
11CSP0505	Elective - V	4	-	3	40	60	4
11CSP0506	Lab-IX: Internet Programming	-	2(+1)	-	75	25	1
11CSP0507	Lab-X: .NET Programming	-	2(+1)	-	75	25	1
11CSP0511	Project on IT for Rural Development	-	-	-	50	--	2
Semester-VI							
11CSP0601	Project Work** Internship/Placement Dissertation and Viva-Voce	-	-	-	75	125	22
Total							145

** Evaluated at 200 points scale as below.

75 points for the valuation of the dissertation by the internal examiner

75 points for the valuation of the dissertation by the external examiner

50 points for the Viva Voce examination jointly by the internal and external examiners.

* Evaluated on 2 assignments

Electives

11CSP0001	Artificial Intelligence and Expert System
11CSP0002	Bioinformatics
11CSP0003	COBOL Programming
11CSP0004	Component Technology
11CSP0005	Cryptography and Network Security
11CSP0006	Data Mining
11CSP0007	Data Warehousing
11CSP0008	Distributed Database Systems
11CSP0009	E-Commerce
11CSP00010	Embedded System
11CSP00011	Fault Tolerant Computing
11CSP00012	Fourth Generation Languages
11CSP00013	Human Resource Management
11CSP00014	Image Processing
11CSP00015	Information Security
11CSP00016	Knowledge Based Systems
11CSP00017	Management Information Systems
11CSP00018	Multimedia
11CSP00019	Neural Networks
11CSP00020	Parallel Processing
11CSP00021	Pattern Recognition
11CSP00022	Principles of Compiler Design
11CSP00023	Simulation and Modeling
11CSP00024	Software Quality and Management
11CSP00025	UML
11CSP00026	Component technology
11CSP00027	Web services
11CSP00028	Advanced programming in java
11CSP00029	Accounting with Tally
11CSP00030	Advanced programming in JAVA
#####	

I SEMESTER

11CSP0101 PROGRAMMING IN C

- UNIT I** : C Language fundamentals: program structure – Identifiers – data types - integer – float – character – constants – variables - operators and expressions - managing input and output operations.
- UNIT II** : C control structures: Decision making with IF statement - IF ... ELSE statement - nested IF ... ELSE statements - FOR statement – DO... WHILE statement – WHILE ... DO statement - GOTO statement - SWITCH statement
- UNIT III** : C functions – mathematical functions – sin – cos – tan – asin – acos – atan – sqrt – pow – log - string functions – strcpy – strcat – strcmp – strlen – strlwr –strupr and user-defined functions.
- UNIT IV** : Arrays and structures: Arrays, Definition, declaration, entering values in - manipulating arrays - examining and passing an array. Structure: definition - assigning structure variable - assigning initial values - using a structure – structure arrays – structures and functions.
- UNIT V** : Pointers and file operations: Understanding pointers - pointers and functions - file operations: understanding files - declaring a file – opening a file - closing a file – input and output functions - formatted input and output - working with structures adding data to a file - reading a printing a disk file.

Text Book:

E. Balagurusamy, “Programming in C”, Tata McGraw Hill,2000.

Reference Books:

R.C. Hutchison & S.B. Just, “Programming Using the C Language” McGraw Hill,1988.

11CSP0102 COMPUTER ORGANISATION

UNIT I : DIGITAL LOGIC CIRCUITS: Digital computers - logic gates - boolean algebra - map simplification - combinational circuits - flip-flops - sequential circuits.

DIGITAL COMPONENTS: Integrated circuits - decoders - multiplexers - registers - shift registers - binary counters - memory unit.

DATA REPRESENTATION: Data types - complements - fixed-point representation - floating-point representation - error detection codes.

UNIT II : REGISTER TRANSFER AND MICRO OPERATIONS: Register transfer language - register transfer - bus and memory transfers - arithmetic micro operations - logic micro operations - shift micro operations - arithmetic logic shift unit. BASIC COMPUTER ORGANISATION AND DESIGN: Instruction codes - computer registers - computer instructions - timing and control - instruction cycle - memory reference instructions - input - output and interrupt.

UNIT III : CENTRAL PROCESSING UNIT: General register organisation - stack organisation - instruction formats - addressing modes - data transfer and manipulation - program control - Reduced Instruction Set Computer (RISC).

UNIT IV: INPUT-OUTPUT ORGANISATION: Peripheral devices - input-output interface - asynchronous data transfer - modes of transfer - priority interrupts - direct memory access.

UNIT V : MEMORY ORGANISATION: Memory hierarchy - main memory - auxiliary memory - associative memory - cache memory - virtual memory - memory management hardware.

Text Book:

Computer System Architecture, M.Moris Mano, 3/e, Prentice Hall of India, 2003.

Chapters : 1,2,3,4,5.1-5.7,8,11.1-11.6.

Reference Books:

1. Computer Architecture and Organisation, J.P.Hayes, Tata McGraw-Hill, 1993.

2. Computer Organisation, Hamachar V.C., Vranesic Z.G., Zaky.S.G., Tata McGraw-Hill, 1978.

11CSP0103 ACCOUNTING AND FINANCIAL MANAGEMENT

- UNIT I:** Double entry system of book-keeping: Meaning and objectives – Kinds of accounts – Rules for recording transactions – Books of accounts : Books of original entry and books of final entry. Preparation of trial balance, final accounts and balance sheet.
- UNIT II:** Analysis and interpretation of financial statements: Meaning, need and objectives of financial statements – need for analysis of financial statements – tools and techniques of financial statement analysis: comparative statements, common size statements, trend analysis, ratio analysis – fund flow and cash flow analysis.
- UNIT III:** Financial management: Meaning, objectives, functions and scope of financial management – capital budgeting decisions – meaning and significance. Types of capital budgeting decisions – methods of evaluating capital expenditure proposals – traditional methods (pay back period, accounting rate return) discounted cash flow methods (internal rate of return, profitability index, net present value method) and risk analysis.
- UNIT IV:** Working capital decision: Meaning, concept-operating cycle – management of working capital – cash management – management of receivable and management of inventory.
- UNIT V:** Capital structure decision: Meaning of leverage – theories related to capital structure – cost of capital – calculation of specific cost of capital and weighted average cost of capital.

Reference Books:

1. Advanced Accountancy, R.L.Gupta, S.Chand & Sons, New Delhi, 1981
2. Financial Management, R.L.Gupta, Chaitanya Publishing House, Bombay, 1989.
3. Management Accounting, Financial Management and Holding Company Accounting, S.Nagarathinam, S,Chand and Co., New delhi, 1989.

4. Financial Management, Prasanna Chandra, Tata McGraw Hill, New Delhi, 1994.
5. The Essence of Financial Accounting, Lesbic Chadwick, Prentice Hall of India, New Delhi, 1991.
6. Financial Management, Khan & Jain, Tata McGraw Hill, New Delhi, 1993.
7. Financial Management, I.M.Pandy, Tata McGraw Hill, New Delhi, 1992.
8. Introduction to Management Accounting, Charles T. Horngrcor, Prentice Hall of India, New Delhi, 1985.

11CSP0104 MATHEMATICAL FOUNDATION OF COMPUTER SCIENCE

- UNIT I:** Mathematical Logic - Statements and Notations - Connectives - normal forms - The theory of inference for the statement calculus - the predicate calculus - Inference Theory and Predicate Calculus.
- UNIT II:** Set Theory: Basic concepts of set theory, notation, Inclusion and equality of sets, the power set, some operations of sets, Venn diagrams, some basic set identities, the principles of specification, Ordered pairs and n-tuples, Cartesian products - representation of discrete structure- data structures, storage structures, sequential allocation, pointers and linked allocation, an application of bit represented sets - relations and ordering- relations, properties of binary relations in a set, relation matrix and the graph of a relation, partition and covering of a set, equivalence relations, compatibility relations, composition of binary relations, partial ordering, partially ordered set: Representation and associated terminology.
- UNIT III:** Functions: Definition and introduction, composition of functions, inverse functions, binary and n-ary operations, characteristic function of a set, hashing functions -natural numbers- Peano's Axioms and mathematical induction.
Matrices: Matrix operations - Rules of matrix arithmetic - Eigen values and Eigen Vectors - Diagonalization.
- UNIT IV:** Algebraic Structures: Algebraic systems - Examples and general properties, definition and examples, some simple algebraic systems and general properties -semi groups and monoids- definitions and examples, homomorphism of semi groups and monoids, subgroups and submonoids -Grammar and languages - discussion of grammars, formal definition of languages, notations of syntax analysis.

Groups: Definitions and examples, subgroups and homomorphisms, cosets and Lagrange's theorem, normal subgroups, algebraic systems with two binary operations.

UNIT V: Graph Theory: Basic concepts of graph theory, basic definitions, paths, reachability, and connectedness, matrix representation of graphs, trees-storage representation and manipulation of graphs - Trees: their representation and operation, list, structures and graphs. Vector spaces: Euclidean - n-space - General Vector spaces - Subspaces - Linear independences - Basis and dimensions.

Text Books:

1. Discrete Mathematical Structures with Application to Computer Science, J.B.Tremblay and R.Manohar, McGraw-Hill International Edition, 1987

Chapters: 1.1 to 1.6, 2.1 to 2.5, 3.1 to 3.3, 3.5, 5.1, 5.2.

