DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

B. A. COLLEGE OF ENGINEERING & TECHNOLOGY, JAMSHEDPUR

COMPUTER SCIENCE AND ENGINEERING **YEAR : II** **SEMESTER : III**

Sl. No	Course No:	Subject	Periods			Evaluation Scheme					Credit
THEORY			**L**	**T**	**P**	**SESSIONAL EXAM**			**ESE**	**SUB TOTAL**	
						TA	**CT**	**TOTAL**			
1.	CS1301	COMPUTER PROGRAMMING	**2**	**1**	**--**	**15**	**10**	**25**	**50**	**75**	3
2.	HS1301	ENGINEERING ECONOMICS	**2**	**1**	**--**	**15**	**10**	**25**	**50**	**75**	3
3.	CS1302	COMPUTER ORGANISATION	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
4.	EC1312	ELECTRONICS II	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
5	MH1303	MATHEMATICS III	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
6.	ME1303	STRENGTH OF MATERIALS	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
PRACTICAL											
7	CS1303-P	COMPUTER PROGRAMMING LAB	**--**	**--**	**3**	**25**	**--**	**25**	**25**	**50**	2
8	EC1313-P	ELECTRONICS LAB- II	**--**	**--**	**3**	**25**	**--**	**25**	**25**	**50**	2
9	CS1304-P	COMPUTER ORGANISATION LAB	**--**	**--**	**3**	**25**	**--**	**25**	**25**	**50**	2
10	ME1308-P	STRENGTH OF MATERIAL LAB	**--**	**--**	**3**	**25**	**--**	**25**	**25**	**50**	2
11	HS1303-P	GENERAL PROFECIENCY- III	**--**	**--**	**--**	**--**	**--**	**50**	**--**	**50**	2
TOTAL			**16**	**6**	**12**	**--**	**--**	**--**	**--**	**1000**	32

TA → TEACHER ASSESSMENT **CT → CLASS TEST** **ESE → END SEMESTER EXAMINATION**
TOTAL MARKS : 1000 **TOTAL PERIODS : 34** **TOTAL CREDITS : 32**

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

B. A. COLLEGE OF ENGINEERING & TECHNOLOGY, JAMSHEDPUR

COMPUTER SCIENCE AND ENGINEERING **YEAR : II** **SEMESTER : IV**

Sl. No	Course No:	Subject	Periods			Evaluation Scheme					Credit
THEORY			**L**	**T**	**P**	**SESSIONAL EXAM**			**ESE**	**SUB TOTAL**	
						TA	**CT**	**TOTAL**			
1.	MH1401	DISCRETE MATHEMATICS	**2**	**1**	**--**	**15**	**10**	**25**	**50**	**75**	3
2.	CS1401	SYSTEM ANALYSIS AND DESIGN	**2**	**1**	**--**	**15**	**10**	**25**	**50**	**75**	3
3.	EC1412	DIGITAL CIRCUIT DESIGN	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
4.	EC1413	DATA COMMUNICATION	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
5	CS1402	DATA STRUCTURE & PROGRAMMING	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
6.	CS1403	SYSTEM SOFTWARE	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
PRACTICAL											
7	EC1404-P	DIGITAL COMPUTER DESIGN LAB	**--**	**--**	**3**	**25**	**--**	**25**	**25**	**50**	2
8	CS1405-P	DATASTRUCTURE LAB	**--**	**--**	**3**	**25**	**--**	**25**	**25**	**50**	2
9	CS1406-P	SYSTEM SOFTWARE LAB	**--**	**--**	**3**	**25**	**--**	**25**	**25**	**50**	2
10	EC1407-P	DATA COMMUNICATION LAB	**--**	**--**	**3**	**25**	**--**	**25**	**25**	**50**	2
11	HS1404-P	GENERAL PROFECIENCY- IV	**--**	**--**	**--**	**--**	**--**	**50**	**--**	**50**	2
TOTAL			**16**	**6**	**12**	**--**	**--**	**--**	**--**	**1000**	32

TA → TEACHER ASSESSMENT **CT → CLASS TEST** **ESE → END SEMESTER EXAMINATION**
TOTAL MARKS : 1000 **TOTAL PERIODS : 34** **TOTAL CREDITS : 32**

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

B. A. COLLEGE OF ENGINEERING & TECHNOLOGY, JAMSHEDPUR

COMPUTER SCIENCE AND ENGINEERING **YEAR : III** **SEMESTER : V**

Sl. No	Course No:	Subject	Periods			Evaluation Scheme					Credit
THEORY			**L**	**T**	**P**	**SESSIONAL EXAM**			**ESE**	**SUB TOTAL**	
						TA	**CT**	**TOTAL**			
1	HS 1501	MANAGEMENT SCIENCE	**2**	**1**	**--**	**15**	**10**	**25**	**50**	**75**	3
2	CS 1501	FORMAL LANGUAGE & AUTOMATA THEORY	**2**	**1**	**--**	**15**	**10**	**25**	**50**	**75**	3
3	CS1502	COMPUTER NETWORK	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
4	CS 1503	RELATIONAL DATABASE SYSTEMS	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
5	CS 1504	OPERATING SYSTEM- I	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
6	CS 1505	MICROPROCESSOR BASED SYSTEM DESIGN	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
PRACTICAL											
7	CS1506-P	COMPUTER NETWORK LAB	**--**	**--**	**3**	**25**	**--**	**25**	**25**	**50**	2
8	CS1507-P	RELATIONAL DATABASE SYSTEM LAB	**--**	**--**	**3**	**25**	**--**	**25**	**25**	**50**	2
9.	CS1508-P	OPERATING SYSTEM LAB	**--**	**--**	**3**	**25**	**--**	**25**	**25**	**50**	2
10	CS1509-P	MICROPROCESSOR LAB	**--**	**--**	**3**	**25**	**--**	**25**	**25**	**50**	2
11	HS1505-P	GENERAL PROFECIENCY- V	**--**	**--**	**--**	**--**	**--**	**50**	**--**	**50**	2
TOTAL			**16**	**6**	**12**	**--**	**--**	**--**	**--**	**1000**	32

