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# ACADEMIC REGULATIONS
# COURSE STRUCTURE
## AND
## SYLLABI (I, II ,III , IV , V SEMESTERS)
## FOR
# MASTER OF COMPUTER APPLICATIONS
**EFFECTIVE FROM THE ACADEMIC YEAR 2010-11.**



## GAYATRI VIDYA PARISHAD
## COLLEGE OF ENGINEERING
**(AUTONOMOUS)**
ACCREDITED BY **NAAC** WITH **A** GRADE WITH A **CGPA** OF **3.47/4.00**
**AFFILIATED TO JNTU KAKINADA**
MADHURAWADA, VISAKHAPATNAM 530048
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Vision

To evolve into and sustain as a Centre of Excellence in Technological Education and Research with a holistic approach.

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Mission

To produce high quality engineering graduates with the requisite theoretical and practical knowledge and social awareness to be able to contribute effectively to the progress of the society through their chosen field of endeavor.

To undertake Research & Development, and extension activities in the fields of Science and Engineering in areas of relevance for immediate application as well as for strengthening or establishing fundamental knowledge.

F O R EW O R D

The G.V.P. College of Engineering has started its new life as an autonomous College with great responsibility and confidence one year ago. It has become now a torch bearer for other sister institutions because of its success story in running an autonomous system for the last one year. People are inquisitive to know what has happened and how it has happened.

The functional mechanism has been explained to the faculty and students before the start. A mid-term review and an end-term review are conducted with students as well as faculty for their feed-back and corrective measures in both the semesters of first year. This helped us in eliminating some of the hitches and improving the rate of progression.

The course structure and syllabi for 1 st and 2 nd semesters have been Reviewed for fine tuning in the second BOS meeting along with the syllabi and regulation with a view to elevate the standards and quality of post- graduate education. The College expresses its thanks to all the members for their cooperation.

It must be said that the success is because of the acceptance of the main stakeholders, viz.,the students. The involvement of the faculty in heading towards the goals cannot be understressed. Various learned academicians from outside, as paper setters and valuers have extended timely support through their positive response to become a part of the mechanism in the conduct of exams and bringing out the results quickly at the end of each semester. The college acknowledges their association and wishes to share its happiness with them.

Principal

ACADEMIC REGULATIONS

ACADEMIC REGULATIONS

(Effective for the students admitted into first year from the academic year 2010-2011 onwards)

The MCA Degree of the Jawaharlal Nehru Technological University, Kakinada shall be Recommended to be conferred on students who are admitted to the program and fulfill all the requirements for the award of the Degree.

1.0 ELIGIBILITY FOR ADMISSIONS :

Admission to the above program shall be made subject to the eligibility, qualifications and specialization prescribed by the AICTE from time to time. Admissions shall be made on the basis of merit rank obtained by the qualifying candidate at ICET examination or an Entrance Test conducted by the University subject to reservations prescribed by the university from time to time.

2.0 AWARD OF M.C.A. DEGREE:

2.1 A student shall be declared eligible for the award of the MCA degree, if he Pursues a course of study and completes it successfully for not less than three academic years and not more then six academic years.

2.2 A student, who fails to fulfill all the academic requirements for the award of the degree within six academic years from the year of his admission, shall forfeit his seat.

2.3 The minimum instruction for each semester shall be 20 weeks with 5days a week. A working day shall have 7 periods each of 50 minutes.

CREDIT STRUCTURE:

Course work (I-V semesters):	(5T+2P)/sem.	
	20+4 =	24 credits/sem
Seminar(VIsemester)		2 credits.
Projectwork(VIsemes		28 credits.
Total		150 credits.

3.0 ATTENDANCE:

3.1 The attendance shall be considered subject wise.

3.2 A candidate shall be deemed to have eligibility to write end semester examinations in a subject if he has put in at least 75% of attendance in that subject.

3.3 Shortage of attendance up to 10% in any subject (i.e. 65% and above and below 75%) may be condoned by a Committee on genuine and valid reasons on representation by the candidate with supporting evidence.

3.4 A student who gets less than 65% attendance in a maximum of two courses in any semester shall not be permitted to take the end- semester examination in which he/she falls short. His/her registration for those courses will be treated as cancelled. The student should re-register and repeat those courses as and when offered next.

3.5 If a student gets less than 65% attendance in more than two courses in any semester he/she shall be detained and has to repeat the entire semester.

3.6 Shortage of attendance below 65% shall in no case be condoned.

3.7 A stipulated fee shall be payable towards condonation of shortage of attendance.

3.8 Attendance will be indicated in the marks memo by a letter code as follows:

Grading of Attendance:

90% and above	A (Very Good)
75% to 89%	B (Good)
65% to 74%	C (Condoned)
Below 65%	D (Detained)

4.0 EVALUATION AND ACADEMIC REQUIREMENTS:

The performance of the student in each semester shall be evaluated subject-wise, with a maximum of 100 marks for each theory and100 marks for each practical, on the basis of Internal Evaluation and End Semester Examination.

4.1 For the theory subjects 60 marks shall be awarded based on the performance in the External Examination, 40 marks shall be awarded based on the Internal Evaluation.

4.2 One part of the internal evaluation shall be made based on the average of the marks secured in the two Mid Term-Examinations of 30 each conducted one in the middle of the Semester and the other immediately after the completion of instruction. Each mid term examination shall be conducted for duration of 90 minutes with 3 questions to be answered out of 5 questions.

The remaining 10 marks are awarded through an average of continuous evaluation of assignments/seminars/any other

method, as notified by the teacher at the beginning of the semester.

4.3 A student shall be deemed to have satisfied the minimum academic requirements in a subject if he secures minimum of 40% of marks in the End Examination and a minimum of 50% on aggregate of the total marks in the End Semester Examination and Internal Evaluation taken together.

4.4 Laboratory examination for MCA course must be conducted with two Examiners, one of them being Laboratory Class Teacher and second examiner shall be other than Class Teacher.

4.5 For Practical subjects, 50 marks shall be awarded based on the performance in the End Semester Examinations, 50 marks shall be awarded based on the day-to-day performance as Internal marks**.** A candidate has to secure a minimum of 50% in the external examination and has to secure a minimum of 50% on the aggregate to be declared successful.

4.6 A student shall be promoted from II to III year only if he fulfils the academic requirement of all the subjects (including theory and practical) of I year.

4.7 There shall be a seminar presentation in VI Semester. For Seminar there will be only internal evaluation of 50 marks. A student has to secure a minimum of 50% to be declared successful. The assessment will be made by a Board consisting of Head of the Department and two other internal staff members of the department

4.8 A student shall be allowed to submit the project report only after fulfilling the attendance requirements of all the semesters. The viva-voce examination shall be conducted at the end of

the course work and after the completion of the End Semester examination of the final semester.

4.9 A candidate shall be given one chance to re-register for each subject provided the internal marks secured by a candidate are less than 50%and he has failed in the end examination.

The re-registration is permitted only after completion of his regular course and before submitting his final project report and as and when the subjects (or any other equivalent subjects as decided by the College) are offered. In the event of re-registering, the internal marks and end examination marks obtained in the previous attempt are nullified. At a given time a candidate is permitted to re-register for a maximum of three subjects.

5.0 EVALUATION OF PROJECT WORK:

5.1 A Departmental Project Review Committee (DPRC) shall be constituted with the Head of the Department as the chairman and two senior faculty as members to oversee the proceedings of the project work from allotment to submission.

5.2 A Project Review Committee (PRC) of the college is to be constituted with a Senior Professor not below the rank of a HOD as chairperson, Heads of the Departments, which are offering PG courses and two other senior faculty members of the department offering MCA.

6.3 Registration of Project work: A student is permitted to register for the project work after satisfying the attendance requirement of all the courses (theory and practical courses) up to V Semester. A candidate has to submit, in consultation with his project supervisor, the title, objective and plan of action of his project work to the DPRC for its approval. Only after obtaining the approval of DPRC the student can initiate the Project work

6.4 Duration of the project is for one semester.

6.5 If a candidate wishes to change mid course his supervisor or topic of the project he can do so with approval of the Departmental Project Review Committee (DPRC). However the departmental review committee shall examine whether the change of topic/supervisor leads to a major change of his initial plans of the project proposal. If so, his date of registration for the project work shall start from the date of change of supervisor or topic as the case may be or whichever is earlier.

6.6 Three copies of the project report, certified by the supervisor shall be submitted to the College.

6.7 The Project report shall be adjudicated by one external examiner selected by the Principal, out of 5-member panel submitted by the HOD who are eminent in that field of study.

6.8 The viva-voce examination of the project shall be conducted by a board consisting of the External examiner, The Head of the Department and Supervisor. The Board shall jointly report students work as:

A Excellent

B Good

C Satisfactory

Head of the Department shall coordinate and make arrangements for the conduct of viva-voce examination.

6.9 If the work is not satisfactory, the student will revise and resubmit the Project report after three months. If he fails to get a satisfactory report again, the project shall be summarily rejected.

7.0 REMEDIAL PROGRAM FOR DEFAULTERS:

A Remedial programme during 8.40 - 10.20 a.m. / 3.20 - 5.00 p.m. in subsequent semesters is offered for those students who had taken the course earlier but failed to fulfill the attendance

requirements and detained due to shortage of attendance in not more than two subjects. However, this facility shall not be extended to those candidates who are detained for want of attendance as per regulations 4.5.

7.1 Remedial programme shall be announced at the beginning of every semester. The announcement of subjects offered for the summer programme is at the discretion of the Principal. A student shall have to register within the time stipulated in the announcement by paying the prescribed fee.

7.2 The number of total contact hours and method of evaluation for any remedial program shall be the same as those for a regular semester.

7.3 It is desirable for a candidate to put up 100% attendance in all the subjects registered for the remedial programme. However 25% concession in attendance may be permitted at the discretion of the principal based on the merits of the individual case under extraneous conditions with proper evidence. No further condonation of attendance on par with the regular semester shall be permitted.

7.4 If a candidate is failed to satisfy the attendance requirement in a course registered during remedial programme, then he has to repeat the course in the subsequent remedial programme when offered next.

7.5 The method of internal evaluation is same as for the regular M.C.A programme. mid examination shall be completed by the end of IV weeks and II mid to be completed by the end of VIII weeks of the programme.

7.6 The earlier internal marks secured in the regular semester for the subjects registered in the remedial programme are nullified and internal marks from the latest remedial programme shall be final.

7.7 The credits for the courses registered during the remedial programme can be earned from the end semester examinations following the corresponding regular semester.

7.8 Attendance and completion of subjects during the remedial programme shall be suitably reflected in the consolidated marks memo.

7.9 *No student can register for more than two courses during a remedial programme.*

7.10 Withdrawal from a summer program after registration will not entitle for any refund of fees.

8.0 AWARD OF DEGREE AND CLASS:

After a student has satisfied the requirements prescribed for the completion of the program and is eligible for the award of MCA Degree he shall be placed in one of the following three classes:

% of marks to be secured	Class Awarded
70% and above	First Class with Distinction
60% and above but less than 70%	First Class
50% and above but less than 60%	Second Class

The marks in internal evaluation and end examination shall be shown separately in the marks memorandum.

The grade of the dissertation shall also be mentioned in the marks memorandum.

9.0 WITHHOLDING OF RESULTS:

If the student has not paid any dues to the college or if any case of indiscipline is pending against him, the result of the student will be withheld and he will not be allowed into the next semester. The recommendation to the issue of degree is liable to be withheld in such cases.

10.0 TRANSITORY REGULATIONS:

Students who have discontinued or have been detained for want of attendance or who have failed after having undergone the course are eligible for admission to the same or equivalent subjects as and when the subjects are offered, subject to **5.6** and **2.0**.

11.0 GENERAL:

11.1 The academic regulations should be read as a whole for purpose of any interpretation.

11.2 In case of any doubt or ambiguity in the interpretation of the above rules, the decision of the Chairman Academic Council is final.

11.3 The College may change or amend the academic regulations and syllabus at any time and the changes and amendments made shall be applicable to all the students with effect from the date notified by the College.

11.4 Wherever the word he, him or his occurs, it will also include she, her and her's.

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COURSE STRUCTURE

I SEMESTER

COURSE CODE	THEROY/ LAB	L	P	T	C
10CA3101	Computer programming through C	4	-	1	4
10CA3102	Computer Organization	4	-	1	4
10CA3103	Numerical Methods, Probability & statistics	4	-	2	4
10CA3104	Mathematical Foundations of Computer Applications	4	-	-	4
10CA3105	Accountancy and Financial Management	4	-	-	4
10CA3106	*Computer Organization Lab*	-	4	-	2
10CA3107	*Computer programming through C Lab*	-	4	-	2
	Total	**20**	**8**	**4**	**24**

II SEMESTER

COURSE CODE	THEROY/ LAB	L	P	T	C
10CA3108	Operating Systems	4	-	1	4
10CA3109	Operations Research	4	-	2	4
10CA3110	English Language Communication Skills	4	-	-	4
10CA3111	Oops through java	4	-	1	4
10CA3112	Data Structures Using C++	4	-	-	4
10CA3113	*Oops through java Lab*	-	4	-	2
10CA3114	*Data Structures Lab*	-	4	-	2
	Total	**20**	**8**	**4**	**24**

III SEMESTER

COURSE CODE	THEROY/ LAB	L	P	T	C
10CA3115	UNIX Programming	4	-	1	4
10CA3116	Design and Analysis of Algorithms	4	-	-	4
10CA3117	Database Management Systems	4	-	1	4
10CA3118	Management Information Systems	4	-	-	4
10CA3119	Computer Networks	4	-	2	4
10CA3120	*UNIX & OS Lab*	-	4	-	2
10CA3121	*DBMS Lab*	-	4	-	2
	Total	**20**	**8**	**4**	**24**

IV SEMESTER

COURSE CODE	THEROY/ LAB	L	P	T	C
10CA3122	Software Engineering	4	-	2	4
10CA3123	Object Oriented Analysis and Design (using UML)	4	-	1	4
10CA3124	Data Warehousing and Mining	4	-	1	4
	Elective – I	4	-	-	4
10CA3125	Embedded Systems				
10CA3126	Distributed Operating Systems				
10CA3127	Perl Programming				
	Elective – II	4	-	-	4
10CA3128	Network Protocols				
10CA3129	Mobile Computing				
10CA3130	Introduction to Multi-Core Programming – Threading on Multi-Core Processors				
10CA3131	*UML Lab*	-	4	-	2
10CA3132	*English Language Communication Skills and Technical Document, Report writing Lab*	-	4	-	2
	Total	**20**	**8**	**4**	**24**

V SEMESTER

COURSE CODE	THEROY/ LAB	L	P	T	C
10CA3133	Multimedia Application Development	4	-	1	4
10CA3134	Web Technologies & Services	4	-	1	4
10CA3135	Information Security	4	-	2	4
	Elective – III	4	-	-	4
10CA3136	Software Project Management				
10CA3137	Middle Ware Technologies				
10CA3138	E-Commerce				
	Elective – IV	4	-	-	4
10CA3139	Software Testing Methodologies				
10CA3140	Storage Area Networks and Management				
10CA3141	Information Retrieval Systems				
10CA3142	*Web Technologies & Services Lab*	-	4	-	2
10CA3143	*Multimedia Application Development Lab*	-	4	-	2
	Total	**20**	**8**	**4**	**24**

VI SEMESTER

COURSE CODE	THEROY/ LAB	C
10CA3144	General Seminar	2
10CA3145	Dissertation/Thesis Excellent/Good/Satisfactory/Not Satisfactory	28

SYLLABI FOR I SEMESTER

COMPUTER PROGRAMMING THROUGH C

Course Code : 10CA3101

L	P	T	C
4	-	1	4

UNIT -I

Algorithm, Flow chart, Program development steps, Basic structures of C Language, C tokens, Data types and sizes, Declaration of variables, Assigning values, Arithmetic, Relational and Logical operators, Increment and decrement operators, Conditional operator, Bitwise operators, Type conversions, Expressions, evaluation, Input output statements, blocks.