2. Elementary Linear Algebra, Howard Anton, 4/e, John Wiley & Sons, New York.

Chapters: 1.4, 1.5, 4.1 to 4.5, 6.1, 6.2.

Reference Books:

1. Applied Discrete Structures for Computer Science, D.Alan, L.Lenneth, Galgotia Publications, New Delhi, 1983.
2. Formal Languages and their relations to automata, J.E. Hopcroft and J.D. Ullman, Addison-Wesley Publishing Company, 1969.
3. Elements of Discrete Mathematics, C.L. Ltd, McGraw Hill.

11CSP0105 DESIGN AND ANALYSIS OF ALGORITHMS

UNIT I: Introduction: What is an algorithm? – Algorithm specification, Recursive algorithms – Performance analysis: Space complexity, Time complexity, asymptotic notation.

UNIT II: GRAPHS: Introduction, Definitions, Graph representations – Heap sort, Divide and Conquer: Merge sort, Quick sort, Selection sort

UNIT III: The Greedy Method: The general method – Knapsack problem – job sequencing with deadlines – Minimum cost spanning trees: Prim's algorithm, Kruskal's algorithm – Optimal storage on tapes – Optimal merge patterns – Single source shortest paths.

UNIT IV: Dynamic programming: The general method – Multistage graphs – All pair's shortest paths – Optimal binary search trees – Reliability design – Traveling salesperson problem - Flow shop scheduling.

UNIT V: Backtracking: The general method – 8-queens problem – sum of subsets – Graph coloring – Hamiltonian cycles.

Basic concepts of NP-Hard and NP-complete problems- cook's theorem-Reduction-Clique Decision problem

Text book:

Fundamentals of Computer Algorithms C ++, Ellis Horowitz, Sartaj Sahni, Sanguthevar Rajasekaran, Galgotia Publications (P) Ltd, New Delhi, 2002.

Chapters: 1, 2, 3, 4, 5, 7

Reference books:

1. The Design and Analysis of Computer Algorithms, Alfred Aho, John E. Hopcroft, Jeffrey D.Ullman, Pearson Education, 2004.
2. Data Structures, Algorithms and Applications in C++, Sahni, McGraw Hill, 2000.
3. Computer Algorithms, Introduction to Design and Analysis, Sara Baase, Allen Van, Third Edition, Pearson Education, 2002.

11CSP0106 LAB - I: C & ALGORITHMS

a) C Programs with

1. Control Structures: while, do...while, for, if...else, switch, continue, break
2. Array handling: Single dimensional, Multi dimensional
3. Pointers
4. Functions: simple and recursive functions, functions and pointers
5. File handling
6. Simple graphics

b) Algorithms

1. Time complexity analysis
2. Knapsack problems
3. Shortest-path method
4. Traveling salesman problem
5. Eight queen problem
6. Recursive algorithms
7. Job sequencing with deadlines

8. Optimal storage on tapes
9. Optimal merge patterns
10. Multi stage graphs
11. All pairs and single source shortest path
12. Graph coloring
13. Sum of subsets
14. Hamiltonian Cycle
15. Optimal binary search tree

11CSP0107 LAB - II: IT + GUI

a) IT

1. Basic DOS commands.
2. Basic Windows operations.
3. Document preparation using word processor.
4. Installation and configuring of printers (Group Practical).
5. CD Burning.

b) GUI (Visual Basic / Visual C++)

1. Simple programs using basic controls.
2. Programs to understand file system objects and objects for gathering inputs.
3. Programs for launching applications using OLE objects.
4. Programs to handle database using Data control.
5. Working with Menus and dialog boxes.
6. Programs to understand ActiveX controls.
7. Simple project

11CSP0108 VILLAGE PLACEMENT PROGRAMME

II SEMESTER

08CSP0201 SOFTWARE ENGINEERING

UNIT I : THE PROCESS: Software engineering: A layered technology – The Software process – Software process models – The linear sequential model – The prototyping model – The RAD model – Evolutionary software process models – Component based development – The formal methods model – Fourth generation techniques – Process technology – Product and process.

UNIT II : SOFTWARE PROCESS AND PROJECT METRICS: Measures, metrics and indicators – Metrics in the process and project domains – Software measurement – Reconciling different metrics approaches – Metrics for software quality – Integrating metrics within the software engineering process – Managing variation: statistical quality control – Metrics for small organizations – Establishing a software metrics program.

SOFTWARE PROJECT PLANNING: Observations on estimating – Project planning objectives – Software scope – Resources – Software project estimation – Decomposition techniques – Empirical estimation model – Automated estimation tools.

UNIT III : RISK ANALYSIS AND MANAGEMENT: Software risks – Risk identification – Risk projection – Risk refinement – Risk mitigation, monitoring and management.

SOFTWARE QUALITY ASSURANCE: Quality concepts - The quality movement – Software quality assurance – Software reviews – Formal technical reviews – Software reliability – The ISO 9000 quality standards.

UNIT IV : SYSTEM ENGINEERING: Computer based systems – The system engineering hierarchy – Business process engineering: an overview – Product engineering: An overview – Requirements engineering – System modeling.

DESIGN CONCEPTS AND PRINCIPLES: Software design and software engineering – The design process – Design principles – Design concepts – Effective modular design – Design heuristics for effective modularity – The design model – Design documentation.

UNIT V : SOFTWARE TESTING TECHNIQUES: Software testing fundamentals – Test case design – White-box testing – Basis path testing – Control structure testing – Black box testing – Testing for specialized Environments, Architectures and applications.

SOFTWARE TESTING STRATEGIES: A strategic approach to software testing – Strategic issues – Unit testing – Integration testing – Validation testing – System testing – The art of debugging.

Text Book:

Software Engineering, Roger S. Pressman, 5/e, McGraw Hill Inc., 2001

Chapters: 2, 4, 5, 6, 8, 10, 13, 17, 18.

Reference Books:

1. Software Engineering, Martin L.Shooman, McGraw Hill, 1983.
2. Software Engineering concepts, Richard E.Fairley, McGraw Hill, 1984.

11CSP0202 DATA AND FILE STRUCTURES

UNIT I: Data Representation: Introduction - Linear Lists - Formula-Based Representation – Linked Representation – Indirect Addressing – Simulating Pointers - Comparison – Applications.

UNIT II: Arrays and Matrices: Arrays – Matrices – Special Matrices – Sparse Matrices. Stacks: The Abstract Data Type – Derived Classes and Inheritance – Formula-Based Representation – Linked Representation – Applications.

UNIT III: Queues: The Abstract Data Type – Formula-Based Representation – Linked Representation – Applications.

Lists and Hashing: Dictionaries – Linear List Representation – Skip List Representation – Hash Table Representation – Applications.

UNIT IV: Binary and Other Trees: Trees – Binary Trees –The ADT Binary Tree –ADT and Class Extensions – Applications - Binary Search Trees – B-Trees – Applications (Histogramming).

UNIT V: Field and Record Organization: Field structures, Record structures – Record Access: Record Keys, Sequential Search, Direct Access – Indexed Sequential Access – Maintaining a Sequence Set: Use of Blocks – Adding a simple index to the sequence set.

TEXT BOOKS:

1. Data Structures, Algorithms and Applications in C++ , Sartaj Sahni, McGraw –Hill international Edition, 2000
Chapters: 3, 4, 5, 6, 7, 8, 11.1, 11.4.
2. File Structures – An Object – Oriented approach with C++, Mecheal J. Flok, Bill Zoellick, Greg Riccardi, Pearson Edition, 1998, 9th Indian Reprint (2005)
Chapters: 4.1, 5.1, 10.1, 10.2, 10.3.

REFERENCE BOOKS:

1. Fundamentals of Data Structures in C++, Horowitz, Shani, Dinesh Mehta, Galgotia Publications, 2008.
2. Data Structures using C and C++, yedidhayah Langsam, Moshe J. Augenstien, Aaron M. Tanenbaum, 2/e, PHI, 1999
3. Data Structures and Algorithm Analysis in C++, Mark Allen Weiss, AWL publications, 1994

**11CSP0203 OBJECT-ORIENTED PROGRAMMING
AND C++**

UNIT I : Object-oriented programming - The object-oriented approach - Characteristics of object-oriented languages- Objects, Classes, Inheritance, Reusability, Creating new data types, Polymorphism and Overloading.

C++ Programming Basics: Basic program construction - comments, Variables, Constants, Expressions, statements, cin and cout - Manipulators - Type Conversion - Arithmetic Operators - Library Functions

Loops and Decisions - Relational Operators - Loops - for loop, while loop and do loop - Decisions - if statement, if .. else, else.. if construction, switch statement and conditional operator - Logical operators - other control statements.

Structures - defining a structure, accessing structure members, other structure features - enumerated data types.

Functions - function declaration, calling the function, function definition - passing arguments to function - returning values from functions - reference arguments - overloaded functions - inline functions - default arguments - variables and storage classes - returning by reference.

UNIT II : Objects and Classes - simple class, specifying the class, using the class, C++ objects - constructors - destructors - objects as function arguments - overloaded constructors, member functions and objects as arguments - returning objects from function - structures and classes - classes objects and memory - static class data.

Arrays - Array fundamentals - defining arrays, accessing array elements, initializing arrays, multidimensional arrays, passing arrays to functions and arrays of structures - arrays as class member data - arrays of objects - strings - variables, constants, array of strings, strings as class members and a user defined string type.