TA → TEACHER ASSESSMENT **CT → CLASS TEST** **ESE → END SEMESTER EXAMINATION**
TOTAL MARKS : 1000 **TOTAL PERIODS : 34** **TOTAL CREDITS : 32**

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

B. A. COLLEGE OF ENGINEERING & TECHNOLOGY, JAMSHEDPUR

COMPUTER SCIENCE AND ENGINEERING **YEAR : III** **SEMESTER : VI**

Sl. No	Course No:	Subject	Periods			Evaluation Scheme					Credit
THEORY			**L**	**T**	**P**	**SESSIONAL EXAM**			**ESE**	**SUB TOTAL**	
						TA	**CT**	**TOTAL**			
1	CS 1601	INTERNET FUNDAMENTAL & APPLICATION	**2**	**1**	**--**	**15**	**10**	**25**	**50**	**75**	3
2	CS 1602	INTERACTIVE COMPUTER GRAPHICS	**2**	**1**	**--**	**15**	**10**	**25**	**50**	**75**	3
3	CS 1603	LANGUAGE PROCESSOR	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
4	CS 1604	COMPUTER ARCHITECTURE	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
5	CS 1605	OPERATING SYSTEM-II	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
6	CS 1606	ANALYSIS & DESIGN OF ALGORITHMS	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
PRACTICAL											
7	CS1607-P	SYSTEM ADMINISTRATION LAB	**--**	**--**	**3**	**25**	**--**	**25**	**25**	**50**	2
8	CS1608-P	INTERNET LAB	**--**	**--**	**3**	**25**	**--**	**25**	**25**	**50**	2
9.	CS1609-P	COMPUTER GRAPHICS LAB	**--**	**--**	**3**	**25**	**--**	**25**	**25**	**50**	2
10	CS1610-P	LANGUAGE PROCESSOR LAB	**--**	**--**	**3**	**25**	**--**	**25**	**25**	**50**	2
11	HS1606-P	GENERAL PROFECIENCY- VI	**--**	**--**	**--**	**--**	**--**	**50**	**--**	**50**	2
TOTAL			**16**	**6**	**12**	**--**	**--**	**--**	**--**	**1000**	32

TA → TEACHER ASSESSMENT **CT → CLASS TEST** **ESE → END SEMESTER EXAMINATION**
TOTAL MARKS : 1000 **TOTAL PERIODS : 34** **TOTAL CREDITS : 32**

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

B. A. COLLEGE OF ENGINEERING & TECHNOLOGY, JAMSHEDPUR

COMPUTER SCIENCE AND ENGINEERING **YEAR : IV** **SEMESTER : VII**

Sl. No	Course No:	Subject	Periods			Evaluation Scheme					Credit
THEORY			**L**	**T**	**P**	**SESSIONAL EXAM**			**ESE**	**SUB TOTAL**	
						TA	**CT**	**TOTAL**			
1	CS1701	SOFTWARE ENGINEERING	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
2	CS1702	OBJECT ORIENTED PROGRAMMING & METHODOLOGY	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
3	CS1703	DATABASE APPLICATION DESIGN	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
4		OPEN ELECTIVE-I	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
5		PROFESSIONAL ELECTIVE-I	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
PRACTICAL											
7	CS1704-P	SOFTWARE ENGINEERING LAB	**--**	**--**	**3**	**25**	**--**	**25**	**25**	**50**	2
8	CS1705-P	DATABASE APPLICATION LAB	**--**	**--**	**3**	**25**	**--**	**25**	**25**	**50**	2
9.	CS1706-P	OBJECT ORIENTED PROGRAMMING LAB	**--**	**--**	**3**	**25**	**--**	**25**	**25**	**50**	2
10	CS1707-P	PROJECT-I	**--**	**--**	**3**	**25**	**--**	**25**	**25**	**50**	2
11	HS1707-P	GENERAL PROFECIENCY- VII	**--**	**--**	**--**	**--**	**--**	**50**	**--**	**50**	2
TOTAL			**15**	**5**	**12**	**--**	**--**	**--**	**--**	**1000**	32

TA → TEACHER ASSESSMENT **CT → CLASS TEST** **ESE → END SEMESTER EXAMINATION**
TOTAL MARKS : 1000 **TOTAL PERIODS : 34** **TOTAL CREDITS : 32**

Electives	Sl. No	Code	Paper
OPEN ELECTIVE-I	01	CS2701	Enterprise Resource Management
	02	CS2702	E- commerce, Strategic IT Management
	03	HS2701	Technology Management
PROFESSIONAL ELECTIVE-I	01	CS2703	Network Management
	02	CS2704	Enterprise Network Management
	03	CS2705	Distributed Computing

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

B. A. COLLEGE OF ENGINEERING & TECHNOLOGY, JAMSHEDPUR

COMPUTER SCIENCE AND ENGINEERING **YEAR : IV** **SEMESTER : VIII**

Sl. No	Course No:	Subject	Periods			Evaluation Scheme					Credit
THEORY			**L**	**T**	**P**	**SESSIONAL EXAM**			**ESE**	**SUB TOTAL**	
						TA	**CT**	**TOTAL**			
1	CS1801	WEB TECHNOLOGY	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
2	CS1802	VISUAL PROGRAMMING	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
3		OPEN ELECTIVE-II	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
4		PROFESSIONAL ELECTIVE-II	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
5		PROFESSIONAL ELECTIVE-III	**3**	**1**	**--**	**30**	**20**	**50**	**100**	**150**	4
PRACTICAL											
10	CS1707-P	PROJECT-II + COLLOQUIUM	**--**	**--**	**12**	**100**	**--**	**100**	**100**	**200**	6
11	HS1707-P	GENERAL PROFECIENCY- VIII	**--**	**--**	**--**	**--**	**--**	**50**		**50**	2
TOTAL			**15**	**5**	**12**	**--**	**--**	**400**	**600**	**1000**	28