UNIT-II

If and switch statements, while, do while and for statements. C programs covering all the above aspects.

UNIT -III

One dimensional and two dimensional arrays, Initialization, String variables declaration, reading, writing, basics of functions, parameter passing, String handling functions.

UNIT -IV

User defined functions, recursive functions, variables and storage classes, scope rules, block structure, header files, C preprocessor, Example C Programs.

UNIT -V

Pointers and arrays: Pointers and addresses, Pointers and arrays, Pointers and function arguments, address arithmetic, character pointers and functions

UNIT –VI

Pointers to pointers, multi-dimensional arrays, initialization of pointer arrays, command line arguments, pointers to functions, function pointers.

UNIT -VII

Structure definition, initializing, assigning values, passing of structures as arguments, arrays of structures, pointers to structures, self reference to structures, unions, type-defs, bit fields, C program examples.

UNIT -VIII

Console and file-I/O: Standard I/O, Formatted I/O, Opening and closing of files, I/O operations on files.

Text books :

1. Herbert Schild : Complete Reference Using C, 4th Edition, Tata McGraw Hill, 2009.
2. Yashawanth Kanethkar : Let us C, 9th Edition, BPB Publishers, 2009.

References :

1. B.A.Fouruzan and R.F.Gilberg : Computer Science, A structured programming approach using C, 3rd Edition, Thomson Publishers, 2008.
2. B.W.Kerninghan and Dennis M. Ritche : C Programming Language, 2nd Edition, Pearson Education, 2009.
3. Stephen G.Kochan : Programming in C – 3rd Edition, Pearson Education, 2005.
4. N. B. Venkateswarlu, E. V. Prasad : C & Data structures, 1st Edition, 2008
S. Chand publications,2002.

COMPUTER ORGANIZATION

Course Code : 10CA3102

L	P	T	C
4	-	1	4

UNIT- I

BASIC STRUCTURE OF COMPUTERS: Computer Types, Functional unit, Basic OPERATIONAL concepts, Bus structures, Software, Performance, multiprocessors and multi computers. Data Representation. Fixed Point Representation. Floating – Point Representation. Error Detection codes.

UNIT-II

BASIC CPU ORGANIZATION: Instruction formats-INTEL-8086 CPU architecture-Addressing modes - generation of physical address-code segment registers, Zero, one, two, and three address instructions.

UNIT -III

INTEL 8086 ASSEMBLY LANGUAGE INSTRUCTIONS-Data transfer instructions-input-output instructions, address transfer, Flag transfer, and arithmetic, logical, shift, and rotate instructions.

UNIT-IV

INTEL 8086 ASSEMBLY LANGUAGE INSTRUCTIONS-conditional and unconditional transfer, iteration control, interrupts and process control instructions, assembler directives. Programming with assembly language instructions.

UNIT-V

THE MEMORY SYSTEM : Basic concepts semiconductor RAM memories. Read-only memories Cache memories performance considerations, Virtual memories secondary storage.

UNIT-VI

INPUT-OUTPUT ORGANIZATION : Peripheral Devices, Input-Output Interface, Asynchronous data transfer Modes of Transfer, Priority Interrupt Direct memory Access, Input –Output Processor (IOP) Serial communication; Introduction to peripheral component, Interconnect (PCI) bus.

UNIT-VII

PIPELINE AND VECTOR PROCESSING : Parallel Processing, Pipelining, Arithmetic Pipeline, Instruction Pipeline, RISC Pipeline Vector Processing, Array Processors.

UNIT-VIII

MULTI PROCESSORS: Characteristics or Multiprocessors, Interconnection Structures, Interprocessor Arbitration. InterProcessor Communication and Synchronization Cache Coherence. Shared Memory Multiprocessors.

Text Books:

1. Carl Hamacher, Zvonks Vranesic, SafeaZaky : Computer Organization, 5th Edition, McGraw Hill, 2009.
2. M.Moris Mano : Computer Systems Architecture, 3rd Edition, Pearson Education, 2006.

References:

1. William Stallings : Computer Organization and Architecture, 6th Edition, Pearson Education 2006.
2. Andrew S. Tanenbaum : Structured Computer Organization, 5th Edition, PHI/Pearson Education, 2006.
3. Sivaraama Dandamudi : Fundamentals of Computer Organization and Design, - Springer Int. Edition, Springer, 2009.
4. John L. Hennessy and David A. Patterson : Computer Architecture a quantitative approach, 4th Edition Elsevier, 2009.
5. Joseph D. Dumas II : Computer Architecture – Fundamentals and principles of Computer Design, 1st Edition, BS Publication, 2010.
6. John P. Hayes : Computer Architecture and Organization, 3rd Edition, Tata McGraw hill, 2009.

NUMERICAL METHODS, PROBABILITY AND STATISTICS

Course Code : 10CA3103

L	P	T	C
4	-	2	4

UNIT- I

Solution of linear simultaneous equations – Gaussian Elimination, Gauss Jordan, Factorization Method, Gauss Seidel Iterative Method
(6.1,6.2, 6.3.2, 6.3.3, 6.3.6, 6.4 of [1])

UNIT-II

Solutions of algebraic and transcendental equations-Bisection method-Regula Falsi-Newton Raphson method, deductions from Newton Raphson method-finite differences-differences of polynomial-other difference operators.
(2.1, 2.2, 2.5, 3.3, 3.5of [1])

UNIT- III

Interpolation-Newton's forward interpolation- Newton's backward interpolation-interpolation with unequal intervals-Lagrange's interpolation-Newton's divided interpolation, Inverse interpolation
(3.6, 3.7.1, 3.7.2, 3.9.1, 3.10.1 3.11 of [1])

UNIT-IV Empirical Laws and Curve Fitting

Graphical Method, Laws reducible to linear law, Principle and Method of least squares, Fitting a straight line, parabola, Fitting of power curve and Fitting of exponential curve..
(4.2.1, 4.2.2 of [1])

UNIT-V (Discrete Random variables)

Random variables, mean and variance, Chebyshev's theorem, Binomial distribution, Poisson distribution
(4.1, 4.2, 4.4-4.7 of [2])

VI (Continuous Random variables)
Continuous random variable, normal distribution, normal approximation to binomial distribution, uniform distribution
(5.1-5.3, 5.5 of [2])

UNIT-VII
Sampling distribution of Means
Population and sample, sampling distribution of the mean, Point estimation, interval estimation
(6.1-6.3, 7.1, 7.2 of [2])
Inferences concerning mean
Null hypotheses and tests of hypotheses, inferences concerning one mean and two means
(7.3 - 7.5, 7.8 of [2])

UNIT-VIII (Inferences concerning Proportions)
Estimation of Proportions, Hypotheses concerning one Proportion, several Proportions.
(9.1 – 9.3 of [2])

Text Book:
[1] Introductory Methods of Numerical Analysis by S. S. Sastry, Prentice Hall India Pvt., Limited, Fourth Edition, 2005.

[2] Miller. Freund's "Probability and Statistics for Engineers", Richard A.Johnson, C.B.Gupta, Pearson education, Seventh edition 2005.

Reference Books:
1. "Elementary Numerical Analysis: An Algorithmic Approach", Samuel Daniel Conte, Carl W. De Boor 3rd edition, McGraw- Hill. 2008

2. S.C. Gupta and V.K. Kapoor "Fundamentals of Mathematical Statistics" Ninth Revised Edition, Sultan Chand & Sons Educational Publishers.2007

MATHEMATICAL FOUNDATIONS OF COMPUTER APPLICATIONS.

Course Code : 10CA3104	L	P	T	C
	4	-	-	4

UNIT- I
MATHEMATICAL LOGIC-I

Statements and notations, connectives, Well formed formulas, tautologies, equivalence of formulas, Duality law, Tautological Implications, other connectives, Normal forms, Rules of inference, consistency of premises and Indirect method of proof.
(1-1, 1-2.1 to 1-2.4, 1-2.7 to 1-2.11, 1-2.14,1-3.1 to 1-3.4, 1-4.2, 1-4.3of [1])

UNIT- II
MATHEMATICAL LOGIC-II

Predicates, the statement function, variables and quantifiers, predicate formula, free and bound variables, universe of discourse, inference theory of the predicate calculus, Automatic theorem proving.
(1-5.1 to 1-5.4, 1-6.1, 1-6.3, 1-6.4, 1-4.4 of [1])

UNIT- III
RELATIONS

Relations, properties of binary relations in a set, Relation matrix and Graph of a relation, partition and covering of a set, equivalence relations, compatibility relation, composition of binary relations, partial ordering, partially ordered set.
(2-3.1 to 2-3.9 of [1])

UNIT- IV
LATTICES AND BOOLEAN ALGEBRAS

Lattices, Definition and examples, properties of lattices, some special lattices, Boolean algebra-Definitions and Examples, Boolean forms and free

Boolean algebra, Values Boolean Expressions and Boolean functions, representation of Boolean functions.
(4-1.1, 4-1.2, 4-1.5, 4-2.1, 4-3.1,4-3.2,4-4.1 of [1])

UNIT- V
ALGEBRAIC STRUCTURES
Algebraic systems: Definition and examples, Semi groups and monoids: Definitions and examples, Homomorphism of Semi groups and Monoids, Groups: Definitions, and examples, Subgroups and Homeomorphisms,
(3-1.1, 3-2.1, 3-2.2, 3-5.1, 3-5.2 of [1])

UNIT- VI
COMBINATORICS-I
Basics of counting, Combinations and permutations, Enumeration of Combinations and permutations , Enumerating Combinations and permutations with repetitions, Enumerating permutations with constrained repetitions, binomial coefficients, The binomial and Multinomial theorems, The principle of inclusion-exclusion
(2.1-2.8 of [2])

UNIT- VII
COMBINATORICS-II
Generating Functions of sequences, Calculating coefficients of generating functions, Recurrence relations, Solving Recurrence relations by substitution and generating functions, the method of characteristic roots,
(3.1-3.5 of [2])

UNIT- VIII
GRAPH THEORY
Basic concepts, Isomorphism and Subgraphs, Trees and their properties, spanning trees.
(5.1-5.4 of [2])

Text Books:

[1] “Discrete Mathematical Structures with Applications to Computer Science”, J.P Tremblay R.Manohar, Tata McGraw-Hill Publishing Company Limited, 1997
[2] “Discrete Maths for Computer Scientists & Mathematicians”, J.L. Mott, A. Kandel, T.P. Baker, Prentice Hall of India Pvt Limited, New Delhi Second Edition.2008

References:

1. “Discrete Mathematics for Computer Science”, Kenneth Bogart, Clifford Stein, Robert L.Drysdale, Springer International Edition, 2006.

ACCOUNTANCY AND FINANCIAL MANAGEMENT

Course Code : 10CA3105	L	P	T	C
	4	-	-	4

UNIT -I

Introduction to Financial Accounting

Accounting: Principles, concepts, conventions, double entry book keeping, Journal, Ledger

Trial Balance, Trading Account, Profit and Loss Account and Balance Sheet with simple adjustments

UNIT- II

Introduction to Financial Management and Financial Statements Analysis

Introduction, nature and scope of financial management

Meaning and concept, objectives, types of financial statements: Comparative and common size statement of analysis

UNIT- III

Ratio Analysis

Introduction, Advantages and limitations of ratio analysis, Computation, Analysis and Interpretation of Liquidity ratios, Activity ratios, Solvency ratios and Profitability ratios (simple numerical problems)

UNIT- IV

Funds Flow and Cash Flow Statements

Introduction meaning and importance of funds flow and cash flow statement. Procedure for preparing funds flow and cash flow statements. Comparison between funds flow and cash flow statements (simple numerical problems)

UNIT -V

Cost Analysis and Behavior

Costing- nature, importance and basic principles. Elements of cost, Absorption costing vs. marginal costing. Financial accounting vs. cost accounting vs. management accounting.

Cost Sheet preparation (simple numerical problems)

UNIT- VI

Marginal Costing

Marginal costing and Break-even Analysis: Nature, scope and importance - practical applications of marginal costing, limitations and importance of cost - volume, profit analysis, Short run decisions (simple numerical problems)

UNIT-VII

Budgeting and Capital Budgeting

Introduction to Budgeting: Production budget, Flexible budget and Cash budget

Definition, nature and scope of capital budgeting, features of capital budgeting proposals, methods of capital budgeting: traditional and modern methods (simple numerical problems)

UNIT-VIII

Computerized accounting system

Introduction to computerized accounting system: coding logic and codes, master files, transaction files, introduction documents used for data collection, processing of different files and Outputs obtained

Reference Books

1. Accounting and Financial Management, Shashi K Gupta & R K Sharma Kalyani Publishers,2002
2. Financial Accounting, R L Gupta: Sultan Chand & Sons ,2002
3. Financial Accounting, A. Mukherjee and M. Haneef: Tata McGraw Hill ,2008
4. Cost and Management Accounting, S P Jain & K L Narang, Kalyani Publishers,2002
5. Advanced Accounts, M C Shukla, Sultan Chand & Sons ,2002
6. Financial Management, I M Pandey, Vikas Publishers,2006
7. Cost Accounting: Principles and Practice, SP Jain and KL Narang, Kalyani Publishers , 2002
8. Management Accounting, S N Maheswari & S K Maheswari Vikas Publishers,2006
9. Management Accounting, Bhattacharya, Pearson Education,2005
10. Fundamentals of Financial Management, Chandra Bose, Prentice Hall,2006

COMPUTER ORGANIZATION LAB

Course Code : 10CA3106	L	P	T	C
	-	4	-	2

Write assembly language programs for the following using MASAM

1. Arithmetic Operations on Two Numbers.
   - Addition , Subtraction, Multiplication, Division
2. Write assembly language programs to evaluate the expressions:
   i) a = b + c –d * e
   ii) z = x * y + w – v +u / k
   - Considering 8-bit, 16 bit and as b, c, d, e.

Take the input in consecutive memory locations and results also.

3 .Write an ALP of 8086 to perform Multibyte addition and Subtraction.

4. Write an ALP of 8086 to take N numbers as input. And do the following operations on them.
   - Arrange in ascending and Descending order.
   - Find max and minimum
   - Find average

   Considering 8-bit, 16 bit binary numbers.

5 .Write an ALP of 8086 to perform ASCII Arithmetic Operations.

6. Write an ALP of 8086 to perform following Logic Operations:
   - Shift & Rotate.
   - Converting Packed BCD to Un-Packed BCD and Vice-versa

7. Write an ALP of 8086 to take a string of as input and do the following Operations on it.
    - Find the length
    - Find it is Palindrome or not
    - Find whether given string substring or not.
    - Reverse a string
    - Concatenate by taking another sting
8. Write the ALP to implement the above operations as procedures and call from the main procedure.
9. Write an ALP of 8086 to find the factorial of a given number as a Procedure and call from the main program which display the result.
10. A computer employs RAM chips of 256X8 and ROM chips of 1024 X 8. The computer needs 2K bytes of RAM, 4K bytes of ROM, and four interface units, each with four registers. A memory-mapped I/O configuration is used. The two highest-order bits of the address bus are assigned 00 for RAM, 01 for ROM, 10 for interface registers.
    a. How many RAM and ROM chips are needed?
    b. Draw a memory-address map for the system.
    c. Give the address range in hexadecimal for RAM, ROM and interface.
11. Obtain the complement function for the match logic of one word in an associative memory. Draw the logic diagram for it and compare with the actual match logic diagram.

12. A two-way set associative cache memory uses blocks of four words. The cache can accommodate a total of 2048 words from main memory. The main memory size is 128K X 32.
    a. Formulate all pertinent information required to construct the cache memory.
    b. What is the size of the cache memory?