Operator overloading - overloading unary operators - keyword, arguments, return values, nameless temporary objects, limitation of increment operators - overloading binary operators - arithmetic operators, multiple overloading - data conversion - between basic data types, between objects and basic data types, between objects of different classes.

UNIT III : Inheritance - derived class and base class - derived class constructors - overriding member functions - class hierarchies - public and private inheritance - levels of inheritance - multiple inheritance, classes with classes.

C++ Graphics - text-mode functions - window, cputs, clrscr functions and box class - graphics mode functions - initgraph, circle and closegraph functions - colors - setcolor, setlinestyle, setfillstyle and floodfill function - rectangle() and line() functions - polygons and inheritance - Sound and motion - text in graphics mode.

UNIT IV : Pointers - addresses and pointers - the address of operator & pointer variables, accessing, pointer to void - Pointers and arrays - pointers and functions - passing simple variables, passing arrays - pointer and strings - pointers to string constants, strings as function arguments, library string functions - memory management - new and delete operator -

pointers to objects - referring to members, array of pointers to objects - linked list - a chain of pointers, self containing classes - pointers to pointers.

Virtual Functions and other subtleties - virtual functions - late binding, pure virtual functions, abstract classes and virtual base classes - friend functions - friends as bridges, friends for functional notation and friend classes - static functions - overloading the assignment operator, the copy constructor, a memory efficient string class - The this pointer - accessing member data with this and using this for returning values.

UNIT V : Files and Streams - streams - stream class hierarchy, stream class, header files - string I/O - character I/O - object I/O - I/O with multiple objects - fstream class and open function - file pointers - tellg function - disk I/O with member functions - Redirection - ios flags, using REDIR, redirecting input, output, input and output, the cerr and clog objects, command line arguments, printer output, overloading the extraction and insertion operators - Multifile programs - class libraries, components of a class library, class declarations.

C++ Class library - Creating class library files, write source files, create project file - Container class stack - container class hierarchy - user defined class.

Text book:

Object-Oriented Programming in Turbo C++, Robert Lafore, Galgotia Publications Pvt. Ltd., New Delhi, 1994.

Chapters : 1, 3 to 16.

Reference Books:

1. The C++ Programming language, Bjarne Stroustrup Addison-Wesley Publishing Company, New York, 1994.
2. Object-Oriented Programming with C++, E. Balagurusamy, Tata McGraw-Hill Publishing Company Ltd., New Delhi, 1995.

11CSP0204 NUMERICAL AND STATISTICAL METHODS

(Proofs of theorems and derivations are not expected)

UNIT I : Curve fitting: Method of least squares - fitting straight line - fitting a parabola - fitting an exponential curve. Solution of numerical and transcendental equations: The bisection method - method of false position - Newton Raphson method.

Solution of simultaneous linear algebraic equations: Gauss elimination method - Gauss Jordan method - Jacobi method of iteration - Gauss Seidal method.

UNIT II : Interpolation: Difference tables - Newton's forward and backward interpolation formula for equal intervals - Lagrange's interpolation formula for unequal intervals.
Numerical Integration: Trapezoidal rule-Simpson's 1/3rd rule and Simpson's 3/8th rule.

Numerical Solution of Ordinary Differential Equations: Euler's method - modified Euler's method - Runge-Kutta method (2nd order and 4th order).

UNIT III : Frequency Distributions - Diagrammatic Graphical presentation of frequency distributions - Measures of central value - Arithmetic mean - median - mode Geometric mean - Harmonic mean - Standard deviation - Coefficient of variance - Moments - Skewness - Kurtosis.

UNIT IV : Correlation - Scatter diagram - Karl Pearson's coefficient of correlation - Correlation coefficient for a Bivariate frequency distribution - Rank correlation coefficient - Regression - regression lines.

Association of attributes - notation and terminology - Consistency of data - Methods of studying association.

UNIT V : Probability - Introduction - Calculation of Probability - Conditional probability - Bayes' theorem - Mathematical Expectation - Theoretical distributions - Binomial distribution - Poisson distribution - normal distribution.

Text Book:

Numerical Methods in Science and Engineering, M. K. Venkataraman, 2/e, National Publishing Co., Madras, 1987.

Reference Books:

1. Numerical Methods for Scientific and Engineering Computation, M.K. Jain, S.R.K. Iyengar, R.K. Jain, Willey Eastern Limited.
2. Introductory Methods of Numerical Analysis, S.S. Sastry, Prentice-Hall of India, 1977.
3. Numerical Mathematical Analysis, J. Scarborough, Oxford Press, 1966.

4. Probability and Mathematical Statistics with Queuing and Computer Applications, K.S. Trivedi, Prentice Hall, 1982.
5. Fundamentals of Mathematical Statistics, S.C. Gupta and V.K. Kapoor, Sultan & Chand Publications.

11CSP0205 DATABASE MANAGEMENT SYSTEMS

- UNIT I :** INTRODUCTION: Database System Applications – Purpose of Database Systems – View of Data – Database Languages – Relational Databases – Database Design – Object Based and Semistructured Databases – Data Storage and Querying – Transaction Management – Data Mining and Analysis – Database Architecture – Database Users and Administrators.
RELATIONAL MODEL: Structure of Relational Databases – Fundamentals Relational Algebra Operations – Additional Relational Algebra Operations – Extended Relational Algebra Operations – Null values – Modification of the Database.
- UNIT II:** SQL: Background – Data Definition – Basic Structure of SQL Queries – Set Operations – Aggregate Functions – Null values – Nested Subqueries – Complex Queries – Views – Modification of the Database – Joins Relations.
OTHER RELATIONAL LANGUAGES: Tuple Relational Calculus – Domain Relational Calculus – Query-by Example.
- UNIT III :** E-R MODEL: Overview of the Design Process – The Entity Relationship Model – Constraints – ER Diagrams – Entity Relationship Design Issues – Weak Entity Sets – Extended E-R Features – Reduction to Relational Schemas.
RELATIONAL DATABASE DESIGN: Features of Good Relational Design – Atomic Domains and First Normal Form – Decomposition using Functional Dependencies – Functional Dependencies Theory – Decomposition using Multivalued Dependencies.
- UNITIV :** TRANSACTIONS: Transaction concept – Transaction States – Implementation of Atomicity and Durability – Concurrent Executions – Serializability – Recoverability – Implementation of Isolation – Testing of Serializability.
RECOVERY SYSTEMS: Failures Classification – Storage Structure – Recovery and Atomicity – Log-based Management – Failure with Concurrent Transaction – Buffered Management – Failure with Loss of nonvolatile Storage – Advanced Recovery Techniques – Remote Backup Systems.

UNIT V : OBJECT-BASED DATABASES: Overview – Complex Data Types – Structured Types and Inheritance in SQL – Table Inheritance – Array and Multiset Types in SQL – Object Identity and Persistent Programming Languages – Object Oriented versus Object Relational. DISTRIBUTED DATABASES: Homogeneous and Heterogeneous Databases – Distributed Data Storage – Distributed Transactions – Commit Protocols – Concurrency Control in Distributed Databases – Availability – Distributed Query Processing – Heterogeneous Distributed Databases – Directory Systems.

Text Book:

Database System Concepts, 5/e, Abraham Silberchartz, Henry F. Korth and S.Sudarshan, McGraw-Hill Higher Education, International Edition, 2006.

Chapters: 1, 2, 3, 5, 6, 7, 9, 15, 17, 22

Reference Books:

1. Fundamentals of Database Systems, 3/e, Ramez Elmasri and Shamkant B. Navathe, Addison-Wesley, 2000.
2. Database Management, Gordon C. Everest, TataMcGraw-Hill, NewDelhi, 2001.

11CSP0206 LAB - III: DFS Using C++

a) Data Structures

- | | | |
|----------------|---|--|
| 1. Queues | - | Insertion, Deletion |
| 2. Linked list | - | Creation, Insertion and Deletion on Singly linked list, Circular list and Doubly linked list |
| 3. Stack | - | Creation, Push and Pop, Conversion and evaluation of prefix and postfix expression |
| 4. Trees | - | Binary tree creation, tree traversal |

b) C++ programs with

1. Operator overloading
2. String manipulation
3. Inheritance – single, multiple
4. Pointers
5. Virtual functions
6. Files and streams

11CSP0207 LAB - IV: RDBMS

1. Creation of tables
2. Indexing
3. Sorting
4. Setting relation between tables
5. Queries
6. Exception handling, cursor and triggers
7. Screen building
8. Importing tables from electronic spreadsheet and text file
9. OLE for images and sound
10. Report from usage

III SEMESTER

11CSP0301 PRINCIPLES OF OPERATING SYSTEMS

UNIT I : Introduction: What is OS? Mainframe Systems, Desktop System, Multiprocessor Systems, Distributed Systems, Clustered Systems, Real-Time Systems, Handheld Systems, Feature Migration and Computer Environments.

Computer-System Structures: Computer-System Operation, I/O Structure, Storage Structure, Storage Hierarchy, Hardware Protection, and Network Structure

Operating-System Structures: System Components, Operating-System Services, System calls, System programs, System Structures, Virtual Machines, System Design and Implementation , System Generation.

UNIT II: Processes: Concept, Scheduling, Operations, Cooperating Processes, Intercrosses Communication and Communication in Client-Server Systems.