TA → TEACHER ASSESSMENT **CT → CLASS TEST** **ESE → END SEMESTER EXAMINATION**
TOTAL MARKS : 1000 **TOTAL PERIODS : 34** **TOTAL CREDITS : 32**

Electives	Sl. No	Code	Paper
OPEN ELECTIVE-II	01	CS2801	Decision Support and Executive Information System
	02	CS2802	Software Technology
	03	HS2801	Knowledge Management
	04	CS2803	IT in Marketing Management
PROFESSIONAL ELECTIVE-II	01	CS2804	Client Server Architecture
	02	CS2805	Relational Database System
	03	CS2806	JAVA Programming
PROFESSIONAL ELECTIVE-III	01	CS2807	RISC Architecture
	02	CS2808	Object Oriented Database System

Semester III

(CS1301) COMPUTER PROGRAMMING (2 - 1 - 0)

Overview of computer components and their function; computer languages, problem analysis, flow charts, decision tables, pseudocodes algorithms, stepwise refinement

Algorithmic Programming Language: Representation of integers, reals, characters, constants and variables, arithmetic expression and their evaluation using rules of hierarchy. Assignment Statements, Logical constants variables and expression. Control Structures-sequencing alteration, iteration, Arrays Procedures and functions manipulating vectors and matrices. Subroutines and linkages, data Management. Sample I/O statements, Documentation, debugging.storage and execution time estimation.

Suggested Text Books & Reference

- Sastry S.S. "Introductory method of Numerical Analysis", Prentice Hall of India
- Gerald, C.F " Applied Numerical Analysis". Edition Wesley.
- Gonway, R.Cries D.and Eimerman, R.C. " A Primer on Pascal", Winthrop Publ. Co. Cambridge.
- Rajaraman, V. "Computer Programming in Pascal", Prentice Hall of India.
- Jenson, K. & Wirth, N " PASCAL user Manual and report". Narusa Publ. House.

Schneider, G.M. & Bruell, S.C. "Advanced programming and Problem solving with PASCAL, Wiley Inter Science", MeGraw Hill York

(HS1301) ENGINEERING ECONOMICS (2 - 1 - 0)

Microeconomics
Demand Theory & Demand Forecasting , Production Theory, Cost Theory , X –Inefficiency.

Market Dynamics
Forms of Market, Elements of Competition, Perfect Competition, Monopoly & Prince Discrimination, Imperfect Competition Oligopoly.

Pricing Policies
Profit Concepts & Measurements, Entry Deterring Pricing, Predatory Pricing, Implicit Price Fixing, Multiproduct Pricing , Peak Load Pricing, Two part Tariff, Product Life Cycle,, Information Problems and Associated Cost.

Firms as an Organization
Objectives of the Firm, Type of the Firm, Firm versus markets, Uncertainty and Firm, Vertical and Horizontal Integration, Diversification, Merges and Takeover's.

Macroeconomics
Macroeconomics Aggregates and Concepts, Simple macroeconomics Model, Business Cycle, Inflation, Unemployment, Input Output Analysis.

Suggested Text Books & Reference

- Gupta G.S. " Managerial Economics"
- Davis, H. " Managerial Economics", ELBS- Pitman.
- Mote, V.N. Samual Paul & G.S. Gupta " Managerial Economics : Concepts and Cases", Tata McGraw Hill Co. Ltd. New Delhi.
- Ramakrishnan Rao T.V.S. "Theory of Firms : Economics and Managerial Aspects", Affiliated East West Press Pvt. Ltd. New Delhi.
- Joel Dean, " Managerial Economics", Prentice Hall.

(CS1302) COMPUTER ORGANISATION (3 - 1 - 0)

Representation of information

Number systems, integer and floating point representation, character codes (ASCII, EBCDIC), Error detection & correction codes.

Basic Building Block, Boolean Algebra, Combination logic design, flip-flops, registers, counters, ALU, Arithmetic and Logic Operations, Faster algorithms and their implementation. Organization of Central Units (Hardwired and Micro-programmed), Microprogramming organization. Memory types and Organisation. Address decoding and selecting,

Peripheral Devices: 1/0 devices (tape and disks). Programmed & Interrupt control mechanisms. I/0 controllers, Bus bandwidths. Assembly Language Programming. Programmers model of a machine. Example of a typical 16 to 32 bit processor. Registers, Addressing· modes, instruction set, use of an assembly language for specific programs for typical programs like: Table Search, subroutines Symbolic and numeric manipulations, and I/0.

Suggested Text Books & Reference

- Gear, C.W. "Computer Organisation and Programming", McGraw Hill, 1975.
- Tannenbaum, A.S. "Structured Computer Organisation", Prentice-Hall of India.
- Manno, M.M "Computer System Architecture", Prentice-Hall of India, 1983.
- Langholz, G., Grancioni, J. and Kandel, A.L. "Elements of Computer Organisation", Prentice-Hall International, 1988.
- Assembler "Manual for the Chosen Machine".
- Hayes " Computer Architecture and Organisation", McGraw-Hill international Edition.
- Sloan, "F.E. Computer Hardware and Organisation", 2nd Edition, Galgotia Publ. Pvt. Ltd.