13. A digital computer has a memory unit of 64K X 16 and a cache memory of 1K words. The cache uses direct mapping with a block size of four words.

    a. How many bits are there in each word of cache, and how are they divided into functions? Include a valid bit.
    b. How many bits are there in the tag, index, block, and word fields of the address format?
    c. How many blocks can the cache accommodate?

COMPUTER PROGRAMMING THROUGH C LAB

Course Code : 10CA3107

L	P	T	C
-	4	-	2

Exercise 1.

a) Write a C program to find the sum of individual digits of a positive integer.

b) A Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence. Write a C program to generate the first n terms of the sequence.

c) Write a C program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.

d) Write a program which checks a given integer is Fibonacci number or not.

Exercise 2.

a) Write a C program to calculate the following Sum:

Sum=1-x2/2! +x4/4!-x6/6!+x8/8!-x10/10!

b) Write a C program to find the roots of a quadratic equation.

Exercise 3

a) Write C programs that use both recursive and non-recursive functions

i) To find the factorial of a given integer. ii) To find the GCD (greatest common divisor) of two given integers.

iii) To solve Towers of Hanoi problem. iv) Write program to calculate probability of head/tail by generating random numbers using random() function.

Exercise 4

a) The total distance travelled by vehicle in ‘t’ seconds is given by distance = $ut+1/2at^2$ where ‘u’ and ‘a’ are the initial velocity (m/sec.)

and acceleration (m/sec2). Write C program to find the distance travelled at regular intervals of time given the values of ‘u’ and ‘a’. The program

should provide the flexibility to the user to select his own time intervals and repeat the calculations for different values of ‘u’ and ‘a’.
b) Write a C program, which takes two integer operands and one operator form the user, performs the operation and then prints the result. (Consider the operators +,-,*, /, % and use Switch Statement)

Exercise 5
a) Write a C program to find both the larges and smallest number in a list of integers.
b) Write a C program that uses functions to perform the following:
i) Addition of Two Matrices ii) Multiplication of Two Matrices
iii) Checking symmetricity of a square matrix. iv) Calculating transpose of a matrix in-place manner.

Exercise 6
a) Write a C program that uses functions to perform the following operations:
i) To insert a sub-string in to given main string from a given position.
ii) To delete n Characters from a given position in a given string.
b) Write a C program to determine if the given string is a palindrome or not

Exercise 7
a) Write a C program that displays the position/ index in the string S where the string T begins, or –1 if S doesn’t contain T.
b) Write a C program to count the lines, words and characters in a given text.

Exercise 8
a) Write a C program to generate Pascal’s triangle.
b) Write a C program to construct a pyramid of numbers.

Exercise 9
Write a C program to read in two numbers, x and n, and then compute the sum of this geometric progression:
$1+x+x^2+x^3+\ldots\ldots\ldots\ldots+x^n$

For example: if n is 3 and x is 5, then the program computes 1+5+25+125. Print x, n, the sum
Perform error checking. For example, the formula does not make sense for negative exponents – if n is less than 0.Have your program print an error message if n<0, then go back and read in the next pair of numbers of without computing the sum. Are any values of x also illegal ? If so, test for them too.

Exercise 10

a) 2's complement of a number is obtained by scanning it from right to left and complementing all the bits after the first appearance of a 1. Thus 2's complement of 11100 is 00100. Write a C program to find the 2's complement of a binary number.
b) Write a C program to convert a Roman numeral to its decimal equivalent.

Exercise 11

Write a C program that uses functions to perform the following operations using Structure:
i) Reading a complex number ii) Writing a complex number
iii) Addition of two complex numbers iv) Multiplication of two complex numbers

Exercise 12

a) Write a C program which copies one file to another.
b) Write a C program to reverse the first n characters in a file.
(Note: The file name and n are specified on the command line.)

SYLLABI FOR II SEMESTER

OPERATING SYSTEMS

Course Code : 10CA3108	**L**	**P**	**T**	**C**
	4	**-**	**1**	**4**

UNIT-I

Operating System Introduction, Structures - Simple Batch, Multi programmed, time-shared, Personal Computer, Parallel, Distributed Systems ,Real-Time Systems , System components, Operating-System services, System Calls, Virtual Machines, System Design and Implementation.

UNIT-II

Process and CPU Scheduling - Process concepts and scheduling, Operation on processes, Cooperating Processes, Threads, and Interposes Communication Scheduling Criteria, Scheduling Algorithm, Multiple - Processor Scheduling, Real-Time Scheduling.

UNIT- III

Memory Management and Virtual Memory - Logical versus Physical Address Space, Swapping, Contiguous Allocation, Paging, Segmentation, Segmentation with Paging. Demand Paging, Performance of Demanding Paging , Page Replacement ,Page Replacement Algorithm, Allocation of Frames, Thrashing.

UNIT-IV

File System Interface and Implementation -Access methods, Directory Structure, Protection, File System Structure, Allocation methods, Free-space Management, Directory Management, Directory Implementation, Efficiency and Performance.

UNIT-V

Process Management and Synchronization - The Critical Section Problem, Synchronization Hardware, Semaphores, and Classical Problems of Synchronization, Critical Regions, Monitors.

UNIT-VI

Deadlocks - System Model, Dead locks Characterization, Methods for Handling Dead locks Deadlock Prevention, Deadlock Avoidance, Deadlock Detection, and Recovery from Deadlock.

UNIT-VII

Case Study-1- Windows XP- Design Principles, System Components, Environmental Subsystems, File System, Networking, Programmer Interface.

UNIT-VIII

Case Study-II-Linux System - Design Principles, Kernel modules, Process Management, Scheduling Memory Management, File Systems, Input and Output, Interposes Communication , Network Structure , Security .

Text Books:

1. Silberchatz, Peter B. Galvin, Greg Gagne : Operating System Concepts, 7th Edition, John Wiley & Sons, 2006.
2. D.M.Dhamdhere : Operating systems - A Concept based Approach-, 2nd Edition, TMH, 2010.

References:

1. William Stallings : Operating Systems' – Internal and Design Principles, 6th Edition, Pearson education/PHI, 2009.
2. Charles Crowley : Operating Systems - A Design Approach- 1st Edition, TMH, 2009.
3. Andrew S Tanenbaum : Modern Operating Systems, 3rd edition Pearson/PHI, 2008.

OPERATIONS RESEARCH

Course Code: 10CA3109	**L**	**P**	**T**	**C**
	4	**-**	**2**	**4**

UNIT-I (Introduction to OR and LPP)
Introduction, Origin and Development of O.R, Scientific Method in OR, Modeling in O.R Advantages and Limitations of O.R, General Solution Methods For O.R models, Methodology of OR O.R and Decision making, Applications of O.R, Linear Programming, Mathematical Formulation of the problem, Graphical Solution.
(1.1 – 1.10, 2.1 – 2.3, 3.1- 3.3)

UNIT-II (Simplex method)
General LPP, Canonical and standard form of LPP Simplex Method: Introduction, Computational Procedure, Use of artificial variables, Degeneracy in LPP.
(3.4, 3.5, 4.1, 4.3 – 4.5)

UNIT-III (Duality in LPP)
Duality in LPP: Introduction, General Primal-Dual pair, Formulating a Dual Problem, Primal-Dual pair in Matrix form, Duality and Simplex Method, Dual Simplex Method.
(5.1 – 5.4, 5.7, 5.9)

UNIT-IV (Transportation Problem)
Introduction, LP formulation of Transportation Problem, The Transportation Table, Solution of Transportation problem, Finding IBFS, Test for Optimality, Degeneracy in Transportation problem, Transportation Algorithm, Some Exceptional cases.
(10.1, 10.2, 10.5, 10.8 – 10.10, 10.12, 10.13, 10.15)

UNIT-V (Assignment Problem)
Introduction, Mathematical Formulation of the Problem, Hungarian Assignment Method, Special Cases in Assignment Problems, The Traveling Salesman Problem.
(11.1, 11.2, 11.3.4, 11.4, 11.7)

UNIT-VI (Sequencing Problem and Queuing Theory)
Sequencing Problem: Introduction, Problem of Sequencing, Processing n jobs through two machines. Processing n jobs through k- machines. Queueing Theory: Introduction, Queueing system, elements of Queueing system Operating characteristics of a Queueing system, Classification of queueing models: Model-I (M/M/1:(∞/FIFO)) ,Model-II (M/M/1:(∞/SIRO)),Model-III (M/M/1:(N/FIFO))
(12.1-12.5, 21.1-21.4, 21.7-21.9) (Proofs shall be omitted)

UNIT-VII (Inventory control)
Introduction, Types of Inventories, Costs associated with inventories, the concept of EOQ, Deterministic inventory problems with no shortages, with shortages.
(19.1-19.11) (Proofs shall be omitted).

UNIT-VIII (PERT/ CPM)
Introduction, Basic Components, Logical sequencing, Rules of Network Construction, Critical Path Analysis.
(25.1 – 25.6)

Text Books:

1." Operations Research" Kanthi Swarup, P.K.Gupta and Man Mohan, Sultan Chand & Sons New Delhi, Fourteenth Edition -2008.

Reference Books:

1."Operations Research, An Introduction" Hamdy. A. Taha, Pearson Education, Seventh Edition.

ENGLISH LANGUAGE COMMUNICATION SKILLS

Course Code: 10CA3110	**L**	**P**	**T**	**C**
	4	**-**	**-**	**4**

UNIT -I

Features of Indian English - Correction of sentences - Structures - Tenses - ambiguity - idiomatic distortions.

UNIT-II

Informal conversation Vs Formal expression Verbal and non-verbal communication, barriers to effective communication – kinesics

UNIT - III

Types of Communication - - Oral, aural, Writing and reading - Word-Power - Vocabulary- Jargon - rate of speech, pitch, tone - Clarity of voice

UNIT - IV

Technical presentations - types of presentation –video conferencing--participation in meetings - chairing sessions.

UNIT - V

Formal and informal interviews – ambiance and polemics - interviewing in different settings and for different purposes e.g., eliciting and giving information, recruiting, performance appraisal.

UNIT - VI

Written communication - differences between spoken and written communication - features of effective writing such "as clarity, brevity, appropriate tone clarity, balance etc.- GRE. TOEFL models

UNIT – VII

Letter-writing - business letters – pro forma culture - format - style – effectiveness, promptness - Analysis of sample letters collected from industry - email, fax.

UNIT – VIII

Technical Report writing - Business and Technical Reports – Types of reports - progress reports, routine reports - Annual reports - format - Analysis of sample reports from industry - Synopsis and thesis writing

REFERENCE BOOKS:

1. Essentials of Business Communication, Rajendra Pal, J S KorlahaHi Sultan Chand & Sons, New Delhi. ,2008
2. Basic Communication Skills for Technology, Andrea J. Rutherford: Pearson Education ,2008
3. Advanced Communication Skills, V. Prasad, Atma Ram Publications, 2006
4. Business Communication; Theory & Application,
5. Business Communication, RK Madhukar, Vikas Publishing House Pvt Ltd,2006
6. English. for Technical Communication, K.R. Lakshminarayana : – vols. 1 and 2, SCITECH Publications ,2008
7. Writing Remedies: Practical Exercises for Technical Writing, Edmond H Weiss: Universities Press, . ,2006
8. Cliffs Test Prep for GRE and TOEFL: Computer Based Test, IDG Books. India (P) Ltd. New Delhi-002. GRE and TOEFL; Kaplan and Baron's ,2011
9. English in Mind, Herbert Puchta and Jeff Stranks, Cambridge,2008

OBJECT ORIENTED PROGRAMMING THROUGH JAVA

Course Code: 10CA311	**L**	**P**	**T**	**C**
	4	**-**	**1**	**4**

AIM: To make the student confident in object oriented programming and also in developing network and multi threaded user interface programs.
Objective: Student will get the capability of developing applications using GUI with the help of JAVA concepts.

UNIT-I
Object oriented thinking :- Need for oop paradigm, A way of viewing world – Agents, responsibility, messages, methods, classes and instances, class hierarchies (Inheritance), method binding, overriding and exceptions, summary of oop concepts, coping with complexity, abstraction mechanisms.

UNIT-II
Java Basics History of Java, Java buzzwords, data types, variables, scope and life time of variables, arrays, operators, expressions, control statements, type conversion and costing, simple java program, classes and objects – concepts of classes, objects, constructors, methods, access control, this keyword, garbage collection, overloading methods and constructors, parameter passing, recursion, string handling.

UNIT-III
Inheritance – Hierarchical abstractions, Base class object, subclass, subtype, substitutability, forms of inheritance- specialization, specification, construction, extension, limitation, combination, benefits

of inheritance, costs of inheritance. Member access rules, super uses, using final with inheritance, polymorphism- method overriding, abstract classes.

UNIT-IV

Packages and Interfaces : Defining, Creating and Accessing a Package, Understanding CLASSPATH, importing packages, differences between classes and interfaces, defining an interface, implementing interface, applying interfaces, variables in interface and extending interfaces,Exploringpackages,java.io(Characterstreams,Bytestreams),Files, (Directories,randomaccessfiles),java.util(collections(vectors,hashmap,treemap,lists,sets,),calendar, regex(pattern matching),date, scanner)

.

UNIT-V

Exception handling and multithreading - Concepts of exception handling, benefits of exception handling, Termination or resumptive models, exception hierarchy, usage of try, catch, throw, throws and finally, built in exceptions, creating own exception sub classes. Differences between multi threading and multitasking, thread life cycle, creating threads, synchronizing threads, daemon threads, thread groups.

UNIT-VI

Event Handling: Events, Event sources, Event classes, Event Listeners, Delegation event model, handling mouse and keyboard events, Adapter classes, inner classes. The AWT class hierarchy, user interface components- labels, button, canvas, scrollbars, text components, check box, check box groups, choices, lists panels – scrollpane, dialogs, menu bar, graphics, layout manager – layout manager types – boarder, grid, flow, card and grib bag.

UNIT-VII

Applets – Concepts of Applets, differences between applets and applications, life cycle of an applet, types of applets, creating applets, passing parameters to applets.

Swing – Introduction, limitations of AWT, MVC architecture, components, containers, exploring swing- JApplet, JFrame and JComponent, Icons and Labels, text fields, buttons – The JButton class, Check boxes, Radio buttons, Combo boxes, Tabbed Panes, Scroll Panes, Trees, and Tables.

UNIT-VIII

Networking – Basics of network programming, addresses, ports, sockets, simple client server program, multiple clients, Java .net package Packages – java.util

Text Books:

1. Herbert schildt : Java the complete reference, 7th Editon, TMH,2010.
2. T. Budd : An Introduction to OOP, 3rd Edition, Pearson Education, 2009.

References:

1. J.Nino and F.A. Hosch : An Introduction to programming and OO design using Java, 1st Edition, John Wiley & Sons, 2002
2. Y. Daniel Liang : Introduction to Java programming 7th Edition, Pearson Education, 2010.
3. R.A. Johnson : An introduction to Java programming and object oriented application development, 1st Edition, Course Technology, 2009.
4. Cay.S.Horstmann and Gary Cornell : Core Java 2, Vol 1, Fundamentals, 8th Edition, Pearson Education, 2008.
5. Cay.S.Horstmann and Gary Cornell : Core Java 2, Vol 2, Fundamentals, 8th Edition, Pearson Education, 2008.
6. P. Radha Krishna : Object Oriented Programming through Java, 1st Edition, University Press, 2008.
7. Iver Horton : Beginning in Java 2 JDK 5th edition, Wrox publications, 2009.

DATA STRUCTURES USING C++

Course Code: 10CA3112	L	P	T	C
	4	-	-	4

UNIT-I

Different strategies for problem solving , need for OOP, overview of OOP principles –Encapsulation, inheritance, polymorphism .C++ Class Overview- Class Definition, Objects, Class Members, Access Control, Class Scope, Constructors and destructors, Inline functions, static class members, this pointer, friend functions, dynamic memory allocation and deallocation (new and delete).