Threads: Overview, Multithreading Models, Threading Issues, Pthreads, Solaris 2 Threads, Window 2000 Threads, Linux Threads and Java Threads

UNIT III: CPU Scheduling: Basic Concepts, Scheduling Criteria, Scheduling Algorithms, Multiple-Processor Scheduling, Real-Time Scheduling, Algorithm Evaluation, Process Scheduling Models.

Deadlocks: System Model, Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, Recovery from Deadlock

UNIT IV: Memory Management: Background, swapping, Contiguous Memory Allocation, Paging, Segmentation, Segmentation with Paging

Virtual Memory: Background, Demand Paging, Process Creation, Page Replacement, Allocation of Frames, Thrashing, Operating-System Examples, Other Considerations.

UNIT V: The Linux System: History, Design Principles, Kernel Modules, Process Management, Scheduling, Memory Management, File System, Input and Output, Interprocess Communication, Network Structure, Security

Windows 2000: History, Design Principles, System Components, Environmental Subsystems, File System, Networking, Programmer Interface.

Text Book:

Operating System Concepts, Silberschatz & Galvin, 6/e, Addison-Wesley Publishing Company, 2003.

Chapters:1,2,3,4,5,6,7,8,9,10,20 & 21

Reference Books:

1. Operating Systems, Stuart.E.Madnick & John.J.Donovan, McGraw-Hill International Edition, 1974.
2. Operating Systems, H.M.Deitel, 2/e, Addison-Wesley Publishing Company, 1990.

11CSP0302 OOAD and UML

UNIT I : Concepts - Complexity - The inherent complexity of software, the structure of complex systems, the role of decomposition, the role of abstraction and the role of hierarchy - On designing complex systems - the meaning of design - Categories of Analysis and Design Methods.

The Object model - The evolution of object model - trends in software engineering , Foundations of the model, OOP, OOD and OOA - Elements of the object model - abstraction, encapsulation, modularity and hierarchy - Applying the object model.

UNIT II : Classes and Objects - The nature of an object - what is an object, state, behavior and identity of objects - Relationships of objects - links and aggregation - The nature of a class - Relationships among classes - Association, Inheritance, Aggregation, using, Instantiation and metaclass - The interplay of classes and objects - Relationships between classes and objects, the role of classes and objects in analysis and design - On building quality classes and objects - Measuring the quality of an abstraction, choosing operations, relationships and implementations.

Classification - The importance of proper classification - Classification and object-oriented development, the difficulty of classification - Identifying classes and objects - Classical and modern approaches, object-oriented analysis - key abstractions and mechanisms.

UNIT III : The method - The notation - Elements of the notation - class diagrams, Essentials: classes and their relationships, class categories, advanced concepts, specifications - State transition diagrams - Object diagrams - Interaction diagrams - Module diagrams - process diagrams - applying the notation.

UNIT IV : The process - First Principles - Traits of successful projects, towards a rational design process - The micro development process - Identifying classes and objects, the semantics of classes and objects, the relationships among classes and objects and implementing classes and objects-The Macro development process - Conceptualization, analysis, design, evolution and maintenance.

Pragmatics - Management and planning - Risk management, task planning and walk-throughs - Staffing - Resource allocation, Development team roles - Release Management - Reuse - Quality Assurance and metrics - Documentation - Tools - Special Topics - The benefits and risks of object-oriented development.

UNIT V UML: introduction to UML- what is UML?- Methods and modeling languages – usage of UML - phases of system development – overview of UML – views – diagrams – model elements – general mechanism – extending UML – modeling with UML – tools. Use diagram - collaboration diagram - activity diagram – component diagram – deployment diagram. Assignment: design patterns and UML.

Text Books:

1. Object-Oriented Analysis and Design with Applications, Grady Booch, 2/e, The Benjamin/Cummings Publishing Company, Inc., California, 1994.

Chapters: 1-7.

2. UML Tool kit - Hans Eerik Erikson and Magnus Penker
-Wilely computer publishing

Reference Books:

1. Object-Oriented Analysis, Peter Coad and Edward Yourdon, Yourdon Press, 1991.
2. Object-Oriented Design, Peter coad and Edward Yourdon, Press, 1991.
3. Object Oriented Analysis and Design, Martin and Odell, Prentice Hall, New Jerseg, 1992.

11CSP0303 OPERATIONS RESEARCH

(Derivation of results and proofs of theorems are not expected)

- UNIT I** : Introduction: Mathematical Formulation of the Linear Programming problems - Graphical solution - General Linear Programming problem - Canonical and standard forms of L.P.P - fundamental properties of solutions - Simplex method - Big M method - Phase I and Phase II Simplex method.
- UNIT II** : Concept of Duality in L.P.P: Formulation of Primal -Dual Pairs - Duality and simplex method - Dual Simplex method: Transportation problem: finding initial basic feasible solution using North-West Corner Rule and Vogel's approximation method - Optimal solution - Transportation algorithm - routing problems.
- UNIT III** : Queuing system : Characteristic of queuing system -Poisson process - classification of queues - Poisson Queues models - (M/M/1) : (ϕ /FIFO), (M/M/1): (N/FIFO), (M/M/C) : (ϕ /FIFO), (M/M/C) : (N/FIFO) models.
- UNIT IV** : Inventory theory: Reasons for carrying inventory - EOQ - Deterministic Inventory problems - EOQ problems with no shortages - with shortages. Replacement problems: replacement of items that deteriorate - replacement of items that fail suddenly.
- UNIT V** : PERT and CPM : Network and basic components - Time calculations in networks - CPM and PERT - PERT calculations - advantages of network (PERT/CPM).

Text Book:

Kanti Swarup, P.K. Gupta & Manmohan, Operations Research, S. Chand & Co., New Delhi, 1991. (Eighth thoroughly revised edition)

Chapter 2 : 2.1 to 2.7,	Chapter 3 : 3.1 to 3.7
Chapter 4 : 4.1, 4.2, 4.5,	Chapter 6 : 6.1, 6.5 to 6.9,
Chapter 7 : 7.1, 7.3 to 7.5,	Chapter 17 : 17.1 to 17.8,
Chapter 18 : 18.1 to 18.6,	Chapter 19 : 19.1 to 19.3,
Chapter 21 : 21.1 to 21.9,	

Reference Books:

1. F. Hillier and G. J. Lieberman, Introduction to Books Operations Research, Holden Day Inc., 1980.

2. M.A. Taha, Operations Research: An Introduction, McMillan Publ. Co, 1982.
3. L.R. Shaffer J.B.Fitter and W.L.Meyer, The Critical Path Method, McGraw Hill, 1965.
3. M.K. Venkatraman, Linear Programming, National Publ. Co., New Delhi.

11CSP0304 MICROPROCESSORS AND APPLICATIONS

UNIT I : Computers, Microprocessors, and Microprocessors - an Introduction - Computers - The 8116, 8018, 80188, 80286 Microprocessors- Introduction - 8116 Internal Architecture - Introduction to programming the 8116
8116 Family Assembly language programming - Introduction - Program Development steps - Constructing the Machine Codes for 8116 instructions - Writing Programs for use with an assembler - assembly language program development tools.

UNIT II : 8116 assembly language programming Techniques - objectives - practice with simple sequence programs - Flags, Jumps and WHILE - DO implementations - REPEAT-UNTIL implementation and examples - Debugging assembly language programs.

UNIT III : IF-THEN-ELSE structures, procedures and Macros - IF-THEN, IF-THEN and multiple IF-THEN-ELSE programs - writing and using procedures - writing and using assembler macros.

UNIT IV : 8116 Instruction Descriptions and Assembler Directives
Unix operating system - structure, operations of the Kernel shell, application layer.

80286 microprocessor - architecture real address mode - memory management scheme - descriptors - accessing segments - address translation registers and physical address - protection mechanisms - task switching and task gates - interrupt handling in PVAM - instructions for PVAM.

UNIT V : Digital Interfacing & Applications - programmable parallel ports and handshake input/output - interfacing a microprocessor to keyboards - interfacing to alphanumeric ports to high-power devices - optical motor shaft encoders

Text Book:

Microprocessors and Interfacing - Programming and Hardware, D.V. Hall, Seventh Reprint, Tata McGrawHill Edition, New Delhi, 1995.
Chapters: 2, 3, 4, 5, 6 & 9.
Chapter 14 - relevant sections

Reference Books:

1. Introduction to Microprocessors, A.P. Mathur, 3/e, Tata McGrawHill Company Limited, New Delhi 1994.
2. PC Architecture & Assembly Language, B. Kauler, Galgotia Publication, New Delhi, 1995.
3. Hardware Bible, W.L. Rosch, Prentice Hall of India, New Delhi, 1994.

11CSP0305 ELECTIVE-I**11CSP0306 LAB-V: LAB FOR ELECTIVE – I****11CSP0307 LAB-VI: OS (Linux, Windows) + ALP****a) OS Lab****i. Linux**

1. Linux installation
2. Operations on directories and files : create, copy, delete and list
3. Linux editors - creating and editing documents
4. Linux GUI operations
5. Machine Communication
6. Mail Handling
7. Shell Programming

ii. Windows

1. Installation
2. File related operations: create, copy, rename, delete, search and print
3. All operations in Control Panel

b) ALP (Assembly Language Programming)

(Using PC Assembler - MASM)

1. Simple Sequence Programming
2. Branching, jumping and looping
3. Programming with Macro
4. Use of Subroutines
5. Use of Assembler directives
6. Applications
 - Simple Multiplication, sorting, binary to BCD and BCD to Seven segment code

11CSP0308 COMMUNICATION SKILLS

UNIT I : COMMUNICATION - Definition - Interpersonal Communication - Understanding the Communication Process - Ingredients in Communication - Source - Message - Channel - Receiver - Information Contents - Redundancy - Repetition - Overload - Noise.