(EC 1312) ELECTRONICS – II (3 - 1 - 0)

Review of d.c analysis biasing and bias stability for BJTS, small signal equivalent circuit, linear analysis, multistage circuits, biasing of FETS, FET equivalent circuit and amplifiers.

Feedback and amplifier Classification:

Effect of feedback on gain and impedence, emitter and source follower, step response of an amplifier, low frequency response, high frequency response, high frequency equivalent circuit, gain –BW product, effect of feedback on frequency response (single and double pole representation), High impedence circuits.

Differential amplifiers:

CMRR, Operational amplifiers, applications- summer, integrator, current converter, instrumentation amplifiers, active filters, comparators, Schmitt trigger circuit, square and triangular wave generator, monostable, wein bridge and tuned oscillators, op-amp bias currents and offset voltages, frequency response measurement of op-amp parameters, coupled amplifier.

Voltage regulator, regulators in regulator design, protection circuit, fixed and adjustable regulators, switching regulators.

Class A and class B power amplifiers, push-pull amplifier, audio power amplifier, LM 380 IC, distortion in class AB push – pull amplifier, class C amplifier, power op-amp and mosfet.

Voltage controlled oscillators, IC timer 555, and applications.

Suggested textbooks & References:

- Millman J. "Microelectronics", McGraw Hill.
- Taub H and Schilling, J, "Digital Integrated Circuits", McGraw Hill.
- Millman J and Halkias, C.C, "Integrated Electronics, Analog and Digital circuits".
- Allen Motershed, Electronic Devices and Circuits.
- Millman. J.Grabel.A, "Microelectronics", McGraw Hill.

(MH1303) MATHEMATICS – III (3 - 1 - 0)

Complex Variable

Complex number, Arc and diagram, complex functions, limit, continuity and differentiability Cauchy-Reimann equations, harmonic functions, constructions of analytic functions, by mile-Thomson method, conformal mapping, transformations W=Z", I/z, e, (az+b)/cz=d).

Fourier Series

Periodic functions, Fourier series of functions with period 2 change of interval, Half range sine and cosine series.

Laplace Transform

Laplace Transform, existence theorem, first shifting theorem, multiplication and division by T, laplace Transform of deviated Inverse laplace transform, application to solve Linear differential equations.
Unit step function, Direct delta function- their Laplace transforms, second shifting theorem, laplace transform of periodic function, Applications.

Series Solution of Differential Equation

Series Solution, Forbenious method, legendre and bessels equations.

Partial Differential Equation
Linear and nonlinear partial differential equations of first order, four standard forms.

Suggested Text Books & Reference

- Kreyszig E. "Advanced Engineering Mathematics".
- Prasad C. "Advance Engineering Mathematics ".
- Pati T. " Function of Computer Variable".

(ME1303) Strength Of Materials (3 - 1 - 0)

Stress-axial load-safety concept, general concepts; stress analysis of axially loaded bars; member strength of design criteria.
Axial strain and deformation; strains and deformation in axially loaded bars-stress-strain relationship, Poison's ratio-thermal strain and deformation-strain concentration.

Generalized Hooke's law, Pressure vessels, constitutive relationship-generalized concepts,-relationship between elastic constants; thin wall pressure vessel.

Torsion –tensional stress and deformation in circular members, design of circular members in torsion, closed coil helical spring.

Axial force, shear and bending moment diagram, introduction-direct approach for axial force, shear and bending, bending of beams with symmetrical cross section.

Shear stress in beams; introduction-shear flow-share stress in beams.

Transformation of stress and strain; analysis for combined loading; transformation o stress and strain-Mohr's rule for stress transformation.

Deflection of beams-introduction-deflection by integration-deflection by moment –area method. (6lectures)

Stability of column; introduction-Euler's buckling load formula, Rankin's formula-introduction to beam column.

Suggested Text Books & Reference

- Crandall**,** S.H. Dahl N.C. & Lardner, T.J. " An introduction to the Mechanics of Solids", McGraw Hill Books Co.
- Sharmes, L.H. "Introduction to Solid Mechanics", Prentice-Hall of India Ltd.
- Popova, E. " Engineering Mechanics of Solids".
- Singer, "Strength of Materials".

Gere and Tinoshenko, "Mechanics of Materials" C B S Publishers

III-SEMESTER PRACTICAL

(0 – 0 –3)

3rd Semester		
Course No.	Name of Lab	List of Experiments
CS1303-P	Computer Programming	1) program to search for the highest mark in a class 2) program to concatenate two string 3) program to reverse a given string 4) program for integration of K*Sinx dx 5) program for differentiation of A*xdx 6) program to find out factorial of a given number using recursion 7) program for binary search method.

(0 – 0 –3)

3rd Semester		
Course No.	Name of Lab	List of Experiments
EC1313-P	Electronics lab-II	1. Generation of square and triangular wave using op-amp IC. 2. Study of Class A amplifier and its waveform. 3. Study of Class B amplifier and its waveform 4. Determining the frequency of a wein bridge oscillator. 5. Determining the frequency of a phase shift oscillator. 6.Determining the frequency of a Hartley oscillator. 7.Determining the frequency of a Colpitt oscillator.