UNIT- II

Polymorphism and inheritance :Function Overloading, Operator Overloading, Generic Programming- Function and class templates, Inheritance basics, base and derived classes, inheritance types, base class access control, virtual base class, function overriding , runtime polymorphism using virtual functions, abstract classes.

UNIT- III

Streams, libraries and error handling-stream classes hierarchy, console I/O, formatted I/O, file streams and string streams, exception handling mechanism , standard template library.

UNIT- IV

Searching and sorting- linear and binary search methods, sorting-bubble sort, selection sort, insertion sort, quick sort, merge sort.

UNIT- V

Introduction to data structures, singly linked lists, doubly linked lists, circular list, representing stacks and queues in C++ using arrays and linked lists, infix to post fix conversion, postfix expression evaluation.

UNIT-VI

Trees-binary trees, terminology, representation, insertion, deletion, searching, traversals, Binary search trees, definition, ADT, implementation, operations-searching, insertion and deletion, Balanced search trees- AVL trees, definition, height of an AVL tree, representation, operations-insertion, deletion and searching.

UNIT -VII

Priority Queues – Definition, ADT, Realizing a Priority Queue using Heaps, Definition, insertion, Deletion, Application-Heap Sort, Leftist Trees.

UNIT -VIII

Graphs- terminology, representation, traversal (BFS and DFS), minimal spanning trees, Kruskal's algorithm, prim's algorithm.

Text Books:

1. S.Sahni : Data structures , algorithms and applications in C++, 2nd edition, University Press(India) pvt ltd., 2005.
2. Langsam, M.J. Augenstein, A. M. Tanenbaum : Data structures using C and C++, 2nd edition, PHI Education, 2008.

Reference Books:

1. Mark Allen Weiss : Data structures and Algorithm analysis in C++, 2nd edition, Pearson Education, 2010.
2. Herbert Schildt : C++; The Computer Refernce, 4th Edition, Tata McGrwaw Hill, 2009.
3. Ashok N.Kamthane : Object Oriented Programming with ANSI & Turbo C++, 1st Edition, Palgrave Publisher, 2010.
4. Barkakali Nagajyoti : Object Oriented Programming using C++, 1st Edition, PHI, 2008.
5. Vijayalakshmi Pai.A.G : Data Structures and Algorithms Concepts, Techniques and applications, Tata McGraw Hill,2010.

OBJECT ORIENTED PROGRAMMING THROUGH JAVA LAB

Course Code: 10CA3113

L	P	T	C
4	-	2	

1. (Using java. math class)

a) Write a Java program that prints all real solutions to the quadratic equation $ax^2 + bx + c = 0$. Read in a, b, c and use the quadratic formula. If the discriminant b2 -4ac is negative, display a message stating that there are no real solutions.

b) The Fibonacci sequence is defined by the following rule:
The fist two values in the sequence are 1 and 1. Every subsequent value is the sum of the two values preceding it. Write a Java program that uses both recursive and non recursive functions to print the nth value in the Fibonacci sequence.

2. a) Write a Java program that prompts the user for an integer and then prints out all prime numbers up to that integer.

b) Write a Java program to multiply two given matrices.

c) Write a Java Program that reads a line of integers, and then displays each integer, and the sum of all the integers (Use StringTokenizer class of java.util)

3. (Using java.lang.FileInputStream and FileOutputStream)

a) Write a Java program that reads a file name from the user, then displays information about whether the file exists, whether the file is readable, whether the file is writable, the type of file and the length of the file in bytes.

b) Write a Java program that reads a file and displays the file on the screen, with a line number before each line.

c) Write a Java program that displays the number of characters, lines and words in a text file.

4. Write a Java program that:

a. Implements stack ADT.
b. Converts infix expression into Postfix form
c. Evaluates the postfix expression

5.(packages)
Design a package to contain the class **Student** that contains data members such as name, roll number and another package contains the interface **Sports** which contains some sports information. Import these two packages in a package called **Report** which process both Student and Sport and give the report.

6.(Exception Handling and Multithreading)
a) Write a program that reads two numbers from the user to perform integer division into Num1 and Num2 variables. The division of Num1 and Num2 is displayed if they are integers. If Num1 or Num2 were not an integer, the program would throw a NumberFormatException. If Num2 were Zero, the program would throw an ArithmeticException.
b) Create a user defined exception.
C) Write a Java program that correctly implements producer consumer problem using the concept of multithreading.

7.(Using java.awt.*)
a) Write a java program that simulates a traffic light. The program lets the user select one of three lights: red, yellow, or green. When a radio button is selected, the light is turned on, and only one light can be on at a time No light is on when the program starts.
b) Write a applet program that simulates a digital clock.

8. (Applets and Event Handling)
a) Develop an applet that displays a simple message.
b) Develop an applet that receives an integer in one text field, and computes its factorial Value and returns it in another text field, when the button named “Compute” is clicked.
c) Write a Java program that works as a simple calculator. Use a grid layout to arrange buttons for the digits and for the +, -,*, % operations. Add a text field to display the result.

9. (Swings and Event Handling)

a) Suppose that a table named Table.txt is stored in a text file. The first line in the file is the header, and the remaining lines correspond to rows in the table. The elements are separated by commas. Write a java program to display the table using Jtable component.

b) Write a Java program for handling mouse events.

10. (Socket Programming)

Write a Java program that implements a simple client/server application. The client sends data to a server. The server receives the data, uses it to produce a result, and then sends the result back to the client. The client displays the result on the console. For ex: The data sent from the client is the radius of a circle, and the result produced by the server is the area of the circle. (Use java.net)

11.a) Write a java program to create an abstract class named Shape that contains an empty method named numberOfSides ( ).Provide three classes named Trapezoid, Triangle and Hexagon such that each one of the classes extends the class Shape. Each one of the classes contains only the method numberOfSides ( ) that shows the number of sides in the given geometrical figures.

b) Write a Java program that checks whether a given string is a palindrome or not. Ex: MADAM is a palindrome.

c) Write a Java program for sorting a given list of names in ascending order.

DATA STRUCTURES LAB

Course Code : 10CA3114

L	P	T	C
4	-	2	

1. Write C++ programs that use both recursive and non recursive functions to perform the following searching operations for a Key value in a given list of integers :

   i) Linear search ii) Binary search

2. Write C++ programs that implement the following sorting methods to sort a given list of integers in ascending order:

   i) Bubble sort ii) Quick sort

3. Write C++ programs that implement the following sorting methods to sort a given list of integers in ascending order:

   i) Insertion sort ii) Merge sort

4. Write C++ programs that implement stack (its operations) using

   i) Arrays ii) singly linked list

5. Write C++ programs that implement Queue (its operations) using

   i) Arrays ii) singly linked list

6. Write a C++ program to implement Circular queue

7. Write a C++ program that uses Stack operations to perform the following:

- Converting infix expression into postfix expression
- Evaluating the postfix expression

8. Write a C++ program to perform the following operations on singly linked list to implement priority queue on student record i) Creation ii) Insertion iii) Deletion iv) Traversal v) Reversal

9. Write a C++ program to perform the following operations on circular doubly linked list.

   i) Creation ii) Insertion iii) Deletion iv) Traversal in both ways

10. Write a C++ program to implement binary trees

    i) Creating a Binary Tree of integers

    ii) Insertion, searching

    iii) Traversing the above binary tree in preorder, inorder and postorder.

11. Write a C++ program to perform the following operations:

    i) Insert an element into a binary search tree.

    ii) Delete an element from a binary search tree.

    iii) Search for a key element in a binary search tree.

12. Write C++ programs for the implementation of bfs and dfs for a given graph.

13. Write C++ programs for the implementation of Prim's algorithm for shortest paths between every pair of nodes in the graph.

14. Write a C++ program to implement Kruskal's algorithm to generate a minimum cost spanning tree.

SYLLABI FOR III SEMESTER

Course Code: 10CA3115

L	P	T	C
4	0	1	4

UNIX PROGRAMMING

UNIT-I

Unix Utilities-Introduction to Unix file system, vi editor, file handling utilities, security by file permissions, process utilities, disk utilities, networking commands, cp, mv, ln, rm, unlink, mkdir, rmdir, du, df, mount, umount, find, unmask, ulimit, ps, who, w, finger, arp, ftp, telnet, rlogin, text processing utilities and backup utilities, detailed commands to be covered are cat, tail, head, sort, nl, uniq, grep, egrep, fgrep, cut, paste, join, tee, pg, comm, cmp, diff, tr, awk, tar, cpio.

UNIT-II

Problem solving approaches in Unix: Using single commands, using compound Commands, shell scripts, C programs, building own command library of programs. **Working with the Bourne shell:** what is a shell, shell responsibilities, pipes and input Redirection, output redirection, here documents, the shell as a programming language, shell meta characters, shell variables, shell commands, the environment, control structures, shell script examples.

UNIT-III

Unix Files: Unix file structure, directories, files and devices, System calls, library functions, low level file access, usage of open, creat, read, write, close, lseek, stat, fstat, octl, umask, dup, dup2.

The standard I/O (fopen, fclose, fflush, fseek, fgetc, getc, getchar, fputc, putc, putchar, fgets, gets), formatted I/O, stream errors, streams and file descriptors, file and directory maintenance (chmod, chown, unlink, link, symlink, mkdir, rmdir, chdir, getcwd), Directory handling system calls (opendir, readdir, closedir,rewinddir, seekdir, telldir)

UNIT-IV

Unix Process and Signals: What is process, process structure, starting new process, waiting for a process, zombie process, process control, process identifiers, **system call interface for process management**-fork, vfork, exit, wait, waitpid, exec, system, **Signals-** Signal functions, unreliable signals, interrupted system calls, kill and raise functions, alarm, pause functions, abort, sleep functions.

UNIT-V

Interprocess Communication Overview: Introduction to IPC,IPC between processes on a single computer system, IPC between processes on different systems, file and record locking, other unix locking techniques, pipes, FIFOs, streams and messages, namespaces, introduction to three types of IPC(system-V)-message queues, semaphores and shared memory.

UNIT-VI

Message Queues-Unix system-V messages, unix kernel support for messages, unix APIs for messages, client/server example.

UNIT-VII

Semaphores-Unix system-V semaphores, unix kernel support for semaphores, unix APIs for semaphores, file locking with semaphores.

Shared Memory-Unix system-V shared memory, unix kernel support for shared memory, unix APIs for shared memory, semaphore and shared memory example.

UNIT-VIII

Sockets: Berkeley sockets, socket system calls for connection oriented protocol and connectionless protocol, example-client/server program.

TEXT BOOKS:

1. Unix Network Programming, W.R.Stevens Pearson/PHI.

2. Unix Concepts and Applications, 3rd Edition, Sumitabha Das, TMH.

3. Advanced Unix Programming, 2nd Edition, M.J.Rochkind, Pearson Education.

REFERENCE BOOKS:

1.Unix system programming using C++, T.Chan, PHI.

2.Unix for programmers and users, 3rd Edition, Graham Glass, King Ables, Pearson Education.

3. Unix System-V Network Programming, Stephen A.Rago, Pearson Education.

4. Unix programming environment, Kernighan and Pike, PHI. / Pearson Education

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DESIGN AND ANALYSIS OF ALGORITHMS

UNIT-I
Introduction: Algorithm,Psuedo code for expressing algorithms,Performance Analysis-Space complexity,Time complexity,Asymptotic Notation- Big oh notation,Omega notation,Theta notation and Little oh notation,Probabilistic analysis,Amortized analysis.

UNIT-II
Divide and conquer: General method, applications-Binary search,Quick sort, Merge sort, Strassen's matrix multiplication.

UNIT-III
Greedy method: General method, applications-Job sequencing with dead lines, 0/1 knapsack problem, Minimum cost spanning trees, Single source shortest path problem.

UNIT-VI
Dynamic Programming: General method, applications-Matrix chain multiplication, Optimal binary search trees,0/1 knapsack problem, All pairs shortest path problem,Traveling sales person problem, Reliability design.

UNIT-V
Searching and Traversal Techniques: Efficient non recursive binary traversal algorithms, Graph traversal- Breadth first search and Depth first search, AND/OR graphs, game tree, Bi-connected components.

UNIT-VI
Backtracking: General method, applications-n-queen problem, sum of subsets problem, graph coloring, Hamiltonian cycles.

UNIT-VII
Branch and Bound: General method, applications - Traveling sales person problem,0/1 knapsack problem-LC Branch and Bound solution, FIFO Branch and Bound solution.

UNIT-VIII
NP-Hard and NP-Complete problems: Basic concepts, non deterministic algorithms, NP - Hard and NP- Complete classes,Cook's theorem.

Text Books:

1. Fundamentals of Computer Algorithms,Ellis Horowitz,Satraj Sahni and S.Rajasekharam,Galgotia publications pvt. Ltd.

2. Introduction to Algorithms,secondedition,T.H.Cormen,C.E.Leiserson, R.L.Rivest,and C.Stein,PHI Pvt.Ltd./ Pearson Education

Reference Books:

1. Algorithm Design: Foundations,Analysis and Internet examples, M.T.Goodrich and R.Tomassia,John wiley and sons.
2. Introduction to Design and Analysis of Algorithms A strategic approach,R.C.T.Lee,S.S.Tseng,R.C.Chang and T.Tsai, Mc Graw Hill.
3. Data structures and Algorithm Analysis in C++,Allen Weiss,Second edition ,Pearson education.
4. Design and Analysis of algorithms,Aho,Ullman and Hopcroft,Pearson education.

5 Algorithms – Richard Johnson baugh and Marcus Schaefer, Pearson Educatin

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DATA BASE MANAGEMENT SYSTEMS

UNIT – I:
Data base System Applications, data base System VS file System – View of Data – Data Abstraction – Instances and Schemas – data Models – the ER Model – Relational Model – Other Models – Database Languages – DDL – DML – database Access for applications Programs – data base Users and Administrator – Transaction Management – data base System Structure – Storage Manager – the Query Processor – History of Data base Systems.Data base design and ER diagrams – Beyond ER Design Entities, Attributes and Entity sets – Relationships and Relationship sets – Additional features of ER Model – Concept Design with the ER Model – Conceptual Design for Large enterprises.

UNIT – II:
Relational Model: Introduction to the Relational Model – Integrity Constraint Over relations – Enforcing Integrity constraints – Querying relational data – Logical data base Design – Introduction to Views – Destroying /altering Tables and Views.
Relational Algebra and Calculus: Relational Algebra – Selection and projection set operations – renaming – Joins – Division – Examples of Algebra overviews – Relational calculus – Tuple relational Calculus – Domain relational calculus – Expressive Power of Algebra and calculus.

UNIT – III:
Form of Basic SQL Query – Examples of Basic SQL Queries – Introduction to Nested Queries – Correlated Nested Queries Set – Comparison Operators – Aggregative Operators – NULL values – Comparison using Null values – Logical connectivity's – AND, OR and NOTR – Impact on SQL Constructs – Outer Joins – Disallowing NULL values – Complex Integrity Constraints in SQL Triggers and Active Data bases.

UNIT – IV:
Schema refinement – Problems Caused by redundancy – Decompositions – Problem related to decomposition – reasoning about FDS – FIRST, SECOND, THIRD Normal forms – BCNF – Lossless join Decomposition – Dependency preserving Decomposition – Schema refinement in Data base Design – Multi valued Dependencies – forth Normal Form.

UNIT – V:
Overview of Transaction Management: ACID Properties – Transactions and Schedules – Concurrent Execution of transaction – Lock Based Concurrency Control – Performance Locking – Transaction Support in SQL – Introduction to Crash recovery.

UNIT – VI:

Concurrency Control: Serializability, and recoverability – Introduction to Lock Management – Lock Conversions – Dealing with Dead Locks – Specialized Locking Techniques – Concurrency without Locking.

Crash recovery: Introduction to ARIES – the Log – Other Recovery related Structures – the Write-Ahead Log Protocol – Check pointing – re3covering from a System Crash – Media recovery – Other approaches and Interaction with Concurrency control.