UNIT II : NON-VERBAL COMMUNICATION - Perception Process - Aspects of Perception - Mind's Eye - Non-verbal Action and Meaning - Appearance - Bodily Posture - Facial Expressions - Body Language - Eye Movements and Eye Contact - Bodily Contact - Orientation and Territory.

UNIT III : SPEAKING & LISTENING - Kinds of speech - Preparing a Speech - Structure of a Talk - Audience - Voice - Body - Evaluating a Speaker - Listening - Distractions - Seeing with the Ear - Debating - Note-taking - Telephoning - Handling Complaints - Giving orders and Instructions.

UNIT IV : MEETINGS - Role of the Chairperson - Role of Participants - Encouraging people to participate - Types of meeting - Formal procedure - Role of the Secretary.

INTERVIEWS - Types of Interview - Selection Interview.

WORD POWER - Synonyms - Antonyms - Key words - Confusing pairs - Prefixes - spelling - Tautology - Ambiguity - Verbosity & Circumlocutions.

LETTER WRITING-Steps-Layout-Job Application - Tone.

REPORT WRITING - Definition - Types of Report-Planning & Preparing the Report - Collecting Material - Principal parts of Report - Style - Revising the Draft.

UNIT V : READING POWER - Good Reading Habits - Pre-reading - Rapid reading - Skimming - Scanning - Key reading - Phrase reading.

GROUP DISCUSSION - Group Participation - Formal & Informal Groups - Roles - The Self - Attitude Formation - Tastes, Attitudes & Values - Opinions - Social Posture.

ORGANISATIONAL COMMUNICATION - Leading - Style of Leadership - Successful Leadership - Motivation - Hierarchy of Human Needs - Incentives & Staff Morale - Breakdown.

THINKING, REASONING & PROBLEM SOLVING - Fact & Opinion - Persuasion - Analogy - Cause & Effect - Generalisation - Inductive & Deductive Reasoning - Reasoning & Statistics - Graphs - Posters.

11CSP0309 VILLAGE PLACEMENT PROGRAMME

IV SEMESTER

11CSP0401 COMPUTER NETWORKS

- UNIT I** : Uses of computer networks - Network hardware - Network software - Reference models - Example networks - Network standardization.
- UNIT II** : Guided transmission media - Wireless transmission - Communication satellites - The public switched telephone network.
- UNIT III** : Data link layer design issues - Error detection and correction - Elementary data link protocols - Sliding window protocols. Multiple access protocols.
- UNIT IV** : Network layer design issues - Routing algorithms - Congestion control algorithms-Quality of service- Internetworking
- UNIT V** : Transport service - Elements of transport protocols - Electronic mail.

Text Book:

Computer Networks, Andrew S.Tanenbaum, 4/e, Prentice-Hall of India Private Ltd., 2003.

Chapters: 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 4.2, 5.1, 5.2, 5.3, 5.4, 5.5, 6.1, 6.2 & 7.2.

Reference Books:

1. Design and Analysis of Computer Communication Networks, Vijay Ahuja, McGraw-Hill International Ed., 1987.
2. Data Communications, Computer Networks and Open Systems, Fred Halsall, 4/e, Addison-wesley, 1999.
3. Inside Networks, James K. Hardy, Prentice-Hall of India, 1999.
4. Introduction to data communications and networks, Behrouz & Forouza , MG-Hill International, 1998
5. Principles of digital communication systems and computer networks, Dr.K.V.K.K. Prasad, Dreamtech Press, 2003

11CSP0402 COMPUTER GRAPHICS

UNIT I: Overview of Graphics Systems: Video display devices – Raster scan and Random scan systems – Input devices – GUI and Interactive input methods: Logical classification of input devices – Input functions – Interactive picture constructive techniques.

UNIT II: Output primitives: Points and Lines – Line drawing algorithms – DDA and Bresenham's – Loading the Frame buffer – Line function – Circle Generating algorithms- Filled Area primitives – Fill Area Functions – Cell Array – Character Generation.

UNIT III: Attributes of Output primitives: Line Attributes – Curve Attributes – Color and gray scale – Area fill attributes – character attributes – bundled attributes – Inquiry functions – Antialiasing.

UNIT IV: Two dimensional geometric transformations – Basic transformations- Matrix representation – Composite transformations – General fixed point – Scaling – Other transformations

Two dimensional viewing: The viewing pipeline – window-to-viewport coordinate transformation – Clipping operations – Point clipping – Line clipping – Cohen-Sutherland line clipping – Sutherland – Hodgeman polygon clipping – Curve clipping- Text clipping

UNIT V: Three dimensional concepts- Three dimensional methods – Three dimensional geometric and modeling transformations – Translation – Rotation – Scaling – Other transformations.

Visible – Surface detection methods – Classification – Depth buffer method – Scan line method – Depth-sorting method – BSP tree method – Area- subdivision method.

Text Books:

1. Computer Graphics C Version, Donald Hearn, M. Pauline Baker, 2/e. Pearson Education, 2004.

Chapters: 2.1-2.5, 3.1-3.5, 3.11-3.14, 5.1-5.4, 6.1, 6.3-6.11, 8.2, 8.3, 8.5, 9.1, 11.1-11.4, 13.1, 13.3, 13.5-13.8

Reference Books:

1. Principles of Interactive Computer Graphics, W. M. Newman and R.F. Sproull, McGraw-Hill International Editions, I Edition, 1979.
2. Computer Graphics-Principles and Practice, Foley, Van Dam, Feiner, Hughes, Addison-Wesley Publishing Company, 2/e, Paris, 1997.

11CSP0403 JAVA PROGRAMMING

UNIT I : Introduction – Literals, data Types and Variables – The Structure of a java Program – Operators – Control Statements – arrays.

UNIT II : Classes – Inheritance – Package and Interfaces.

UNIT III: Wrapper Classes – Mathematical Methods – Exceptions – Input and Output Classes.

UNIT IV: Strings – Threads.

UNIT V : Applets – Graphics.

Text Book:

Programming in JAVA2, K. Somasundaram, Jaico Publishing Company, Mumbai, 2005.

Chapters: 1 to 17.

Reference Books:

1. JAVA2 : The Complete Reference – Fourth Edition, H. Seihldt, TMH Publishing Company, New Delhi, 2001.
2. Core JAVA 2 – Volume 1,2 – C.S. Horstmann and G. Cornell, The Sun Microsystems Press, Pearson Education Asia, 2000.

11CSP0404 ELECTIVE-II**11CSP0405 ELECTIVE-III**

11CSP0406 LAB-VII: NETWORKS

1. Installation of network card
2. Installation of hub, switch and cables
3. Installation of server side network OS
4. Installation of client side network OS
5. Creation of users and management
6. Network management
7. Program for Queues
8. Program for Server
9. Creation of Mail Server
10. Analysis of Packet contents for different protocols

11CSP0407 LAB-VIII: JAVA

Simple programs using

- Control Statements, arrays
- Classes, Inheritance
- Exception handling
- Input/output classes
- Strings
- Threads
- Applets
- Graphics
- Event handling

11CSP0408 MINI PROJECT

V SEMESTER

11CSP0501 INTERNET PROGRAMMING

UNIT I: Internet Mark up Languages: Introduction to HTML- Head and Body Sections- Ordered and Unordered lists-Table Handling-HTML Forms-Style Sheets

Extensible Mark Up Language: Introduction- Structuring Data-Document type definitions

UNIT II: Internet Scripting Languages: Java Script-Introduction to Scripting Functions- Objects-Control Structures-Simple Programs. PHP Scripting: What is PHP-Variables-operators-Conditional Statements-Switch Statement-PHP Looping-Functions-File Modes and Descriptions-PHP My SQL Database Connectivity

UNIT III: An Introduction to TCP/IP: Importance of the TCP/IP Protocol- Data flow-TCP/IP Frame work- Exploring TCP/IP Protocol. The Internet Protocol: Network layer-Internet Addresses-Internet Address Protocol-IP datagram-IP Header-Fragmentation-IP routing

UNIT IV: Understanding the Transport Protocol: Transport layer- Transport layer port-Internet Protocol ports-UDP port usage- TCP port usage-SLIP connections-Compressed SLIP-Point To Point Protocol

UNIT V: Understanding Internet Email: SMTP-POP-FTP commands- FTP reply codes. The Domain Name System: Names for Machines-Hierarchical Names-Internet domain Names- Top Level Domain Names-Mapping domain names to Addresses

Text Books:

1. Internet and World Wide Web- How to program, Deitel, Goldberg, 3/e, PHI 2006

Chapters: 4,5,6,7,8,9,10,11,12,20,26

2. Beginning PHP5, DaveW.Mercer,Allen Kent,Steven, Wiley-Dreamtech Publications 2004

Chapters: 2,4,6,7,9,10,11

3. Internet Programming, Kris jamsa and Ken cope, Galgotia Publications Pvt Ltd 1995

Chapters:3, 4, 5, 6, 15, 16

4. Internetworking with TCP/IP volume 1, 5/e,Douglas E.Comer, PHI 2006

Chapter: 23

Reference Books:

1. HTML-The Complete Reference, Powell, Tata Mc Graw Hill 1998
Mastering XML, Ann Navarre,Chuck White, BPB Publications 2000
2. How to do everything with Java Script, A Beginners Guide, Scott Duffy, Dream Tech press.