(0 – 0 –3)

3rd Semester		
Course No.	Name of Lab	List of Experiments
CS1304-P	Computer Organization	Programming in assembly level i) to add/subtract two numbers ii) to compare two characters iii) to multiply/dividetwo number iv) to find the maximum of n numbers v) to calculate the factorial of a given number vi) to find average of n numbers vii) to calculate the value of x^n

(0 – 0 –3)

3rd Semester		
Course No.	Name of Lab	List of Experiments
ME1308-P	Strength of Material	1. TENSILE TEST: To perform the tensile test upon given specimen. (Mild Steel) 2. COMPRESSION TEST: To determine the compressive strength of the given specimen. 3. TORSION TEST: To perform the torsion test on given specimen. 4. IMPACT TEST: To determine the impact toughness of the given material. (Izod/Charpy Impact Notch) 5. BRINELL HARDNESS TEST: To determine the hardness of the given specimen. 6. VICKER'S HARDNESS TEST: To determine the Hardness of the given specimen. 7. ROCKWELL HARDNESS TEST: To determine the hardness of the given specimen.

(IV Semester)

(MH 1401) DISCRETE MATHEMATICS (2 - 1 - 0)

Formal Logic
Introduction to formal logic, formulas of prepositions logic, Boolean valuations and truth sets, predicate calculas, quantification, notion of interpretation, validty, consistency and completeness.

Sets
Sets, operations on sets.

Functions
Ordered pairs, functions and sequences, recursive definitions.

Algebraic Structures
Lattices, semi groups, groups, rings, fields.

Graph Theory
Incidence, degrees, walks, paths, circuits, Euler graphs, Hamiltonian paths, trees, spanning tree, network flow, cut-sets, planar graphs, etc.

Combinatorics
Counting techniques-pigeon-hole principle, infinite sets, mathematical induction. Permutation. Generating functions. Recurrence relations and their solutions.

Suggested Text Books & Reference

- Mott. J.L., Kandel A. and Baker, T.P. "Discrete mathematics for computer scientists and mathematicians", Second Edition, Prentice-Hall 1986.
- Smullyan, R.M. "First Order Logic", Springer Verlag. 1968.
- Fraleigh, J.B. " A first cource ion Abstract Algebra", Narosa 1990.
- Deo, N. " Graph Theory with Application to Engineering and Computer Science", Prentice Hall of India 1980.
- Liu, C.L. " Introduction to Combinatorial Mathematics", McGraw Hill 1968.
- Tremblay J.P. and Manohar, R. " Discrete Mathematical Structures with Application to Computer Science" McGraw Hill 1975.
- Kolamn, B.,Busby R.C and Ross., S.C., "Discrete Mathematical Structures", Third Edition, Prentice-Hall, 1996.

(CS1401) SYSTEM ANALYSIS & DESIGN (2 - 1 - 0)

Overview'

Overview of system analysis and design, Business systems concepts, systems development life cycle, project selection, feasibility analysis, design implementation, testing ;and evaluation.

Project Selection

Sources of project requests, managing project review and selection, preliminary investigation.

Feasibility Studies
Technical and Economical feasibility, cost and benefit analysis.
System requirement specification and analysis, fact finding techniques, Data flow diagrams, data' dictionaries, process organization and interaction, decision trees and tables structural English advanced Modeling methods, ER Diagram & DFDS, Entity relationship model.Detailed Design

Modularization, module specification, file design, system development involving database. Program Design, Practical Design. System control and quality assurance, system administration and training, conversion and operation plans, Hardware and Software selection.

Suggested Text Books & Reference

- Rajaraman, V. "System Analysis and Design", Prentice Hall.
- Murdic, R.G., Rose, J.E. & Claggtt, J.R. "Information System for Modern Management", Prentice Hall India.
- Wigardes, K.,Sevensson, A., Sehong, L., A. & Dahlgren, G. " Structured Analysis and Design Information System", McGraw Hill Books Company.
- Thomas, R. & Prince " Information System for Planning & Control".
- Aktas, "Structure Analysis and Design of Information System" Prentice Hall International.
- Hawrys Zbiewyes I.T. " Introduction to System Analysis & Design", Prentice Hall of India.
- Sern J.A. "Analysis & Design of Information System", McGraw Hill.

(EC1412) Digital Circuit Design (3 - 1 - 0)

switching theory: Boolean algebra. logic gates, and switching functions, truth tables and switching expressions optimization of completely and incompletely specified switching functions- Karnaugh map multiple output minimization. Representation and manipulation of functions using BOD's. Combinational ; circuits: Decoders, multiplexers, ROMs and PLAs. Logic design using ROM and PLAs. Integrated circuits:TTL CMOS logic families and their characteristics. Sequential circuits: Clocks, Flip-flops, Latches, counters and registers, Finite-state machine model, synthesis of synchronous sequential circuits, Asychronous sequential circuit synthesis. ASM charts: Representation of sequential circuits using bar charts, synthesis of output and next state functions, Data path control path partition-based design. Fault function and Location: Fault models for combinational and sequential circuits, Fault detection in combinational circuits; Homing experiments, Distinguishing experiments, machine identification and fault detection experiments sequential circuits

- J.P. Hayes, "Computer Architecture and Organisation".
- J.P. Hayes, "Digital System Design and Microprocessor".
- W.I. Fletcher, "Engineering Approach to Digital Design".
- Peatman "Digital System".

(EC1413) Data Communication (3 - 1 - 0)

Fundamentals of Digital Communication. Communication channel, Measure of information, Encoding of source out put, Shannon's Encoding algorithms, Discrete and continues channel, Entropy aocling, Variable length codes, Data compression, Shannon-Hantly Theorem.

Base band data transmission, Base band pulse shaping, Inter Symbol Interface (ISI), Dubinary Base band PAM, System Many signaling schemes, Equalization, Synchronization Scrambler and Unscramble.

Suggested Text Books & Reference

- Shanmavgaon, K.S. “Digital And Analog Communication System”, John Wiley and Sons.
- Roden, M.S. “Analog and Digital Communication System”, P.H.I.
- Scheber, W.L. “Data Communication”, MGH.
- Tanebaum, “Computer Networks”.