UNIT – VII:

Overview of Storage and Indexing: Data on External Storage – File Organization and Indexing – Cluster Indexes, Primary and Secondary Indexes – Index data Structures – Hash Based Indexing – Tree base Indexing – Comparison of File Organizations – Indexes and Performance Tuning.

UNIT – VIII:

Storing data: Disks and Files: - The Memory Hierarchy – Redundant Arrays of Independent Disks – Disk Space Management – Buffer Manager – Files of records – Page Formats – record formats.

Tree Structured Indexing: Intuitions for tree Indexes – Indexed Sequential Access Methods (ISAM) – B+ Trees: A Dynamic Index Structure.

Hash Based Indexing: Static Hashing – Extendable hashing – Linear Hashing – Exendble vs. Liner hashing.

TEXT BOOKS:

1. Data base Management Systems, Raghurama Krishnan, Johannes Gehrke, TATA McGrawHill 3rd Edition
2. Data base System Concepts, Silberschatz, Korth, McGraw hill, VI edition.

3. Data base Management System, Elmasri Navrate Pearson Education

REFERENCE BOOK:

1. Introduction to Database Systems, C.J.Date Pearson Education
1. Data base Systems design, Implementation, and Management, Rob & Coronel 5th Edition.Thomson
2. Data base Management System Mathew Leon, Leon Vikas.
3. Data base Systems, Connoley Pearson education

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MANAGEMENT INFORMATION SYSTEM

UNIT I:
The meaning and role of MIS : What is MIS?, Decision support systems, systems approach, the systems view of business, MIS organization within the company, Managers view of Information systems.

UNIT II:
Management organizational theory and the systems approach Development of organizational theory, management and organizational behavior, management, information, and the systems approach , using Information systems for feedback.

UNIT III:
Information systems for decision making : Evolution of an information system, Basic information systems, decision making and MIS, MIS as a technique for making programmed decisions, decision assisting information systems. Communication systems basics.

UNIT IV:
Strategic and project planning for MIS: General business planning, appropriate MIS response, MIS planning-general, MIS planning-details.

UNIT V:
Conceptual system design: Define the problems, set system objectives, establish system constraints, determine information needs, determine information sources, develop alternative conceptual designs and select one, document the system concept,
prepare the conceptual design report.

UNIT VI:
Detailed system design : Inform and involve the organization, aim of detailed design, project management of MIS detailed design, identify dominant and trade off criteria, define the subsystems, sketch the detailed operating subsystems and information flows, determine the degree of automation of each operation, inform and involve the organization again, inputs, outputs, and processing, early system testing, software, hardware and tools, propose an organization to operate the system, document the detailed design, revisit the manager-user.

UNIT VII:

Implementation, evaluation and maintenance of the MIS : Plan the implementation, acquire floor space and plan space layouts, organize for implementation, develop procedures for implementation, train the operating personnel, computer related acquisitions, develop forms for data collection and information dissemination, develop the files, test the system, cutover, document the system, evaluate the MIS, control and maintain the system.

UNIT VIII:

Pitfalls in MIS development : Fundamental weaknesses, soft spots, in planning, design problems, implementation : the TAR PIT. Applications of information systems to business. Security and ethical issues of information systems.

TEXT BOOK:

1. Information systems for modern management, 3rd Edition by R.G Murdick, J.E Ross and J. R clagget, PHI-1994.

REFERENCE BOOK:

1. Management information Systems, 4th edition by Robert Schultheis, Mary Sumner,PHI-1999.
2. Management Information Systems, 9/e, Laudon & Laudon, V.M.Prasad, Pearson, 2005,

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Course Code: 10CA3119

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COMPUTER NETWORKS

UNIT-I

Introduction: Uses of computer Networks, Network H/w, Network S/W, Reference Models, Example Networks, Network Standardization.

UNIT-II

Physical Layer: Guided transmission media – Magnetic media, Twisted Pair, coaxial cable, fiber optics.

Data Link Layer: Design Issues, Error detection and correction, Elementary Data Link Protocols, Sliding Window Protocols, Protocol Verification, Example Data Link protocols.

UNIT-III

The Medium Access Sub Layer: The channel allocation problem, Multiple access Protocols, Ethernet, Wireless LANs, Broadband Wireless, Bluetooth, and Data Link Layer Switching.

UNIT-IV

The Network Layer: Network Layer Design Issues, Routing Algorithms, Congestion Control Algorithms, Quality of Service, Internet Working, Network Layer in Internet.

UNIT-V

The Transport Protocol: The Transport Service, Elements of transport protocol, a simple Transport Protocol, Internet Transport Protocols UDP, Internet Transport Protocols TCP, Performance Issues.

UNIT-VI

The Application Layer: DNS-(Domain Name System), Electronic Mail, World Wide Web Multimedia,

UNIT-VII

Network Security: Cryptography, Symmetric _key Algorithms, Public–Key Algorithms, Digital Signatures, and Management of public keys.

UNIT-VIII

Communication Security, Authentications Protocols, E-mail Security, Web security, Social Issues.

TEXT BOOKS:

1. Computer Networks -- Andrew S Tanenbaum, 4th Edition. Pearson Education/PHI

REFERENCE BOOKS:

1. Computer Communications and Networking Technologies –Michael A. Gallo, William M .Hancock - Thomson Publication

2. Data Communications and Networking – Behrouz A. Forouzan. Third Edition TMH.

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Course Code: 10CA3120

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UNIX and Operating Systems Lab

1. Write a shell script to accept two numbers and perform all arithmetic operations on it.
2. Write a shell script to find largest of three numbers using conditional execution operators
3. Write a shell script to accept the name of the file from standard input and perform the following tests on it
a) File executable
b) File readable
c) File writable
d) Both readable & writable
4.Write a shell script which will display the username and terminal name who login recently in to the Unix system.
5.Write a shell script to find number of files in a directory
6.Write a shell script to print the following format
1
12
123
1234
…….
7. Write a shell script which will display the number of days in the given month and year
8. Write a shell script to check whether a given number is perfect number or not
9. Write a shell script for concatenation of two strings using arguments
10. Write a shell script to demonstrate break and continue statements
11. Write a shell script to satisfy the following menu options
    a. Display current directory path
    b. Display today's date
    c. Display users who are connected to the Unix system
    d. Quit
12. Write a shell script to delete all files whose size is zero bytes from current directory
13. Write a shell script to display reverse numbers from given argument list
14. Write a shell script to display factorial value from given argument list
15. Write a shell script which will greet you "Good Morning", "Good Afternoon", "Good Evening" and "Good Night" according to current time
16. To implement the FCFS Algorithm
17. To implement the Shortest Job First Algorithm
18. To implement Priority Algorithm
19. To implement the round robin Algorithm
20. To implement the FIFO page replacement Algorithm
21. To implement LRU page replacement Algorithm
22. To implement Resource Request Algorithm

23. To implement First-Fit, Best-Fit, Worst-Fit Algorithm
24. To implement Sequential File Organization
25. To implement Random File Organization

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DATABASE MANAGEMENT SYSTEMS LAB

1. Creating tables for various relations (in SQL)

2. Implementing the queries in SQL for
   a) Insertion
   b) Retrival (Implement all the operation like Union, Intersect, Minus, in, exist, aggregate functions (Min.,Max…) etc…
   c) Updation
   d) Deletion

3. Creating Views

4. Writing Triggers

5. Implementing Operations on relations (tables) using PL/SQL

6. Creating FORMS

7. Generating REPORTS.

SYLLABI FOR IV SEMESTER

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Course Code: 10CA3122

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SOFTWARE ENGINEERING

UNIT-I:

Introduction to Software Engineering: The evolving role of software, Changing Nature of Software, Software myths.

A Generic view of process: Software engineering- A layered technology, a process framework, The Capability Maturity Model Integration (CMMI), Process patterns, process assessment, personal and team process models.

UNIT-II:

Process models: The waterfall model, Incremental process models, Evolutionary process models, The Unified process.

Software Requirements: Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document.

UNIT-III:

Requirements engineering process: Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management.

System models: Context Models, Behavioral models, Data models, Object models, structured methods.

UNIT-IV:

Design Engineering: Design process and Design quality, Design concepts, the design model.

Creating an architectural design: software architecture, Data design, Architectural styles and patterns, Architectural Design.

UNIT-V:

Object-Oriented Design: Objects and object classes, An Object-Oriented design process, Design evolution.

Performing User interface design: Golden rules, User interface analysis and design, interface analysis, interface design steps, Design evaluation.

UNIT-VI:

Testing Strategies: A strategic approach to software testing, test strategies for conventional software, Black-Box and White-Box testing, Validation testing, System testing, the art of Debugging.

Product metrics: Software Quality, Metrics for Analysis Model, Metrics for Design Model, Metrics for source code, Metrics for testing, Metrics for maintenance.

UNIT-VII:

Metrics for Process and Products: Software Measurement, Metrics for software quality.
Risk management: Reactive vs Proactive Risk strategies, software risks, Risk identification, Risk projection, Risk refinement, RMMM, RMMM Plan.

UNIT-VIII:
Quality Management: Quality concepts, Software quality assurance, Software Reviews, Formal technical reviews, Statistical Software quality Assurance, Software reliability, The ISO 9000 quality standards.

TEXT BOOKS:

1. Software Engineering, A practitioner's Approach- Roger S. Pressman, 6th edition.McGrawHill International Edition.
2. Software Engineering- Sommerville, 7th edition, Pearson education.

REFERENCE BOOKS:

1. Software Engineering- K.K. Agarwal & Yogesh Singh,New Age International Publishers
2. Software Engineering, an Engineering approach- James F. Peters, Witold Pedrycz, John Wiely.
3. Systems Analysis and Design- Shely Cashman Rosenblatt,Thomson Publications.
4. Software Engineering principles and practice- Waman S Jawadekar, The McGraw-Hill Companies.

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Course Code: 10CA3123

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OBJECT ORIENTED ANALYSIS AND DESIGN (Using UML)

UNIT-I
Introduction to UML: Importance of modeling, principles of modeling, object oriented modeling, conceptual model of the UML, Architecture, Software Development Life Cycle.

UNIT-II
Basic Structural Modeling: Classes, Relationships, common Mechanisms, and diagrams.
Advanced Structural Modeling: Advanced classes, advanced relationships, Interfaces, Types and Roles, Packages.

UNIT-III
Class & Object Diagrams: Terms, concepts, modeling techniques for Class & Object Diagrams.

UNIT- IV
Basic Behavioral Modeling-I: Interactions, Interaction diagrams.

UNIT-V
Basic Behavioral Modeling-II: Use cases, Use case Diagrams, Activity Diagrams.

UNIT-VI
Advanced Behavioral Modeling: Events and signals, state machines, processes and Threads, time and space, state chart diagrams.

UNIT-VII
Architectural Modeling: Component, Deployment, Component diagrams and Deployment diagrams.

UNIT-VIII
Case Study: The Unified Library application

TEXT BOOKS:

1. Grady Booch, James Rumbaugh, Ivar Jacobson: The Unified Modeling Language User Guide, Pearson Education.
2. Hans-Erik Eriksson, Magnus Penker, Brian Lyons, David Fado: UML 2 Toolkit, WILEY-Dreamtech India Pvt. Ltd.

REFERENCE BOOKS:

1. Meilir Page-Jones: Fundamentals of Object Oriented Design in UML, Pearson Education.
2. Pascal Roques: Modeling Software Systems Using UML2, WILEY-Dreamtech India Pvt. Ltd.
3. Atul Kahate: Object Oriented Analysis & Design, The McGraw-Hill Companies.
4. Mark Priestley: Practical Object-Oriented Design with UML,TATA McGrawHill
5.Appling UML and Patterns: An introduction to Object – Oriented Analysis and Design and Unified Process, Craig Larman, Pearson Education.

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Course Code: 10CA3124

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DATA WAREHOUSING AND MINING

UNIT-I

Introduction: Fundamentals of data mining, Data Mining Functionalities, Classification of Data Mining systems, Major issues in Data Mining, Data Warehouse and OLAP Technology for Data Mining Data Warehouse, Multidimensional Data Model, Data Warehouse Architecture, Data Warehouse Implementation, Further Development of Data Cube Technology, From Data Warehousing to Data Mining,

UNIT-II

Data Preprocessing: Needs Preprocessing the Data, Data Cleaning, Data Integration and Transformation, Data Reduction, Discrimination and Concept Hierarchy Generation,
Online Data Storage.

UNIT-III

Data Mining Primitives, Languages, and System Architectures: Data Mining Primitives, Data Mining Query Languages, Designing Graphical User Interfaces Based on a Data Mining Query Language Architectures of Data Mining Systems,

UNIT-IV

Concepts Description: Characterization and Comparison: Data Generalization and Summarization-Based Characterization, Analytical Characterization: Analysis of Attribute Relevance, Mining Class Comparisons: Discriminating between Different Classes, Mining Descriptive Statistical Measures in Large Databases.

UNIT-V

Mining Association Rules in Large Databases: Association Rule Mining, Mining Single-Dimensional Boolean Association Rules from Transactional Databases, Mining Multilevel Association Rules from Transaction Databases, Mining Multidimensional Association Rules from Relational Databases and Data Warehouses, From Association Mining to Correlation Analysis, Constraint-Based Association Mining.

UNIT-VI

Classification and Prediction: Issues Regarding Classification and Prediction, Classification by Decision Tree Induction, Bayesian Classification, Classification by Back propagation, Classification Based on Concepts from Association Rule Mining, Other Classification Methods, Prediction, Classifier Accuracy.

UNIT-VII

Cluster Analysis Introduction : Types of Data in Cluster Analysis, A Categorization of Major Clustering Methods, Partitioning Methods, Density-Based Methods, Grid-Based Methods, Model-Based Clustering Methods, Outlier Analysis.

UNIT-VIII

Mining Complex Types of Data: Multidimensional Analysis and Descriptive Mining of Complex, Data Objects, Mining Spatial Databases, Mining Multimedia Databases, Mining Time-Series and Sequence Data, Mining Text Databases, Mining the World Wide Web.

TEXT BOOKS:

1. Data Mining – Concepts and Techniques - JIAWEI HAN & MICHELINE KAMBER Harcourt India.
2. Data Mining Techniques – ARUN K PUJARI, University Press
3. Building the DataWarehouse- W. H. Inmon, Wiley Dreamtech India Pvt. Ltd..

REFERENCE BOOKS:

1. Data Warehousing in the Real World – SAM ANAHORY & DENNIS MURRAY. Pearson Edn Asia.
2. Data Warehousing Fundamentals – PAULRAJ PONNAIAH WILEY STUDENT EDITION
3. The Data Warehouse Life cycle Tool kit – RALPH KIMBALL WILEY STUDENT EDITION
4. Data Mining Introductory and advanced topics –MARGARET H DUNHAM, PEARSON EDUCATION

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EMBEDDED SYSTEMS (ELECTIVE-I)

UNIT - I
Embedded Computing: Introduction, Complex Systems and Microprocessor, The Embedded System Design Process, Formalisms for System Design, Design Examples.
(Chapter I from Text Book 1, Wolf)

UNIT - II
The 8051 Architecture : Introduction, 8051 Micro controller Hardware, Input/Output Ports and Circuits, External Memory, Counter and Timers, Serial data Input/Output, Interrupts.
(**Chapter 3 from Text Book 2, Ayala**)

UNIT -III
Basic Assembly Language Programming Concepts: The Assembly Language Programming Process, Programming Tools and Techniques, Programming the 8051.
Data Transfer and Logical Instructions.(**Chapters 4,5 and 6 from Text Book 2, Ayala**)

UNIT - IV
Arithmetic Operations, Decimal Arithmetic. Jump and Call Instructions, Further Details on Interrupts. (**Chapter 7and 8 from Text Book 2, Ayala**)

UNIT -V
Applications: Interfacing with Keyboards, Displays, D/A and A/D Conversions, Multiple Interrupts, Serial Data Communication. (**Chapter 10 and 11 from Text Book 2, Ayala**)

UNIT - VI
Introduction to Real – Time Operating Systems: Tasks and Task States, Tasks and Data, Semaphores, and Shared Data; Message Queues, Mailboxes and Pipes, Timer Functions, Events, Memory Management, Interrupt Routines in an RTOS Environment
(**Chapter 6 and 7 from Text Book 3, Simon**)

UNIT - VII
Basic Design Using a Real-Time Operating System: Principles, Semaphores and Queues, Hard Real-Time Scheduling Considerations, Saving Memory and Power, An example RTOS like uC-OS (Open Source); Embedded Software Development Tools: Host and Target machines, Linker/Locators for Embedded Software, Getting Embedded Software into the Target System; Debugging Techniques: Testing on Host Machine, Using Laboratory Tools, An Example System. **(Chapter 8,9,10 and 11 from Text Book 3, Simon)**

UNIT - VIII

Introduction to advanced architectures: ARM and SHARC, Processor and memory organization and Instruction level parallelism; Networked embedded systems: Bus protocols, I^2C bus and CAN bus; Internet-Enabled Systems, Design Example-Elevator Controller.