11CSP0502

Mobile Communications

- UNIT I:** Introduction: Mobile and wireless devices – simplified reference model – need for mobile computing – Wireless Transmission – Multiplexing – Spread Spectrum and cellular systems – medium access control – Comparisons
- UNIT II:** Telecommunication system: Telecommunication system – GSM – architecture – sessions – protocols – handover and security – UMTS and IMT 2000 – Satellite system
- UNIT III:** Wireless LAN: IEEE S02.11 – Hiper LAN – Bluetooth – MAC layer – security and link management
- UNIT IV:** Mobile IP: Goals – Packet Delivery – Strategies – registration – Tunneling and Reverse Tunneling and Adhoc networks- Routing strategies
- UNIT V:** WIRELESS APPLICATION PROTOCOL: Wireless Application Protocol (WAP) – Architecture - XML – WML script – Applications

Text Books:

1. Jochen Schiller, “Mobile Communication” , Pearson Education, Delhi 2008.
2. The Wireless Application Protocol – Singhal Sandeep and Bridgam Thomas, Pearson Education, India , 2001.

Reference Books:

1. Wireless Application Protocol : Writing Applications for the Mobile Internet”
Sandeep Singhal, et al.

11CSP0503 INFORMATION TECHNOLOGY FOR RURAL DEVELOPMENT (Theory : 2 Credits)

UNIT I : Information Technology for Rural Development - Rural Development - definition - problems of rural areas - importance of developing villages - information empowerment - need for information for accessing problems - opportunities - resources - Government Programmes of rural development - resources - Government Programmes of Rural Development - role of information technology in rural development - e-governance.

Information Technology - agriculture - health - water management - environment - education - employment - natural resources management - forest - ocean

UNIT II : Introduction to GIS and its applications - history - concept - components - contributing disciplines - definition - maps and spatial information - computer assisted mapping and map analysis - components of GIS - maps and spatial data - thematic characteristics of spatial data - census and survey - air photos - satellite images - field data - areas of applications.

Introduction to Remote Sensing and its applications - concepts - definition - advantages - process - products –

UNIT III : Data Warehousing - Designing content and interface for Rural Information System - Case Studies on Information Technology for Rural Development, existing Centres and Schemes on various subjects.

Reference Books and Materials

1. Proceedings of Regional Workshop on IT for Rural Development, Gandhigram Rural Institute, Gandhigram, March, 2002.
2. An Introduction to Geographical Information System, Ian Heywood et.al., Addison-Wesley Longman Limited, England, 2000.
3. Principles of Geographical Information System, Peter A. Burrough and Rachael, A. McDonnell, Oxford University Press, Newyork, 1998.

4. Principles of Remote Sensing, Paul J. Curran, English Language Books Society, English Language Books Society, Addison Wesley Longman, 1985.
5. Introductory to Remote Sensing Principles and Concepts - Routeledge, London, 2000.
6. Remote Sensing and Image Interpretation, Thomas M. Lillesand, John-Wesley & Sons, New York, 2002.
7. Department Notes on IT for Rural Development, Department of Computer Science and Applications, Gandhigram Rural Institute.
8. Data Warehousing Concepts, Techniques. Products and Applications C.S.R. Prabu, P.H.I. New Delhi -2001.

11CSP0504 ELECTIVE – IV

11CSP0505 ELECTIVE – V

11CSP0506 Lab IX: INTERNET PROGRAMMING

1. Web page design using HTML Tags
 - Creation – ordered list, unordered list , tables, frames, links, image anchor, image maps
 - Using form controls with input tag, cascading style sheets
2. XML
 - Creating XML document with internal DTD and external DTD
3. JavaScript
 - Simple programs in Javascript using control structures, arrays, strings, objects, event handlers, form validation
4. PHP
 - Programs on arrays using PHP array functions
 - Validation of HTML form inputs and processing using global variables
5. Simple project on web designing

11CSP0507 Lab X: .NET PROGRAMMING

ASP.NET

1. Creating Web Forms, Controls, Postbacks
2. Working with Web Objects, State Management
3. Validating User Input
4. Creation of Master Pages, Themes and Site Navigation
5. Data access with ADO.NET

6. Data component and dataset
7. Data binding
8. Error handling
9. Security
10. Programming XML Documents with ASP.NET
11. Converting and Transforming XML Data with ASP.NET
12. Creating Web services

VB .NET

1. Creating Windows Forms
2. Setting and Adding Properties to a Windows Form
3. Implementing Class Library Object, Inheritance
4. Using Application Class and Message Class
5. Event Handling
6. Building graphical interface elements
7. Adding Controls
8. Common Controls, Handling Control Events and Dialog Boxes
9. Creating Menu and Menu Items
10. Creating Multiple-Document Interface (MDI) Applications
11. Validation
12. Exceptions
13. Security
14. Data Access with ADO .NET
15. Data Binding
16. Using XML Data with VB.NET
17. Finding and Sorting Data in DataSets
18. Creating Web Services

11CSP0508: PROJECT

Project on INFORMATION TECHNOLOGY FOR RURAL DEVELOPMENT
(2 Credits)

SEMESTER VI

11CSP0601 PROJECT

**Internship/ Placement
Dissertation and Viva-Voce**

* * * * *

ELECTIVES

11CSP0001 ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS

- UNIT I:** What is Artificial Intelligence? The AI problems - The underlying assumption – What is an AI technique?
Problems: problem spaces and search – defining the problems as a state space search – Production systems – Problem characteristics – Production system characteristics – Issues in the design of search programs.
- UNIT II:** Generate-and-test – Hill climbing – Best-first Search – Problem reduction – Constraint satisfaction – Means-ends-analysis.
Knowledge representation issues: Representation and mappings – Approaches to knowledge representation – Issues in knowledge representation – The frame problem.
- UNIT III:** Using predicate logic – Representing simple facts in logic – representing Instance and Is a relationships – Computable functions and predicates – resolutions – Natural deduction.
Representing knowledge using rules: Procedural versus declarative knowledge – Forward versus backward reasoning – Matching – Control knowledge.
- UNIT IV:** Symbolic reasoning under uncertainty – Introduction to nonmonotonic reasoning – Logics for nonmonotonic reasoning – Implementation issues – Augmenting a problem solver – Implementation : Depth-first search – Implementation: Breadth-first search – Statistical reasoning – Bayesian networks – Fuzzy logic.
Learning: what is learning? – Rote learning – Learning by taking advice – Learning in problem solving.
- UNIT V:** Connectionist models – Introduction – Hopfield networks – Learning in neural networks – Applications of neural networks.
Expert systems – Representing and using domain knowledge – Expert system Shells – Explanation – Knowledge acquisition.

Text Book:

Artificial Intelligence, Elaine Rich, Kevin Knight, 2/e, TataMcGraw Hill Publishing Ltd., New Delhi, 1991.

Chapters: 1.1 – 1.3, 2, 3, 4, 5, 6, 7, 8.3–8.5, 17.1–17.4, 18.1–18.3
& 20

Reference Books:

1. Introduction to Artificial Intelligence and Expert Systems, Dan W. Patterson, Prentice-Hall of India, New Delhi, 1992.
2. Artificial Intelligence, A Modern Approach, Stuart J. Russell and Peter Norvig, Pearson Education, Reprint 2003.
3. Introduction to expert Systems, 3/e, Peter Jackson, Pearson Education, Reprint 2003.
4. Artificial Intelligence, A New Synthesis, Nils J. Nilsson, Harcourt Asia Pvt. Ltd., 1998

11CSP0006 DATA MINING

- UNIT I :** Data warehousing: Multidimensional data model – OLAP operations-warehouse schema – data warehousing architecture – warehouse server- meta data- OLAP engine – data warehouse Backend process.
Data mining: Introduction – Definition - KDD vs. data mining - DBMS vs. data mining - data mining techniques.
- UNIT II:** Association rules: Introduction - what is Association rule – methods to discover Association rules – A priori algorithm – Partition algorithm - Dynamic item set counting Algorithm – FP-tree Growth Algorithm - Incremental Algorithm - border Algorithm
- UNIT III:** Classification and Prediction: What is Classification? What is Prediction? Comparing Classification and Prediction methods – Classification by Decision Tree Induction: Decision tree induction – Attribute selection measures – Prediction: Linear Regression – Non-Linear regression.
- UNIT IV:** Cluster Analysis: What is Cluster Analysis? Types of data in Cluster analysis – Partitioning methods – Hierarchical methods: Agglomerative and Divisive Hierarchical Clustering, BIRCH, ROCK - Density based methods: DBSCAN - Grid based method: STING.
- UNIT V:** Web mining: Introduction – web mining – web content mining - web structure mining - web usage mining – text mining: text data analysis and information retrieval - text mining approaches

Text Book

1. Data Mining Techniques, Arun k. Pujari, universities press india pvt. Ltd., 2001

2. Data Mining Concepts and Techniques, Jiawei Han, Micheline Kamber, Morgan Kaufmann Publishers (Elsevier), 2/e, 2006

Chapters: 1, 2, 3, 5, 6, 7, 8, 10

Reference Books:

1. Data Mining – Techniques, Arun K Pujari, Universities Press (India) Private Limited, 2001
2. Mastering Data Mining, Michal J.A.Berry, Gordon Linoff, John Wiley & Sons Inc., 2005
3. Data Mining, Peter Adrians, Addison Wesley Publications, 1999.