(CS1402) DATA STRUCTURE & PROGRAMMING METHODOLOGY (3 - 1 - 0)

Elementary data structures : Arrays and strings; packing; space arrays; algorithm development; recursion . Sequential Search, Divide and conquer binary search ; selection and insertion sort merge sort; quick sort; complexity of sorting . Linear lists - stacks; stack use-postfix notation recursion removal. queues-circular queues. Linked list-definition on Pascal and C ; creation and deletion; of nodes; circular and doubly 1inked lists; applications of list . Graphs; UNION and FIND operations ; graph algorithms ; optimization and greedy method ; minimum spanning spanning tree , shortest path . Trees, binary trees; threaded. trees; heap sort; tries and B-trees; external search. backtracking. String algorithms-pattern search and text editing. Structured approach to programming step wise refinement approach . Reasoning about programs , program specification , pre and post condition , weakest pre-conditions , program assertions , loop invariants . Programming style-documentation , basic concepts program testing .

Suggested Text Books & Reference

- Wirth Niclaus, “Algorithms + Data Structures = Programs”, Prentice Hall International 1978.
- Horwitz, E., and Sahni, S. “Fundamentals of Data Structures”, Computer Science Press, 1978.

- Kuth, D. “Theart of computer programming”, Vols. 1-2, Addision-Wesley, 1970-80.
- Aho A.V., Hopcroft, and Ullman; J.E., “ Data Structure and Algorithms”, Admission Wesley, 1982.
- Tanonbaum, A.M. and Augenstein, M.J., “ Data Structure with PASCAL”, Prentice Hall International, 1985.
- Trembley and Sorenson, “data Structures using Pascal”, McGraw Hill,1985.
- Stubbas, D., “ Data structures with abstract data types and Modula 2”, Books & Cole Publications Comp. 1987.

(CS1403) System Software (3 - 1 - 0)

Machine architecture, instruction set, addressing modes arithmetic logic operations, floating point operations, machine language. Introduction to language processors, language-processing activities, fundamentals of language processing.
Programming: Review of syntax of C with emphasis on features like pointers. Bit operas, Pre-processors, files. Assemblers, Cross Assemblers: Two pass assembler design, data structures and algorithms.
Macro Processors: Definitions, nested macro-definitions, macro expansion, conditional macro expansion
Linking, Loading, and Relocation, Static and Dynamic linking. Loading and Relocations.
Editors, debuggers, interactive programming environments. Introduction to intenupts, intenupt types, software intenupts, Hardware intenupts, intenupt calls from C, internal structure of DOS, COM & EXE Programs, and BIOS, Memory resident programs. Running Batch files.
Programming Examples of text handling, file management, interface and device driver, Table processing: linear search, binary search, sorting, programming in C.

Suggested Text Books & Reference

- Donovan, J.J., “Syatem Programming”, Tata McGraw Hill.
- Dhamdhare, D.M., “ Introduction to System Software”, Tata McGraw Hill Publishers. Comp. 1986.
- Micheal Tischer “ PC System Programming”, Abacus.
- Cooper Mullish “ The Sprit of C, An Introduction to Modern Programming”, Jaico Publication, New Delhi, 1987.
- Dhamdhare, “System Programming and Operating System”, Tata McGraw Hill.
- Gottfried, “Programming with C, Schaum Series”, Tata McGraw Hill.

IV SEMESTER PRACTICAL

(0- 0 – 3)

4th Semester		
SL. NO.	Name of Lab	List of Experiments
EC1401	Digital Computer Design Lab	1. Study of logic Gates and Simplification of logic 2. Study of R-S, D-T AND J-K flip flop. 3. Study of Shift register. 4. Study of BCD counter. 5. Study of 8:1 Multiplexer

(0- 0 – 3)

4th Semester		
SL. NO.	Name of Lab	List of Experiments
CS1405-P	Data Structure	1) Write a program in C for factorial of a given number using recursion method. 2) Write a program in C for Divide and Conquer search. 3) Write a program for selection sort, Quick sort and merge sort. 4) Write a program for stack and perform operation like PUSH and POP. 5) Write a program for Linked List and perform operations like Creation of nodes and Deletion of nodes. 6) Write a program for circular and doubly linked list. Write a program for depth first and breath first search

(0- 0 – 3)

4th Semester		
SL. NO.	Name of Lab	List of Experiments
CS1406-P	System Software	1) Write a program for swapping two variable 2) Write a program, which will read a line of text and count all the occurrence of a particular word in line. 3) Write a function which converts uppercase letters to lowercase (without using library function) 4) Write a program to create a singly linked list of records sorted in ascending order 5) Write a program for concatenating two strings to get new string. String is to be stored using fixed length method. 6) Write a program, which will read a line and store in text file. 7) Write a program, which will read two different text files and will store in third file.

(0- 0 – 3)

4th Semester		
SL. NO.	Name of Lab	List of Experiments
CS1405-P	Data Communication Lab	1. Study of digital Communication System 2. Study of Shannon-Hantly Theorem. 3. Study of different Signaling Scheme. 4. Study of band pass data transmission system like ASK, PSK, & FAK. 5. Study of different type of switching like Circuit, Packet etc.

(V Semester)

(HS1501) MANAGEMENT SCIENCE (2 -1 - 0)

Principle of Management

Definition and concept of Management. Evolution of Management Thought. System Approach and Decision Theory Approach to Management. Process of Decision Making.

Functions of Management

Planning: Types of Plan, Major steps in Managerial Planning. Strategies, MBO.
Organization, Nature & Purpose, Process of Organization. Basic Departmentation.
Co-ordinating; Supervision, Communication & Direction. Leadership, Motivation.
Controlling, Nature and purpose, Control Techniques and Information Technology.
International Management; Japanese Management Vs. US Management Managerial functions in International business.