(Chapter 8 from Text Book 1, Wolf)

Text Books:

1. Computers and Components, Wayne Wolf, Elseveir.
2. The 8051 Microcontroller, Third Edition, Kenneth J.Ayala, Thomson.
3. An Embedded Software Primer, David E. Simon, Pearson Education.

Reference Books:

1. Embedding system building blocks, Labrosse, via CMP publishers.
2. Embedded Systems, Raj Kamal, TMH.
3. Micro Controllers, Ajay V Deshmukhi, TMH.
4. Embedded System Design, Frank Vahid, Tony Givargis, John Wiley.
5. Microcontrollers, Raj kamal, Pearson Education.

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DISTRIBUTED OPERATING SYSTEMS (ELECTIVE-I)

UNIT-I

Introduction to Distributed Systems:
Distributed systems: Goals Hardware Concepts Software - design

UNIT-II

Communication distributed systems:
Layered Protocol: ATM Networks client server model - remote procedure call - group communication.

UNIT-III

Synchronization:
Clock synchronization - mutual exclusion - election atomic transactions - dead locks.

UNIT-IV

Process and Processors:
Threads - System models processor allocation - scheduling fault tolerance - real time distributed systems.

UNIT-V

Distributed file systems:
File system design and implementation - trends in distributed file systems.

UNIT-VI

Shared Memory:
Introduction - bus based multi processors ring based multiprocessors switched multiprocessors - NUMA comparison of shared memory systems -

UNIT-VII

Consistency models - page based distributed shared memory - shared variable distributed shared memory - object based distributed shared memory.

UNIT-VIII

Case studies: MACH and CHORUS

Text Book:

1. Andrew S.Tanenbaum: Distributed Operating System, Prentice Hall International Inc. 1995.

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PERL PROGRAMMIG (ELECTIVE-I)

UNIT-I

Introduction to perl: # ! , Basic I/O, Variables variables & Backslash Interpolation, Scalar/list control operators, operator procedure, if unless, loops, loop control (ch1, ch3, pg 60-65, 69-72, III-127)

UNIT-II

Debugging perl scripts: Debugging commands, Debugger customization, Unattended execution, Debugging support, the perl profiler.

UNIT-III

Built in Function: Perl functions by category, Perl functions in alphabetical order.

UNIT-IV

Regular expressions: Pattern Matching, operators, Meta character and meta symbols. Character classes, quantifiers, Pointers, capturing & clustering, Alternation, staying in control.

UNIT-V

Subroutines Syntax: Syntax, Semantics, parsing references, prototypes, subroutine attributes.
Formats: Format variables, Fosters.

UNIT-VI

References: Creating References, using hard references, symbolic references, Braces, Brackets and quotes.
Data Structure: Arrays of Arrays, Hashes of arrays, Arrays of Hashes, Hashes of Hashes, Hashing as function , Elaborate records, Hashes of functions.

UNIT-VII

CGI Programming: CGI Basic, Forms, Methods.

UNIT-VIII

More CGI : Here Docs, Emailing, Cookies, File uploading, E-mail.

Text Books:

1. Programming Perl, O'Reily. 3rd Edition.
2. CGI Programming with Perl Scott Guelich, et al., O'Reily

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NETWORK PROTOCOLS (ELECTIVE-II)

REVIEW OF IMPORTANT NETWORKING CONCEPTS:

TCP/IP Networking and architecture, IP addresses, Data Link Protocols, Address Resolution Protocol (ARP) and RARP, IP Protocol (IP), Introduction to ICMP, PING and Traceroute, BOOTP and DHCP, IP Forwarding

DYNAMIC ROUTING PROTOCOLS: RIP, OSPF

TRANSPORT PROTOCOLS AND UDP:

TCP I (Connection Management), TCP II (Flow and Congestion Control), TCP III (Error Control)

LAN SWITCHING, NAT, DHCP

DOMAIN NAME SYSTEM, IP MULTICASTING, SNMP, IPV6, MPLS, MOBILE IP, TCP/IP SECURITY

INTRODUCTION TO FINGER PROTOCOL, WHOIS PROTOCOL, WAIS, GOPHER, VERONICA, AND TCPDUMP,
TEXT BOOKS:

1. TCP/IP Illustrated, Volume 1: The Protocols, W. Richard Stevens, W. Richard Stevens, Pearson Education Asia, 2002

2. TCP/IP Tutorial and Technical Overview, A. Rodriguez, J. Gatrell, J. Karas, R.Peschke, IBM Redbook. (Available on net for free)

REFERENCE BOOKS:

1. Internetworking with TCP/IP Vol.1: Principles, Protocols, and Architecture (4^{th} Edition) by Douglas E. Comer, Pearson Education Asia, 2000
2. Internetworking with TCP/IP, Vol. III: Client-Server Programming and Applications, Linux/Posix Sockets Version, Douglas E. Comer, David L. Stevens, Michael Evangelista, Pearson Education Asia, 2000

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MOBILE COMPUTING(ELECTIVE-II)

UNIT – I Introduction to Network Technologies and Cellular Communications:
HIPERLAN:_ Protocol architecture, physical layer, Channel access control sub-layer, MAC sub-layer, Information bases and networking
WLAN: Infrared vs._radio transmission, Infrastructure and ad hoc networks, IEEE 802.11. Bluetooth.: User scenarios, Physical layer, MAC layer, Networking, Security, Link management
GSM: Mobile services, System architecture, Radio interface, Protocols, Localization and calling,

Handover, Security, and New data services.

Mobile Computing (MC): Introduction to MC, novel applications, limitations, and architecture

UNIT –II (Wireless) Medium Access Control:
Motivation for a specialized MAC (Hidden and exposed terminals, Near and far terminals), SDMA, FDMA, TDMA, DMA.

UNIT –III Mobile Network Layer:

Mobile IP (Goals, assumptions, entities and terminology, IP packet delivery, agent advertisement and discovery, registration, tunneling and encapsulation, optimizations), Dynamic Host Configuration Protocol (DHCP).

UNIT – IV Mobile Transport Layer:
Traditional TCP, Indirect TCP, Snooping TCP, Mobile TCP, Fast retransmit/fast recovery, Transmission /time-out freezing, Selective retransmission, Transaction oriented TCP.

UNIT – V Database Issues:
Hoarding techniques, caching invalidation mechanisms, client server computing with adaptation, power-aware and context-aware computing, transactional models, query processing, recovery, and quality of service issues.

UNIT – VI Data Dissemination:
Communications asymmetry, classification of new data delivery mechanisms, push-based mechanisms, pull-based mechanisms, hybrid mechanisms, selective tuning (indexing) techniques.

UNIT – VII Mobile Ad hoc Networks (MANETs):
Overview, Properties of a MANET, spectrum of MANET applications, routing and various routing algorithms, security in MANETs.

UNIT – VIII Protocols and Tools:
Wireless Application Protocol-WAP. (Introduction, protocol architecture, and treatment of protocols of all layers), Bluetooth (User scenarios, physical layer, MAC layer, networking, security, link management) and J2ME.

Text Books:
1). **Jochen Schiller**, "Mobile Communications", *Addison-Wesley*. (Chapters 4, 7, 9, 10, 11), second edition, 2004.

2) **Stojmenovic and Cacute,** "Handbook of Wireless Networks and Mobile Computing", *Wiley*, 2002, **ISBN** 0471419028. (Chapters 11, 15, 17, 26 and 27)

Reference Books:
1) Reza Behravanfar, "Mobile Computing Principles: Designing and Developing Mobile Applications with UML and XML", ISBN: 0521817331, Cambridge University Press, October 2004,

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Course Code: 10CA3130

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Introduction to Multi-Core Programming - Threading on Multi-Core Processors (ELECTIVE II)

UNIT - I:
Introduction to Multi-core Architecture - An overview of Parallel Computing Platforms(SIMD & MIMD systems, Clusters, an Overview of Single-Core, Multi-Processor, Concurrency on Software; Fundamental concepts of Parallel Processing.

UNIT - II:
Understanding performance of Sequential programs on Multi-Core Processors, An Overview of Tuned Mathematical Libraries; Compiler Optimization techniques on Multi-Core Processors, Effective use of Mathematical libraries on Multi-Core Processors, Speed Up, Performance, and Scalability analysis; Amdahl's Law, and Gustafson Law.

UNIT - III:
Thread Basics; Why Threads?; Threading APIs and Parallel Programming Constructs (Synchronization, Critical Sections, Deadlocks, Synchronization Primitives, Message Passing features, Key features of Threaded APIs); An Overview of Threading: Multi-Core - An overview of Caches, Virtual Memory; Multi-Core Architectures).

UNIT - IV:
An Overview of Hyper-threading technology- (Multi-threading issues) on Multi-Core Processor Systems; An overview of Threading APIs for Microsoft Windows; NUMA Programming; System View of Threading (Threading inside, the OS, Threading inside the Hardware, Threading above the Operating System); Programming Models and Threading.

UNIT - V:
An Overview of POSIX Threads; Key features of POSIX Threads (Creating threads, Managing threads, Thread synchronization, Signaling); Multi-thread Optimization; An Overview of Java Concurrent APIs on Multi-Core Processors; Performance Issues based on POSIX threads for Matrix Computations.

UNIT - VI:
Threading Building blocks; An Overview of Memory Allocators, An Overview of Intel Threading building blocks (Intel TBB); Intel TBB Containers; Intel TBB-Task Scheduling; Intel TBB Threads-Mutual Exclusion; An Overview of Compiler Optimization techniques on Multi-Core Processors for Matrix Computations.

UNIT - VII:
An Overview of OpenMP – A standard for Directive Parallel Programming; The OpenMP programming Model (Concurrent Tasks, Synchronization Constructs, Data Handling); Open libraries; OpenMP-Environment Variables; Explicit threads versus OpenMP based Programming on Multi-Core processors.

UNIT - VIII:
Principles of Message Passing Programming; An overview of the Message Passing Building blocks (Sending and Receiving Operations); An Overview of Message Passing Interface-MPI 1.0; Point-Point Message Passing Communication Library calls; Collective communication and Computation library calls.

Text Books:

1. *Grama Ananth, Anshul Gupts, George Karypis and Vipin Kumar* (**2003**), Introduction to Parallel computing, Boston, MA : Addison-Wesley.
2. *Shameem Akhter, Jason Roberts (**April 2006**),* Multi-Core Programming – Increasing Performance through Software Multi-threading, Intel PRESS, Intel Corporation.
3. *James Reinders,* Intel Threading Building Blocks – (**2007**), O'REILLY series.
4. *Pacheco S. Peter, (**1992**), Parallel Programming with **MPI**,* University of Sanfrancisco, Morgan Kaufman Publishers, Inc., Sanfrancisco, California.

Reference books

1. *Chandra, Rohit, Leonardo Dagum, Dave Kohr, Dror Maydan, Jeff McDonald, and Ramesh Menon, (**2001**),*Parallel Programming in **OpenMP** San Fracncisco Moraan Kaufmann.
2. *Michael J. Quinn (**2004**),* Parallel Programming in C with **MPI** and **OpenMP** McGraw-Hill International Editions, Computer Science Series, McGraw-Hill, Inc. Newyork.
3. *Andrews, Grogory R. (**2000**),* Foundations of Multithreaded, Parallel, and Distributed Progrmaming, Boston, MA : Addison-Wesley.
4. *Butenhof, David R (***1997**), Programming with **POSIX Threads** , Boston, MA : Addison Wesley Professional.
5. *Marc Snir, Steve Otto, Steyen Huss-Lederman, David Walker and Jack Dongarra, (**1998**)* MPI-The Complete Reference: Volume 1, The **MPI** Core, second edition.
6. *William Gropp, Steven Huss-Lederman, Andrew Lumsdaine, Ewing Lusk, Bill Nitzberg, William Saphir and Marc Snir (**1998**)* MPI-The Complete Reference: Volume 2, The **MPI-2** Extensions Second Edition.

GVPCOE AUTONOMOUS	FOR 2010 ADMITTED BATCH

Course Code: 10CA3131

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UML LAB

1. The Student should take up the case study of Unified Library application which is mentioned in the theory, and model it in different views i.e. Use Case View, Logical view, component view, Deployment view, Database design, Forward and Reverse Engineering, and Generation of documentation of the Project.

2. Student has to take up another case study of his/her own interest and do the same what ever mentioned in first problem. Some of the ideas regarding case studies are given in reference books, which were mentioned in theory syllabus, can be referred for some idea.

GVPCOE AUTONOMOUS	FOR 2010 ADMITTED BATCH

Course Code: 10CA3132

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English Language Communication Skills Lab

Objectives:

The language Lab focuses computer-aided multi-media instruction and language acquisition to achieve the following targets:

- **To expose the students to a variety of self-instructional, learner-friendly modes of language learning.**
- **To help the students cultivate the habit of reading passages from the computer monitor, thus providing them with the required facility to face computer-based competitive exams such GRE, TOEFL, GMAT etc.**
- **To enable them to learn better pronunciation through stress on word accent, intonation, and rhythm.**
- **To train them to use language effectively to face interviews, group discussions, public speaking.**
- **To initiate them into greater use of the computer in resume preparation, report writing, format-making etc.**

However, depending upon the available of infrastructure and budget, the above targets can also be achieved by procuring the minimum required equipment suggested for the establishment of a Conventional Lab the details of which are given below. The lab should cater to the needs of the students to build up their confidence to help them develop leadership qualities through their communicative competence.

ENGLISH LANGUAGE LABORATORY PRACTICE

Syllabus

The following course content is prescribed for the English Language Laboratory Practice

Introduction to Phonetics.
Introduction to Vowels and Consonants and associated Phonetic symbols.
Introduction to Accent, Intonation and Rhythm.
Situational Dialogues / Role Play.
Public Speaking.
Debate
Group discussions
Facing Interviews
Resume preparation
e-correspondence

Minimum Requirement

Computer aided multi media language lab with 30 systems with LAN facility.
Conventional Language Lab. with audio and video systems, speakers, headphones and a teacher console to accommodate 30 students.