11CSP0011 DISTRIBUTED DATABASE SYSTEMS

UNIT I : The pressure to distribute data - Heterogeneity and data distribution - Integrating other kinds of information system. Overview of Databases and computer networks - Data base Technology - Computer networks - Distributed databases.

UNIT II: The state of the art - Distributed database products, prototypes and proposals - two products - two multidata base systems - Two research systems. Data Handling - Distribution and Transformation - The Data placement and allocation problem - some examples of data placement and allocation - A semantic approach to the problem.

UNIT III : A practical combinatorial optimization approach to file allocation problem - Integration of heterogeneous database systems - The global data model - Getting relational schema equivalent to network schema - processing relational queries against the network database. Distributed query optimization - Importance of query optimization - Equivalence transforms - selecting access plans in centralized systems - methods of performing JOINS.

UNIT IV : Concurrency control - Transactions - Interference between concurrent transactions - Schedules and serializations - concurrency control techniques - concurrency in replicated databases - concurrency control in multi databases.

UNIT V : Integrity and security - Integrity in centralized databases - Integrity issues in Distributed databases - security in centralized DBMS - Security issues in Distributed databases. Future developments in Distributed databases - Integrating artificial intelligence and databases - Distributed expert systems - Object oriented databases - Extended relational systems - Multimedia databases.

Text Book:

Distributed Database Systems by David Bell and Jane Grimson,
Addison Wesley Publications, 1992.
Chapters : 1 , 2 , 3 , 4 , 5 , 6 , 8 & 11.

Reference Book:

Distributed Databases: Principles and Systems, Ceri, McGraw-Hill
International Editions, 1994.

11CSP00013 HUMAN RESOURCE MANAGEMENT

- UNIT I:** Human Resource Management: Significance- meaning, nature and scope, functions and role of HR Manager – objectives and policies – system approaches to HRM, organizing the HRM Dept. – Human Resource Planning: concept and techniques
- UNIT II:** Recruitment and development functions: Job analysis, job description and specification – process of recruitment, selection, placements and induction – training and development, job changes, career planning, promotion, demotion, transfer, separations
- UNIT III:** Compensation Function: Job evaluation – primary compensation – individual pay determination – incentive compensation: types, advantages, requisites – Wage system in India – wages and incentives, profit sharing, regulation of payment of wages- collective bargaining.
- UNIT IV:** Maintenance and Integration Functions: Administration of welfare, amenities and fringe benefits, reward system, safety and accident prevention, quality circle, employee grievances and their redressal , job satisfaction, quality of work life, knowledge creation and management, industrial relations, role of trade unions, suggestion schemes, administration of discipline
- UNIT V:** Audit and Control Function: Performance appraisal – objectives, methods, performance appraisal of managers – Control process, types of control devices, personnel records, personnel audit, human resource accounting, controlling manpower costs- MBO, ratio analysis, cost benefit analysis, cost of recruitment, replacement,

turnover, retention, absenteeism – training – personnel productivity, personnel research, human resource information systems.

Reference Books:

1. Edwin B. Filppo, personnel Management, McGraw Hill Book Company, New Delhi, 1984.
2. Akuja K.K., Personnel Management, Kalyani publishers, New Delhi, 1992.
3. Arun Monappa & Mirza S.Saiyadain, Personnel Management, Tata McGraw Hill Publishing Company, New Delhi, 1979.
4. ICA, Readings in Cooperative management, New Delhi, 1977.
5. Miekovich & Boudreau, Personel: Human Resource Management, All India Traveller Bookseller, Delhi, 1990.
6. Pattanayak, Biswajeet, Human Resource Management, Prentice Hall of India, New Delhi, 2001.
7. Sivaprakasam. P., Personnel Management in Central Cooperative Banks in India, Kanishka Publishers, New Delhi.
8. Sivaprakasam. P, Women Employees status and Satisfaction, Kanishka Publications, New Delhi.5

11CSP00014 IMAGE PROCESSING

UNIT I: INTRODUCTION AND DIGITAL IMAGE FUNDAMENTALS:

Introduction - What is Image Processing- examples of fields that uses DIP-Fundamentals step in DIP. Digital image fundamentals – image sensing and acquisition, Image sampling and quantization – Basic relationship between pixels.

UNIT II: IMAGE ENHANCEMENT TECHNIQUES: Some basic intensity transformation functions – Histogram processing- Fundamental steps of spatial filtering – smoothing spatial filters.

UNIT III: IMAGE RESTORATION: Model of Image Degradation/restoration process – noise models – restoration in the presence of Noise only Spatial filtering.

UNIT IV: IMAGE COMPRESSION: Fundamentals – Coding redundancy – Spatial and temporal redundancy – Irrelevant information. Some basic compression methods: Huffman coding – arithmetic coding – LZW coding – Run Length coding – Bit-plane coding.

UNIT V: IMAGE SEGMENTATION AND REPRESENTATION: Morphological image processing: preliminaries – Erosion and Dilation.

Fundamentals – point , line, and Edge detection: Line Detection – Basic edge detection – More advanced techniques for Edge detection – Edge linking and boundary detection - Thresholding

Text Book:

Digital Image Processing, Second Edition, Rafael C.Gonzalez and Richard E.Woods, Pearson Education, 2008.

Chapters:1.1,1.3,1.4,2.3,2.4,2.5,3.2-3.5,5.1-5.3,8.1.1,8.1.2,8.2.3-8.2.5, 8.2.7,9.1,9.2,10.1,10.2.3,10.2.5-10.2.7,10.3

Reference Books:

1. Fundamentals of Digital Image Processing, Anil K. Jain, Prentice Hall of India, 1989.
2. Digital Image Processing and Analysis, B. Chandra and D. Dutta Majumder, PHI, New Delhi, 2006.

11CSP00017 MANAGEMENT INFORMATION SYSTEMS

UNIT I : Definition of Management Information System - MIS as an evolving concept - MIS and other academic disciplines - Subsystems of MIS.

Structure of MIS - Operating elements of an information system - MIS support for decision making - MIS structure based on Management activity - MIS structure based on organizational function - Synthesis of MIS structure - Formal versus Informal Information structure - Extent of Integration - Extent of User - Machine interaction.

UNIT II : Decision making process - Phases in the Decision making process - Intelligence and Design phases - Concepts of decision making - Behavioral model of decision maker - Behavioral model of organizational decision making - Decision making under psychological stress - Methods for deciding among alternatives - Documenting and communication decision rules - Relevance of decision making concepts for information system design.

Concepts of Information - Definition of information - Information in mathematical theory of communication - Information presentation Quality of information - Value of information in decision making - Value of information other than a decision.

UNIT III : Humans as information processors - The Newell - Simon Model - Tentative limits on Human information processing - Concepts of Human cognition and Learning - Characteristics of Human information processing performance - Managers as information processors -systems - Subsystems - System stress and system change - System concepts and organizations - System concepts applied to MIS.

UNIT IV : Concepts of organizational planning - The planning process - Computational support for planning - Characteristics of control processes The nature of control in organizations.

Organizational structure and management concepts - The basic model of organizational structure - Modifications of basic organizational structure - Information processing model of organization structure - Organizational culture and power - Organizational Change - Management theories - Organizations as socio technical systems - Implications of organizational structure and management theory for MIS.

UNIT V : Decision support systems - Expert systems - Support for decision making process - Approaches to development of decision support systems - Summary of a planning support system - Summary of a control support systems. Planning for Information systems - Content of Information system master plan - The Nolan stage model - The three stage model of the planning process - Strategic planning stage - Analysis of organizational information requirements - resource allocation.

Text Book:

Management Information Systems-Conceptual Foundations, Structure and Development, 2/e, Gordon B. Davis Margrethe H. Olson, McGraw-Hill International Editions, Singapore 1984.
Chapters: 1, 2, 6, 7, 8, 9, 10, 11, 12 & 14.

Reference Books:

1. Information Systems for Modern Management, 3/e, Robert Murdick, Joel E. Ross, Prentice Hall of India, New Delhi, 1988.
2. Management Information Systems - A study of Computerised Information Systems, Mcleod, 6/e, Prentice Hall, 1995.

11CSP00018 MULTIMEDIA

UNIT I : Introduction: Definition of Multimedia, uses of multimedia - Multimedia hardware - Macintosh versus PC, The Macintosh Platform, Multimedia PC platform - Connections, memory and storage devices, input devices, output hardware, communication devices.

UNIT II : Media software: Basic tools - making instant multi media - Multimedia authoring tools.

UNIT III : Multimedia building blocks: Text - sound.

UNIT IV : Images - animation - video.

UNIT V : Multimedia and Internet: How the internet works - tools for the World Wide Web - designing for the WWW

Text Book:

Multimedia Making it Work, T. Vaughan, 5/e, TMH Publishing Company Limited, New Delhi, 1997.

Reference Book:

Authoring Interactive Multimedia, A.C. Luther, A.P. Professional, 1994.

11CSP00020 PARALLEL PROCESSING

UNIT I : Generations of computer systems, trends towards parallel processing - basic uniprocessor architecture, parallel processing mechanisms, balancing of subsystem bandwidth, multiprogramming and time sharing - pipeline computers, array computers, multiprocessor systems, performance of parallel computers, data flow and new concepts - classification schemes - Flynn's classification, Feng's scheme and Handlers classification - serial versus parallel processing, parallelism versus pipelining - parallel processing applications.