Organization Theory

Group Dynamics: Defining and classifying groups, Group Processes, Group Task,
Group Cohesiveness.

Conflict Management: Discovery of conflicts, Processing of Grievances, conflicts resolution, conflict and inter-group Relations.

Stress Management: Nature of Stress, Potential Sources of Stress, Consequences Strategies.

Suggested Text Books & References

Koontz, H. and Weihrich, H,"Essential of Management".
Mathur, S.S., "Principle of Management".
Agarwal, R.D., " Organization of Management".
Robbin. S.P., "Organization Behaviors".
Hicks & Gullet, " Organization: Theory & Behavior

(CS1501) Formal Language and Automata Theory (2 -1 - 0)

Alphabet, languages and grammars. Production rules and derivation of languages. Chomsky hierarchy of languages. Regular grammars, regular expressions and finite automata (deterministic and nondeterministic). Closure and decision properties of regular sets. Pumping lemma of regular sets. Minimization of finite automata. Left and right linear grammars. Context free grammars and pushdown automata. Chomsky and Griebach normal forms. Parse trees, Cook, Younger, Kasami, and Early's parsing algorithms. Ambiguity and properties of context free languages. Pumping lemma, Ogden's lemma, Parikh's theorem. Deterministic pushdown automata, closure properties of I deterministic context free languages. Turing machines and variation of Turing machine model, Turing computability . Linear bounded automata and context sensitive languages. Primitive recursive functions.
Cantor and Godel numbering. Ackermann's function, mu-recursive functions, recursiveness of Ackermann and Turing computable functions. Church Turing hypothesis. Recursive and recursively enumerable sets.. Universal Turing machine and undecidable problems. Undecidability of Post correspondence problem. Valid and invalid computations of Turing machines and some undecidable properties of context free language problems.

Suggested Text Books & Reference

- Hopcroft and Ullman, "Introduction to Automata Theory Languages and Computation", Narosa.
- Mishra & Chandra Shekaran, "Theory of Computer Science". Prentice Hall.
- Kohan, "Theory of Computer Science".
- Korral, "Theory of Computer Science".

(CS1502) Computer Network (3 -1 - 0)

Introduction to Networks and Layered Architecture. OSI model. Data Communication Concepts. Transmission media Topology, Multiplexing. Circuit switching & packet switching Data Link Layer. Layer 2 switches and ATM, SONET/SDH. Medium Access Control. CSMA CD, TDMA. FDMA, COMA. Network Layer and address version 4 and 6. Routing Algorithms. Transmission Layer, TCP and UDP. Congestion Control Technique. ATM. Internetworking. Wireless communications. Network Management and security.
Lab : Simulation Experiments for protocol performance, Configuring, testing and measuring Network devices and parameters/policies; Network management experiments; Exercises in Network programming.

Suggested Text Books & Reference

- Black, "Computer Networks".
- Schwartz, "Communication Networks".
- Stevens, "UNIX Network Programming".

Dugglas, "TCP/IP and internetworking

(CS1503) Relational Database Management System (3 -1 - 0)

Data Models - Entity-Relationship, Network, Relational and Object Oriented Data Models, integrity Constraints, and Data Manipulation Operations. Relational Query Languages: Relational Algebra, Tuple and domain Relational Calculus, SQL and QBE; Relational Database Design , Domain and Data dependency, Normal Forms, Dependency Preservation, Lossless design. Query Processing and Optimization. Evolution of Relational Algebra Expressions, Query Equivalence, Join strategies, Query Optimization Algorithms Storage Strategies: Indices, B-trees, Hashing; Transaction Processing: Recovery and Concurrency Control, Locking Timestamp based Schedulers, Multiversion and Optimistic Concurrency Control schemes.
Laboratory: Database Schema Design, Database Creation, PL/SQL Programming and Report Generation using a commercial RDBMS like ORACLE/SYBASE /DB2 / SQL-Server /INFORMIX.

Suggested Text Books & Reference

- Elmarsi, ramex Shamkant B.. Navathe, “Fundamentals of data Base System”.
- Jeffry D. Ulman, “Principle of Data Base System”, Second Edition Galgotia Pub.
- Date, C.J. “ An Introduction to Database System”, Vol. I,II & IIIrd, Addision-Welsey.
- Prakash, Naveen., “Introduction to database Management”, Tata McGraw Hill.

(CS1504) Operating System I (3 -1 - 0)

Evolution of Operating Systems. Structural overview, Concept of process and Process synchronization, Process Management and Scheduling, Hardware requirements: protection context switching, privileged mode; Theads and their Management; Tools and Constructs for Concurrency, Detection and Prevention of deadlocks, dynamic Resource Allocation, Design of I/o systems, File Management, Memory Management: paging, virtual memory management, Distributed and Multiprocessor Systems
Lab: Familiarization with UNIX system calls for process management and inter-process communication Experiments on process scheduling and other operating system tasks through simulation /implementation under a simulated environment (like Nachos).

Suggested Text Books & Reference

- Milenkovic M., “Operating System: Concept of Design”, McGraw Hill.
- Tanenbaum, A.S., “Operating System Design & Implementation”, Prentice Hall NJ.
- Silbersehatz A. and Peterson, J.L. “ Operating System Concepts”, Wiely.
- Stalling, William “Operating Systems”, Maxwell McMillan International Editions, 1992.
- Dietel, H.N. “ An introduction to Operating System”, Addision Wesley.