Suggested Software:

Cambridge Advanced Learners' Dictionary with exercises
The Rosetta Stone English Library
Clarity Pronunciation Power
Mastering English in Vocabulary, Grammar, Spellings, Composition
Dorling Kindersley series of Grammar, Punctuation, Composition etc.
Oxford Advanced Learner's Compass, 7th Edition
Language in Use, Foundation Books Pvt Ltd
Learning to Speak English - 4 CDs
Microsoft Encarta
Murphy's English Grammar, Cambridge
Time series of IQ Test, Brain-teasers, Aptitude Test etc.
English in Mind, Herbert Puchta and Jeff Stranks with Meredith Levy, Cambridge

Books Suggested for English lab :

1. **Developing Communication Skills** by Krishna Mohan & Meera Benerji (Macmillan)
2. **Speaking English Effectively** by Krishna Mohan & NP Singh (Macmillan)
3. **Better English Pronunciation** by JDO Connor (UBS – Cambridge)
4. **Oxford Practice Grammar with Answers,** John Eastwood, Oxford
5. **Handbook of English Grammar and Usage,** Mark Lester and Larry Beason, Tata McGraw-Hill
6. **A text book of English Phonetics for Indian Students** by T.Balasubramanian (Macmillan)
7. **Lingua TOEFL CBT Insider**, by Dreamtech
8. **TOEFL & GRE**(KAPLAN, AARCO & BARRONS, USA, Cracking GRE by CLIFFS)
9. **English Skills for Technical Students,** WBSCTE with British Council, OL
10. **A Handbook of English for Competitive Examinations,** by B Shyamala Rao, Blakie Books, Chennai.

SYLLABI FOR V SEMESTER

GVPCOE AUTONOMOUS	FOR 2010 ADMITTED BATCH

Course Code: 10CA3133

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MULTIMEDIA AND APPLICATION DEVELOPMENT

UNIT-I

Fundamental concepts in Text and Image: Multimedia and hypermedia, World Wide Web, overview of multimedia software tools. Graphics and image data representation graphics/image data types, file formats, Color in image and video: color science, color models in images, color models in video.

UNIT-II

Fundamental concepts in video and digital audio: Types of video signals, analog video, digital video, digitization of sound, MIDI, quantization and transmission of audio.

UNIT-III

Action Script I: Action Script Features, Object-Oriented Action Script, Data types and Type Checking, Classes, Authoring an ActionScript Class

UNIT-IV

Action Script II: Inheritance, Authoring an Action Script 2.0 Subclass, Interfaces, Packages, Exceptions

UNIT-V

Application Development: An OOP Application Frame work, Using Components with Action Script Movie Clip Subclasses.

UNIT VI

Multimedia data compression: Lossless compression algorithm: Run-Length Coding, Variable Length Coding, Dictionary Based Coding, Arithmetic Coding, Lossless Image Compression, Lossy compression algorithm: Quantization, Transform Coding, Wavelet-Based Coding, Embedded Zerotree of Wavelet Coefficients Set Partitioning in Hierarchical Trees (SPIHT).

UNIT VII

Basic Video Compression Techniques: Introduction to video compression,
video compression based on motion compensation, search for motion vectors,
MPEG, Basic Audio Compression Techniques.

UNIT-VIII

Multimedia Networks: Basics of Multimedia Networks, Multimedia Network Communications and Applications : Quality of Multimedia Data Transmission, Multimedia over IP, Multimedia over ATM Networks, Transport of MPEG-4, Media-on-Demand(MOD).

Text Books:

1) Fundamentals of Multimedia by Ze-Nian Li and Mark S. Drew PHI/Pearson Education
2) Essentials ActionScript 2.0, Colin Moock, SPD O,REILLY.

Reference Books:

1) Digital Multimedia, Nigel chapman and jenny chapman, Wiley-Dreamtech
2) Macromedia Flash MX Professional 2004 Unleashed, Pearson.
3) Multimedia and communications Technology, Steve Heath, Elsevier(Focal Press)
4) Multimedia Applications, Steinmetz, Nahrstedt, Springer.
5) Multimedia Basics by Weixel Thomson
6) Multimedia Technology and Applications, David Hilman , Galgotia

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Course Code: 10CA3134

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WEB TECHNOLOGIES & SERVICES

UNIT-I:

HTML Common tags- List, Tables, images, forms, Frames; Cascading Style sheets;

UNIT-II:

Introduction to Java Scripts, Objects in Java Script, Dynamic HTML with Java Script

UNIT-III:

XML: Document type definition, XML Schemas, Document Object model, Presenting XML, Using XML Processors: DOM and SAX

UNIT-IV:

Java Beans: Introduction to Java Beans, Advantages of Java Beans, BDK Introspection, Using Bound properties, Bean Info Interface, Constrained properties Persistence, Customizes, Java Beans API, Introduction to EJB's

UNIT-V:

Web Servers and Servlets: Tomcat web server, Introduction to Servelets: Lifecycle of a Serverlet, JSDK, The Servelet API, The javax.servelet Package, Reading Servelet parameters, Reading Initialization parameters. The javax.servelet HTTP package, Handling Http Request & Responses, Using Cookies-Session Tracking, Security Issues,

UNIT-VI:

Introduction to JSP: The Problem with Servelet. The Anatomy of a JSP Page, JSP Processing. JSP Application Design with MVC Setting Up and JSP Environment: Installing the Java Software Development Kit, Tomcat Server & Testing Tomcat

UNIT-VII:

JSP Application Development: Generating Dynamic Content, Using Scripting Elements Implicit JSP Objects, Conditional Processing – Displaying Values Using an Expression to Set an

Attribute, Declaring Variables and Methods Error Handling and Debugging Sharing Data Between JSP pages, Requests, and Users Passing Control and Date between Pages – Sharing Session and Application Data – Memory Usage Considerations

UNIT VIII:

Database Access : Database Programming using JDBC, Studying Javax.sql.* package,Accessing a Database from a JSP Page, Application – Specific Database Actions,Deploying JAVA Beans in a JSP Page, Introduction to struts framework.

TEXT BOOKS:

1. Web Programming, building internet applications, Chris Bates 2nd edition, WILEY Dreamtech (UNIT s 1,2 ,3)
2. The complete Reference Java 2 Fifth Edition by Patrick Naughton and Herbert Schildt. TMH (Chapters: 25) (UNIT 4)
3. Java Server Pages –Hans Bergsten, SPD O'Reilly (UNITs 5,6,7,8)

REFERENCE BOOKS:

Programming world wide web-Sebesta,Pearson
Core SERVLETS ANDJAVASERVER PAGES VOLUME 1: CORE TECHNOLOGIES By Marty Hall and Larry Brown Pearson
Internet and World Wide Web – How to program by Dietel and Nieto PHI/Pearson Education Asia.
Jakarta Struts Cookbook , Bill Siggelkow, S P D O'Reilly for chap 8.
Murach's beginning JAVA JDK 5, Murach, SPD
An Introduction to web Design and Programming –Wang-Thomson
Web Applications Technologies Concepts-Knuckles,John Wiley
Programming world wide web-Sebesta,Pearson
Web Warrior Guide to Web Programmming-Bai/Ekedaw-Thomas
Beginning Web Programming-Jon Duckett WROX.
Java Server Pages, Pekowsky, Pearson.

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Course Code: 10CA3135

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INFORMATION SECURITY

UNIT-I
Security Attacks (Interruption, Interception, Modification and Fabrication), Security Services (Confidentiality, Authentication, Integrity, Non-repudiation, access Control and Availability) and Mechanisms, A model for Internetwork security, Internet Standards and RFCs, Buffer overflow & format string vulnerabilities, TCP session hijacking, ARP attacks, route table modification, UDP hijacking, and man-in-the-middle attacks.

UNIT-II
Conventional Encryption Principles, Conventional encryption algorithms, cipher block modes of operation, location of encryption devices, key distribution Approaches of Message Authentication, Secure Hash Functions and HMAC,

UNIT-III
Public key cryptography principles, public key cryptography algorithms, digital signatures, digital Certificates, Certificate Authority and key management Kerberos, X.509 Directory Authentication Service

UNIT-IV
Email privacy: Pretty Good Privacy (PGP) and S/MIME.

UNIT-V
IP Security Overview, IP Security Architecture, Authentication Header, Encapsulating Security Payload, Combining Security Associations and Key Management

UNIT-VI
Web Security Requirements, Secure Socket Layer (SSL) and Transport Layer Security (TLS), Secure Electronic Transaction (SET)

UNIT-VII
Basic concepts of SNMP, SNMPv1 Community facility and SNMPv3, Intruders, Viruses and related threats

UNIT-VIII
Firewall Design principles, Trusted Systems, Intrusion Detection Systems

TEXT BOOKS:

1. Network Security Essentials (Applications and Standards) by William Stallings Pearson Education.

2. Hack Proofing your network by Ryan Russell, Dan Kaminsky, Rain Forest Puppy, Joe Grand, David Ahmad, Hal Flynn Ido Dubrawsky, Steve W.Manzuik and Ryan Permeh, wiley Dreamtech,

REFERENCE BOOKS:

1. Fundamentals of Network Security by Eric Maiwald (Dreamtech press)
2. Network Security - Private Communication in a Public World by Charlie Kaufman, Radia Perlman and Mike Speciner, Pearson/PHI.
3. Principles of Information Security, Whitman, Thomson.
4. Cryptography and network Security, Third edition, Stallings, PHI/Pearson
5. SNetwork Security: The complete reference, Robert Bragg, Mark Rhodes, TMH
6. Introduction to Cryptography, Buchmann, Springer.

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Course Code: 10CA3136

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SOFTWARE PROJECT MANAGEMENT (ELECTIVE-III)

UNIT-I

Conventional Software Management: The waterfall model, conventional software Management performance.

Evolution of Software Economics: Software Economics, pragmatic software cost estimation.

UNIT-II

Improving Software Economics: Reducing Software product size, improving software processes, improving team effectiveness, improving automation, Achieving required quality, peer inspections.

The old way and the new: The principles of conventional software Engineering, principles of modern software management, transitioning to an iterative process.

UNIT-III

Life cycle phases: Engineering and production stages, inception, Elaboration, construction, transition phases.

Artifacts of the process: The artifact sets, Management artifacts, Engineering artifacts, programmatic artifacts.

UNIT-IV

Model based software architectures: A Management perspective and technical perspective.

Work Flows of the process: Software process workflows, Iteration workflows,

UNIT-V

Checkpoints of the process: Major mile stones, Minor Milestones, Periodic status assessments.

Iterative Process Planning: work breakdown structures, planning guidelines, cost and schedule estimating, Iteration planning process, Pragmatic planning.

UNIT-VI

Project Organizations and Responsibilities: Line-of-Business Organizations, Project Organizations, evolution of Organizations.

Process Automation: Automation Building blocks, The Project Environment.

UNIT-VII

Project Control and Process instrumentation: The seven core Metrics, Management indicators, quality indicators, life cycle expectations, pragmatic Software Metrics, Metrics automation.

Tailoring the Process: Process discriminants.

UNIT-VIII

Future Software Project Management: modern Project Profiles, Next generation Software economics, modern process transitions.

Case Study: The command Center Processing and Display system- Replacement (CCPDS-R)

TEXT BOOKS:

Software Project Management, Walker Royce: Pearson Education, 2005.

REFERENCE BOOKS:

Software Project Management, Bob Hughes and Mike Cotterell: Tata McGraw-Hill Edition.
Software Project Management, Joel Henry, Pearson Education.
Software Project Management in practice, Pankaj Jalote, Pearson Education.2005.

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Course Code: 10CA3137

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MIDDLE WARE TECHNOLOGIES (ELECTIVE-III)

UNIT-I:
Introduction to client server computing: Evolution of corporate computing models from centralized to distributed computing, client server models. Benefits of client server computing, pitfalls of client server programming.

UNIT-II:
CORBA with Java: Review of Java concept like RMI, RMI API, JDBC.
Client/Server CORBA-style, The object web: CORBA with Java.

UNIT III:
Introducing C# and the .NET Platform; Understanding .NET Assemblies; Object –Oriented Programming with C#; Callback Interfaces, Delegates, and Events.

UNIT IV:
Building c# applications: Type Reflection, Late Binding, and Attribute-Based Programming; Object Serialization and the .NET Remoting Layer; Data Access with ADO.NET; XML Web Services.

UNIT-V:
Core CORBA / Java: Two types of Client/ Server invocations-static, dynamic. The static CORBA, first CORBA program, ORBlets with Applets, Dynamic CORBA-The portable count, the dynamic count multi count.

UNIT-VI:
Existential CORBA: CORBA initialization protocol, CORBa activation services, CORBAIDL mapping CORBA java- to- IDL mapping, The introspective CORBA/Java object.

UNIT-VII:
Java Bean Component Model: Events, properties, persistency, Intrespection of beans, CORBA Beans

UNIT-VIII:
EJBs and CORBA: Object transaction monitors CORBA OTM's, EJB and CORBA OTM's, EJB container frame work, Session and Entity Beans, The EJB client/server development Process The EJB container protocol, support for transaction EJB packaging EJB design Guidelines.

Text Books:

1 Client/Server programming with Java and CORBA Robert Orfali and Dan Harkey, John Wiley & Sons ,SPD 2nd Edition

2 Java programming with CORBA 3rd Edition, G.Brose, A Vogel and K.Duddy, Wiley-dreamtech, India John wiley and sons

3 C# and the .NET Platform Andrew Troelsen, Apress Wiley-dreamtech, India Pvt Ltd

Reference: Books:

Distributed Computing, Principles and applications, M.L.Liu, Pearson Education
Client/Server Survival Guide 3rd edition Robert Orfali Dan Harkey and Jeri Edwards, John Wiley & Sons
Client/Server Computing D T Dewire, TMH.
IBM Webspere Starter Kit Ron Ben Natan Ori Sasson, TMh, New Delhi
Programming C#, Jesse Liberty, SPD-O'Reilly.
C# Preciesely Peter Sestoft and Henrik I. Hansen, Prentice Hall of India
Intoduction to C# Using .NET Pearson Education
C# How to program, Pearson Education

Course Code: 10CA3138

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E- COMMERCE (ELECTIVE-III)

UNIT-I
Electronic Commerce-Frame work, anatomy of E-Commerce applications, E-Commerce Consumer applications, E-Commerce organization applications.

UNIT-II
Consumer Oriented Electronic commerce - Mercantile Process models

UNIT-III
Electronic payment systems - Digital Token-Based, Smart Cards, Credit Cards, Risks in Electronic Payment systems.

UNIT-IV
Inter Organizational Commerce - EDI, EDI Implementation, Value added networks.

UNIT-V
Intra Organizational Commerce - work Flow, Automation Customization and internal Commerce, Supply chain Management.

UNIT-VI
Corporate Digital Library - Document Library, digital Document types, corporate Data Warehouses. Advertising and Marketing - Information based marketing, Advertising on Internet, on-line marketing process, market research.

UNIT-VII
Consumer Search and Resource Discovery - Information search and Retrieval, Commerce Catalogues, Information Filtering.

UNIT VIII
Multimedia - key multimedia concepts, Digital Video and electronic Commerce, Desktop video processings, Desktop video conferencing.

TEXT BOOKS:

1. Frontiers of electronic commerce – Kalakata, Whinston, Pearson.

REFERENCE BOOKS:

1. E-Commerce fundamentals and applications Hendry Chan, Raymond Lee, Tharam Dillon, Ellizabeth Chang, John Wiley.
2. E-Commerce, S.Jaiswal – Galgotia.
3. E-Commerce, Efrain Turbon, Jae Lee, David King, H.Michael Chang.
4. Electronic Commerce – Gary P.Schneider – Thomson.
5. E-Commerce – Business, Technology, Society, Kenneth C.Taudon, Carol Guyerico Traver.

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Course Code: 10CA3139

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SOFTWARE TESTING METHODOLOGIES (ELECTIVE-IV)

UNIT-I:

Introduction:- Purpose of testing, Dichotomies, model for testing, consequences of bugs, taxonomy of bugs

UNIT-II:

Flow graphs and Path testing:- Basics concepts of path testing, predicates, path predicates and achievable paths, path sensitizing, path instrumentation, application of path testing.

UNIT-III:

Transaction Flow Testing:-transaction flows, transaction flow testing techniques. Dataflow testing:- Basics of dataflow testing, strategies in dataflow testing, application of dataflow testing.

UNIT-IV:

Domain Testing:-domains and paths, Nice & ugly domains, domain testing, domains and interfaces testing, domain and interface testing, domains and testability.

UNIT-V:

Paths, Path products and Regular expressions:- path products & path expression, reduction procedure, applications, regular expressions & flow anomaly detection.