Principles of linear pipelining, classification of pipeline processors, general pipeline and reservation table, interleaved memory organization.

UNIT II : Design of pipelined instruction units, arithmetic pipelines design examples - instruction prefetch and branch handling, data buffering and busing structure, internal forwarding and register tagging, hazard detection and resolution, job sequencing and collision prevention, characteristics of vector processing

UNIT III : Vector Super computers, scientific attached processor, - architecture of STAR - 100 and TI-ASC, the architecture of CRAY-1, pipeline chaining and vector loops.

SIMD computer organization, masking and data routing mechanisms, inter-PE communication - SIMD interconnection Networks - static versus dynamic networks, mesh - connected Iliac network.

UNIT IV : Multiprocessor Architecture - Functional structures - loosely coupled and tightly coupled multiprocessors, processor characteristics for multiprocessing - Interconnection networks - time shared or common bus, crossbar switch and multiport memories, multistage networks for multiprocessors.

UNIT V : The Space of multiprocessor system - exploratory systems, commercial multiprocessors, C.mmp system architecture, Cray X-MP system architecture, multitasking on Cray X-MP.

Data driven computing - control flow versus data flow - data flow computer architecture - static data flow computers, dynamic data flow computers

Text Book:

Computer Architecture and Parallel Processing, K. Hwang and F.A. Briggs, McGraw Hill International Edition, Singapore, 1985.

Chapters: 1.1 to 1.5
 3.1, 3.2, 3.3.1 to 3.3.5
 4.1, 4.2.1, 4.4.1, 4.4.2
 5.1, 5.2.1, 5.2.2
 7.1, 7.2.1, 7.2.2, 7.2.3
 9.1, 9.2.1, 9.6.1, 9.6.2
 10.1.1, 10.2.1, 10.2.2

Reference Books:

1. Parallel Processing, A. Carling, Galgotia Publications.
2. Multiprocessor Computer Architecture, T.J. Fountain and M.J. Shate, North Holland Publishing.
3. Parallel Computing, M.R. Bhujade, New Age International Publishers, New Delhi, 1995.

11CSP00022 PRINCIPLES OF COMPILER DESIGN

UNIT I : Structure of a compiler - lexical analysis - syntax analysis - intermediate code generation - optimization - code generation - bookkeeping - error handling - compiler-writing tools Role of lexical analyzer - a simple approach to the design of lexical analyzer - regular expressions - finite automata - from regular expressions to finite automata - minimizing the number of states of a DFA - language to specify lexical analyzer - Implementation of a lexical analyzers.

UNIT II : Context-free grammars - derivations and parse trees- capabilities of context-free grammars Parser - shift-reduce parsing - operator-precedence parsing - top-down parsing - predictive parsers.

UNIT III : LR parsers - canonical collection of LR(0) items - constructing SLR parsing tables, canonical LR parsing table, LALR parsing tables.

Syntax-directed translation schemes - implementation of syntax-directed translators - intermediate code - postfix notation - parse trees and syntax trees - three-address code quadruple and triples - translation of assignment statements - boolean expressions

UNIT IV : Contents of symbol table - data structures for symbol tables.

Errors - lexical-phase errors - syntactic-phase errors - semantic errors.

UNIT V : Object programs - problems in code generation - a machine model - a simple code generator - register allocation and assignment - code generation from DAG's - peephole optimization.

Text Book:

Principles of Compiler Design, Alfred V. Aho & Jeffrey D. Ullman, Narosa Publishing House, 1985.

Chapters: 1, 3, 4, 5, 6, 7, 9, 11 & 15.

Reference Books:

1. Compiler Construction Principles and Practice - D.M.Dhamadhare, McMillan India Ltd., Madras, 1983.
2. Compiler Design Theory, Lewis.P.M., Rosenkrantz D.J., Stearn R.E., Addison-Wesley, 1976.

11CSP00024 SOFTWARE QUALITY AND MANAGEMENT

- UNIT I** : Introduction to quality: What is quality? - Software quality - Views of quality - Hierarchical models of quality - What is a hierarchical model? - The hierarchical models of Boehm and McCall - How the quality criteria interrelate - An overall measure of quality.
- UNIT II** : Measuring software quality: Measuring quality - Software metrics - Metrics cited in the literature - The problem with metrics - Further reading - Developments in measuring quality: The work of Gilb - The COQUAMO project - The Japanese perspective - Recent work on metrics.
- UNIT III** : Locally defined quality modelling: LOQUM: Another quality model? - LOQUM Procedures: LOCRI, LOCRI and LOCRI - Some results using LOQUM - A consensus model of quality - The CASE for tools and methodologies: The growth of software engineering methodologies - CASE tools - Evolutionary development: an alternative to CASE?
- UNIT IV**: Quality management systems: A historical perspective - The key to quality management: a human quality culture - Quality in software: the current situation - The problem of user requirements - A QMS for software.
- UNIT V**: Quality standards: The purpose of standards - The ISO 9000 series: A generic quality management standard - Recent developments - Other software standards - Case Studies: from kitchens to software - Total quality in the kitchen - A software house: Sherwood Computer Services - Trends in quality: three critical areas - Three key issues in quality - Are CASE tools addressing the right issues? - Is TQM appropriate for software development? - What is the likely impact of standards?

Text book:

Software Quality: Theory and Management, A.C. Gillies, Chapman and Hall, Computing, London, 1993.

11CSP00026 COMPONENT TECHNOLOGY

- Unit I:** introduction to CORBA- object model – open Distributed Computing Environment(DCE) – components integration and reuse- CORBA: IDL – ORB- core – architecture-stubs and skeleton-clients and implementation-interface and implementation repositories-language mapping – portability-interoperability and OLE integration.
- UNITII:** CORBA services: overview-information management-task management-system management – infrastructure: CORBA facilities: horizontal and vertical facilities.
- UNIT III:** CORBA selection and application- CORBA migration process – CORBA and software architecture.
- UNIT IV:** Component Object Model (COM): overview – interfaces- IUnknown-virtual tables – classes-class factory-creation of components – registry – repository – design of multi tiered component architecture- persistent storage-monikers-connectable objects – COM threading – COM optimization, inheritance and aggregation.
- UNIT V:** Distributed components with DCOM: using DCOM with NT services- marshalling – security – configuration and error handling: Comparison of distributed architectures: CORBA – DCOM.

TEXT BOOKS:

1. Inside CORBA, Thomas J.mowbray, William A.Rug, Pearson Education Ltd, 2007.
Distributed object stands and application, Addison Wesley.
2. COM/DCOM Unleashed, Randy Abernethy, Randy Morin, Jesys Chahin, Techmedia 1999.

Unit I: Textbook 1: Chapters 1,2
Unit II: Textbook 1: Chapters 4,5
Unit III: 6.7,7,8
Unit IV: Textbook 2: Chapter 8
Unit I: Textbook 2: Chapter 9,10,11,12

REFERENCE BOOK:

1. The essential Distributed objects survival guide, Robert Ofali, Dan Harvey, Jeri Edwaras, John Wiley & Sons, Inc 1999.

11CSP00030 Advanced programming in JAVA

- UNIT I :** Swing and GUI components: The origin of swing – Creating windows in Swing – JButton – JLabel – JToggleButton – Jcheckbox – Jradiobutton – Jlist – Jscrollpane – Jscrollbar – Jtextfield – Jpasswordfield
- UNIT II:** JTextarea – Jcombobox – JmenuItem – Jmenu and Jmenubar – Jdialog – Joptionpane – Jfilechooser – Jprogressbar – Layout managers
- UNIT III:** JDBC: JDBC and ODBC – Using a JDBC – Driver manager – connection interface – statement interface – prepared statement interface – callable statement interface – result set interface
- UNIT IV:** Servlets: Servlets – The HTML – Interface servlet – HTTP servlet class – servlet programs – servlet with I/O file – servlet with JDBC – Session handling
- UNIT V:** Java server pages(JSP): JSP syntax and semantics – directives – comments – expressions – scriptlets – declaratives – standard actions

Text Books:

1. Advanced Programming in JAVA2, K. Somasundaram , Jaico Publishing House, Mumbai, 2008.
2. JSP 2.0, Phil Hanna, TMH, New Delhi, 2003, Chapter-5.

Reference books:

1. Java 2: The Complete Reference – Fifth Edition, Herbert Schildt, TMH publishing Company, New Delhi, 2007.
2. Java 2 Programming, Black Book, Steven Holzener et al, Paraglyph Press/Dream Tech Press, New Delhi, 2005.
3. Teach Yourself J2EE in 21 days , Martin Board et al., Pearson Education, Second Edition , New Delhi, 2005

The syllabus for the following elective papers is under preparation

11CSP0002 Bioinformatics
11CSP0005 Cryptography and Network Security
11CSP0007 Data Warehousing
11CSP0009 E-Commerce
11CSP00010 Embedded System
11CSP00011 Fault Tolerant Computing
11CSP00012 Fourth Generation Languages
11CSP00015 Information Security
11CSP00016 Knowledge Based Systems
11CSP00019 Neural Networks
11CSP00021 Pattern Recognition
11CSP00023 Simulation and Modeling
11CSP00025 UML