UNIT-VI:

Logic Based Testing:- overview, decision tables, path expressions, kv charts, specifications.

UNIT-VII:

State, State Graphs and Transition testing:- state graphs, good & bad state graphs, state testing, Testability tips.

UNIT-VIII:

Graph Matrices and Application:-Motivational overview, matrix of graph, relations, power of a matrix, node reduction algorithm, building tools. (Student should be given an exposure to a tool like JMeter or Win-runner).

TEXT BOOKS:

1. Software Testing techniques - Baris Beizer, Dreamtech, second edition.
2. Software Testing Tools – Dr.K.V.K.K.Prasad, Dreamtech.

REFERENCE BOOKS:

1. The craft of software testing - Brian Marick, Pearson Education.
2. Software Testing Techniques – SPD(Oreille)
3. Software Testing in the Real World – Edward Kit, Pearson.
4. Effective methods of Software Testing, Perry, John Wiley.
5. Art of Software Testing – Meyers, John Wiley.

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STORAGE AREA NETWORKS AND MANAGEMENT (ELECTIVE IV)

Unit 1: introduction to Storage Technology Information storage, evolution of storage technology and architecture, data center infrastructure, key challenges in Managing information, information lifecycle. Storage system Environments: components of storage system environment, Disk Drive components, Disk Drive Performance, fundamental laws governing disk performance, logical components of the host, application requirements and disk performance.

Unit 2: Data Protection: RAID: Implementation of RAID, RAID array components, RAID levels, RAID comparison, RAID Impact on disk performance, host spares. Intelligent Storage System: Components of an Intelligent Storage System, Intelligent Storage array, concepts in Practice: EMC CLARiiON and Symmetrix.

Unit 3: Direct – Attached Storage and Introduction to SCSI :Types of DAS, DAS benefits and limitations, disk drive interfaces, introduction to parallel SCSI, SCSI command model. Storage Area Networks: fibre channel, The SAN and Its evolution, components of SAN, FC connectivity, Fibre channel ports, fibre channel architecture, zoning, fiber channel login types, concepts in practice: EMC Connectrix.

Unit 4: network attached storage: general purpose servers vs NAS Devices, benefits of NAS, NAS file I/O, components of NAS, NAS Implementations, NAS file sharing protocols, NAS I/O operations, factors effecting NAS Performance and availability, concepts in practice: EMC Celerra.IP SAN: iscsi, fcip.

Unit 5: content – addressed storage: Fixed content and Archives, types of archives, features and benefits of CAS, CAS Architecture, object storage and retrieval in CAS, CAS Examples, concepts in practice: EMC Centera. Storage Virtualization: Formas of Virtualization, SNIA Storage virtualization taxonomy, storage virtvalization configurations, storage virtualization challenges, types of storage virtualization, concepts in practice: EMC Invista, Rainifinity.

Unit 6: introduction to business continuity: information availability, BC terminology, BC planning life cycle, Failure analysis, business impact analysis, BC technology solutions, concepts in practice: EMC Power path. Backup and recovery: backup purpose, backup considerations, backup granularity, recovery considerations, backup methods, backup process, backup and restore operations , backup topologies, backup in NAS environments, backup technologies, concepts in practice: EMC Networker, EMC Disk Library(EDL).

Unit 7: Local replication: Source and targets, uses of local replicas, data consistency, local replication technologies, restore and restart considerations, creating multiple replicas, management interface, concepts in practice EMC Timefinder and Emc snap view. Remote replication: modes of remote replication, remote replication technologies, network infrastructure, concepts in practice: EMC SRDF,EMC SAN Copy.

Unit 8: Securting the infrastructure: storage security framework, storage security domains, security implementations in storage networking. Managing the Storage infrastructure: Monitoring the Storage infrastructure, Storage management activities, Storage infrastructure management challenges, Developing an ideal solution, concepts in practice: EMC control center.

TEXT BOOKS:

1. EMC Corporation, Information Storage and Management, G. Somasundaram, A. Shrivastava, wiley publishing.

2. Robert Spalding, " Storage Networks: The Complete Reference", Tata McGraw Hill, Osborne, 2003.

References:

1. Marc Farley, " Building Storage Networks", Tata McGraw Hill, Osborne , 2001.

2. Meeta Gupta, Storage Area Network Fundamentals, Pearson Education Limited, 2002.

Course Code: 10CA3141

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INFORMATION RETRIEVAL SYSTEMS (ELECTIVE-IV)

UNIT-I
Introduction: Definition, Objectives, Functional Overview, Relationship to DBMS, Digital libraries and Data Warehouses.

UNIT-II
Information Retrieval System Capabilities: Search, Browse, Miscellaneous

UNIT-III
Cataloging and Indexing: Objectives, Indexing Process, Automatic Indexing, Information Extraction.

UNIT-IV
Data Structures: Introduction, Stemming Algorithms, Inverted file structures, N-gram data structure, PAT data structure, Signature file structure, Hypertext data structure.

UNIT-V
Automatic Indexing: Classes of automatic indexing, Statistical indexing, Natural language, Concept indexing, Hypertext linkages

UNIT-VI
Document and Term Clustering: Introduction, Thesaurus generation, Item clustering, Hierarchy of clusters.

UNIT-VII
User Search Techniques: Search statements and binding, Similarity measures and ranking, Relevance feedback, Selective dissemination of information search, Weighted searches of Boolean systems, Searching the Internet and hypertext.
Information Visualization: Introduction, Cognition and perception, Information visualization technologies.

UNIT-VIII
Text Search Algorithms: Introduction, Software text search algorithms, Hardware text search systems.
Information System Evaluation: Introduction, Measures used in system evaluation, Measurement example – TREC results.

TEXTBOOKS:

Kowalski, Gerald, Mark T Maybury: Information Retrieval Systems: Theory and Implementation, Kluwer Academic Press, 1997.

REFERENCE BOOKS:

Frakes, W.B., Ricardo Baeza-Yates: Information Retrieval Data Structures and Algorithms, Prentice Hall, 1992.
Modern Information Retrival By Yates Pearson Education.
Information Storage & Retieval By Robert Korfhage – John Wiley & Sons.

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WEB TECHNOLOGIES & SERVICES LAB

Objective :

To create a fully functional website with mvc architecture. To Develop an online Book store using we can sell books (Ex amazon .com).

Hardware and Software required :

1. A working computer system with either Windows or Linux
2. A web browser either IE or firefox
3. Tomcat web server and Apache web server
4. XML editor like Altova Xml-spy [www.Altova.com/**XML**Spy – free] , Stylusstudio , etc.,
5. A database either Mysql or Oracle
6. JVM(Java virtual machine) must be installed on your system
7. BDK(Bean development kit) must be also be installed

Week-1:

Design the following static web pages required for an online book store web site.

1) **HOME PAGE:**
The static home page must contain three **frames**.

Top frame : Logo and the college name and links to Home page, Login page, Registration page, Catalogue page and Cart page (the description of these pages will be given below).

Left frame : At least four links for navigation, which will display the catalogue of respective links.

For e.g.: When you click the link **"CSE"** the catalogue for **CSE** Books should be displayed in the Right frame.

Right frame: The *pages to the links in the left frame must be loaded here*. Initially this page contains description of the web site.

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL	Description of the Web Site			

Fig 1.1

2) LOGIN PAGE:

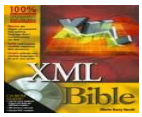
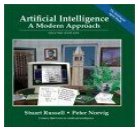
This page looks like below:

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL	Login : Password: Submit Reset			

3) CATOLOGUE PAGE:

The catalogue page should contain the details of all the books available in the web site in a table. The details should contain the following:

1. Snap shot of Cover Page.
2. Author Name.
3. Publisher.
4. Price.
5. Add to cart button.

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL	   	Book : XML Bible Author : Winston Publication : Wiely Book : AI Author : S.Russel Publication : Princeton hall Book : Java 2 Author : Watson Publication : BPB publications Book : HTML in 24 hours Author : Sam Peter Publication : Sam publication	$ 40.5 $ 63 $ 35.5 $ 50	Add to cart Add to cart Add to cart Add to cart

Note: Week 2 contains the remaining pages and their description.

Week-2:

4) CART PAGE:

The cart page contains the details about the books which are added to the cart.
The cart page should look like this:

Logo	Web Site Name			
Home	Login	Registration	Catalogue	Cart
CSE ECE EEE CIVIL	**Book name** Java 2 XML bible	**Price** $35.5 $40.5	**Quantity** 2 1 **Total amount -**	**Amount** $70 $40.5 $130.5

5) REGISTRATION PAGE:

Create a "*registration form* "with the following fields

1) Name (Text field)
2) Password (password field)
3) E-mail id (text field)
4) Phone number (text field)
5) Sex (radio button)
6) Date of birth (3 select boxes)
7) Languages known (check boxes – English, Telugu, Hindi, Tamil)
8) Address (text area)

WEEK 3:

VALIDATION:

Write *JavaScript* to validate the following fields of the above registration page.

1. Name (Name should contains alphabets and the length should not be less than 6 characters).
2. Password (Password should not be less than 6 characters length).
3. E-mail id (should not contain any invalid and must follow the standard pattern name@domain.com)
4. Phone number (Phone number should contain 10 digits only).

Note : You can also validate the login page with these parameters.

Week-4:

Design a web page using **CSS (C**ascading **S**tyle **S**heets**)** which includes the following:

1) Use different font, styles:
In the style definition you define how each selector should work (font, color etc.).
Then, in the body of your pages, you refer to these selectors to activate the styles.

For example:

```
<HTML>
<HEAD>
<style type="text/css">
B.headline {color:red; font-size:22px; font-family:arial; text-decoration:underline}
</style>

</HEAD>

<BODY>
<b>This is normal bold</b><br>
Selector {cursor:value}

For example:

<html>
<head>
<style type="text/css">
```

```
.xlink {cursor:crosshair}
.hlink{cursor:help}
</style>
</head>

<body>
<b>
<a href="mypage.htm" class="xlink">CROSS LINK</a>
<br>
<a href="mypage.htm" class="hlink">HELP LINK</a>
</b>
</body>
</html>

<b class="headline">This is headline style bold</b>
</BODY>

</HTML>
```

2) Set a background image for both the page and single elements on the page. You can define the background image for the page like this:

```
BODY {background-image:url(myimage.gif);}
```

3) Control the repetition of the image with the background-repeat property.
As background-repeat: repeat Tiles the image until the entire page is filled, just like an ordinary background image in plain HTML.

4) Define styles for links as

A:link
A:visited
A:active
A:hover

Example:

```
<style type="text/css">
A:link {text-decoration: none}
A:visited {text-decoration: none}
A:active {text-decoration: none}
A:hover {text-decoration: underline; color: red;}
</style>
```

5) Work with layers:

For example:

```
LAYER 1 ON TOP:
<div style="position:relative; font-size:50px; z-index:2;">LAYER 1</div>
<div style="position:relative; top:-50; left:5; color:red; font-size:80px; z-
    index:1">LAYER 2</div>
```

LAYER 2 ON TOP:
LAYER
LAYER 2

6) Add a customized cursor:
Selector {cursor:value}
For example:

```
<html>
<head>
<style type="text/css">
.xlink {cursor:crosshair}
.hlink{cursor:help}
</style>
</head>

<body>
<b>
<a href="mypage.htm" class="xlink">CROSS LINK</a>
<br>
<a href="mypage.htm" class="hlink">HELP LINK</a>
</b>
</body>
</html>
```

Week-5:

Write an XML file which will display the Book information which includes the following:
1) Title of the book
2) Author Name
3) ISBN number
4) Publisher name
5) Edition
6) Price

Write a Document Type Definition (DTD) to validate the above XML file.
Display the XML file as follows.
The contents should be displayed in a table. The header of the table should be in color GREY. And the Author names column should be displayed in one color and should be capitalized and in bold. Use your own colors for remaining columns.
Use XML schemas XSL and CSS for the above purpose.
Note: Give at least for 4 books. It should be valid syntactically.
Hint: You can use some xml editors like XML-spy

Week-6:
VISUAL BEANS:
Create a simple visual bean with a area filled with a color.
The shape of the area depends on the property shape. If it is set to true then the shape of the area is Square and it is Circle, if it is false.

The color of the area should be changed dynamically for every mouse click. The color should also be changed if we change the color in the “property window “.

Week-7:

Install TOMCAT web server and APACHE.
While installation assign port number 4040 to TOMCAT and 8080 to APACHE. Make sure that these ports are available i.e., no other process is using this port.
Access the above developed static web pages for books web site, using these servers by putting the web pages developed in week-1 and week-2 in the document root.

Access the pages by using the urls : http://localhost:4040/rama/books.html (for tomcat)

http://localhost:8080/books.html (for Apache)

Week-8:
User Authentication :
Assume four users user1,user2,user3 and user4 having the passwords pwd1,pwd2,pwd3 and pwd4 respectively. Write a servelet for doing the following.
1. Create a Cookie and add these four user id’s and passwords to this Cookie.
2. Read the user id and passwords entered in the Login form (week1) and authenticate with the values (user id and passwords) available in the cookies.
If he is a valid user(i.e., user-name and password match) you should welcome him by name(user-name) else you should display “ You are not an authenticated user “.
Use init-parameters to do this. Store the user-names and passwords in the webinf.xml and access them in the servlet by using the getInitParameters() method.

Week-9:

Install a database(Mysql or Oracle).
Create a table which should contain at least the following fields: name, password, email-id, phone number(these should hold the data from the registration form).

Practice 'JDBC' connectivity.

Write a java program/servlet/JSP to connect to that database and extract data from the tables and display them. Experiment with various SQL queries.
Insert the details of the users who register with the web site, whenever a new user clicks the submit button in the registration page (week2).

Week-10:

Write a JSP which does the following job:

Insert the details of the 3 or 4 users who register with the web site (week9) by using registration form. Authenticate the user when he submits the login form using the user name and password from the database (similar to week8 instead of cookies).

Week-11:
Create tables in the database which contain the details of items (books in our case like Book name , Price, Quantity, Amount)) of each category. Modify your catalogue page (week 2)in such a way that you should connect to the database and extract data from the tables and display them in the catalogue page using JDBC.

Week-12:

HTTP is a stateless protocol. Session is required to maintain the state.

The user may add some items to cart from the catalog page. He can check the cart page for the selected items. He may visit the catalogue again and select some more items. Here our interest is the selected items should be added to the old cart rather than a new cart. Multiple users can do the same thing at a time(i.e., from different systems in the LAN using the ip-address instead of localhost). This can be achieved through the use of sessions. Every user will have his own session which will be created after his successful login to the website. When the user logs out his session should get invalidated (by using the method session.invalidate()).

Modify your catalogue and cart JSP pages to achieve the above mentioned functionality

GVPCOE AUTONOMOUS	FOR 2010 ADMITTED BATCH

Course Code: 10CA3143

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MULTIMEDIA APPLICATION DEVELMENT LAB

1. Assigning actions to an object, and a button.
2. Creating Loops
3. Generation Random numbers
4. Creating a Function, calling a function
5. Detecting the Player Version
6. Detecting the operating system
7. Checking the System language
8. Detecting display settings
9. Tinting a movie clip's color
10. Controlling a movie clip's color with sliders
11. Drawing a circle
12. Drawing a rectangle
13. Filling a shape with a Gradient
14. Scripting masks
15. Converting angle measurements
16. Calculating the Distance between the two points
17. Formatting Currency amount
18. Converting between units of measurement
19. Determining points along a circle
20. Sorting or reversing an array
21. Implementing a custom sort
22. Creating a text field
23. Making a password input field

All the above programs are to be done in Flash MX 2004

Reference:

1. Action Script cookbook, Joey Lott, SPD-oreilly
2. Flash MX Action script for designers, Doug Sahlin, Dreamtech Weily
3. Flash MX Professional 2004 Unleashed, Dabid Vogeleer and matthew pizzi, Pearson Education.