(CS1505) Microcomputer based System Design (3 - 1 - 0)

Architecture of 16/32 bit microprocessor such as Intel 8086/186/286/386/486 Motorola 68600/68010 Comparative study of architecture , instruction types , addressing modes, interrupt structure Assembly language programming on variable 16/32 bit machine, Hardware and software interrupt management. Controller such as keyboard, Diskette and DMA Serial communication controller Dynamic Ram and its controller , Backup power for semi conductor memory Multi processor configuration, Numeric processor I/O processor. I/O standard RS 232c.

Suggested Text Books & Reference

- Milenkovic M., “Operating System: Concept of Design”, McGraw Hill.
- Tanenbaum, A.S., “Operating System Design & Implementation”, Prentice Hall NJ.
- Silbersehatz A. and Peterson, J.L. “ Operating System Concepts”, Wiely.
- Stalling, William “Operating Systems”, Maxwell McMillan International Editions, 1992.
- Dietel, H.N. “ An introduction to Operating System”, Addision Wesley.

V –SEMESTER PRACTICAL

(0 – 0- 3)

5th Semester		
SL. NO.	Name of Lab	List of Experiments
CS1506-P	Computer Network	1) Installation and configuration of Windows 2000 server 2) Installation and configuration of Linux. 3) Configuration of IIS server. 4) Detailed study of routers, switches and bridges. 5) Configuration of LAN 6) Study of TELNET.

(0 – 0- 3)

5th Semester		
SL. NO.	Name of Lab	List of Experiments
CS1507-P	Relational Database System	1) Creation of tables 2) Creation of tables with all possible constraints 3) Creation of Sequences 4) Creation of Views 5) Creation of Indexes. 6) Writing Function in PL/SQL 7) Writing Procedure in PL/SQL 8) Creation of triggers in PL/SQL Creation of Cursor in PL/SQL

(0 – 0- 3)

5th Semester		
SL. NO.	Name of Lab	List of Experiments
CS1508-P	Operating System	1) Implementation of FCFS scheduling. 2) Implementation of priority based non pre emptive algorithm 3) Implementation of shortest job first algorithm. 4) Study of different CPU scheduling algorithm. 5) Detailed Study of paging, segmentation and paging with segmentation

(0 – 0- 3)

5th Semester		
SL. NO.	Name of Lab	List of Experiments
CS1508-P	Microprocessor	1. A Program to add: *(i)* Two 8-bit numbers *(ii)* Two 16-bit numbers 2. A Program to find the smallest number in a data array. 3. A Program to find multiplication of two 8-bit numbers. 4. A Program to find a square root of a number. 5. Program and verification of Speed control of stepper motor. 6. Program and verification of Seven-segment display.

(VI Semester)

(CS1601) Internet Fundamentals & Application (2 -1 - 0)

Evolution of Internet, TCP/IP addressing and routing. Internet applications FTP, Telnet, Email, Chat. World Wide web, HTTP protocol. Designing web pages HTML, forms, CGI scripts and clickable maps, JavaScript.
Java servlets, Perl. DHTML, XML. E-Commerce and security issues including symmetric and asymmetric key, encryption and digital signature authentication. Internet telephony, virtual reality over the web. Intranet and extra net, firewall design issues.

Suggested Text Books & References

* Black, "Computer Networks".
* Stevens, "Unix Networking Programming", 2nd Edition

(CS1602) Interactive Computer Graphics (2- 1 –0)

Graphics hardware and display devices; graphics primitives- drawing lines and curves; 2d and 3d transformations segments and their applications; generating curves, surfaces and volumes in 3d, wire-frame models, Bezier and spline curves and surfaces; geometric modeling- elementary geometric algorithms for polygons, boundary representations, constructive solid geometry, spatial data structures; hidden surface and line elimination; rendering, shading, light models. Realistic image synthesis techniques, textures and image-based rendering; video games
and computer animation.

Laboratory: Programming for generating tines, curves and rendered surfaces. Interactive graphics programming- modeling and updating objects in an object hierarchy, video games, computer animation and realistic image synthesis.

Suggested Text Books & References

- Rogers "Procedural Elements of Computer Graphics", McGraw Hill.
- Newman & Sproule, "Principles of Interactive Computer Graphics", ", McGraw Hill.1987
- Harringtones. S., "Computer Graphics", A Programming Approach 2nd Edition, McGraw Hill. 1987.
- Rogers & Adams "Mathematical Elements of computer Graphics", 2nd Edition, McGraw Hill.
- Henary Baper,"Computer Graphics".

(CS1603) LANGUAGE PROCESSORS (3- 1 –0)

Compiler Structure: Analysis - Synthesis model of complication, various phases of a compiler, Tool based approach to compiler construction.
Lexical Analysis: Interface with input, parser and symbol table, Token, lexeme and patterns. Difficulties in lexical analysis, Error reporting, Implementation, Regular definition, Transistion diagrams, LEX.
Syntax Analysis: CFGs, Ambiguity, associativity, precedence, Top down parsing, Recursive descent parsing, Transformation on the grammars, Predictive parsing, Bottom up parsing, Operaor precedence grammars, LR parses (SLR, LALR, LR), YACC.
Syntax Directed Definitions: Inherited and synthesized attributes, dependency graph, Evaluation order, bottom up and top down evaluation of attributes, I-and S- Attributes definitions.
Type Checking: Type system, type expressions, structural and name equivalence of types, type conversion, overloaded functions and operators, polymorphic functions.
Run Time System: Storage organization, activation tree, activation record, parameter passing, symbol table, dynamic storage allocation.
Intermediate Code Generation: Intermediate representations, translation of declarations, assignments, control flow, Boolean expressions and procedure calls. Implementation issues.
Code Generation and Instruction selection: Issues, basic blocks and flow graphs, register allocation, code generation, Dag representation of programs, code generation from dags, peep hole optimization.

Suggested Text Books & References

- Aho, A. V. Sethi R. and Ullman, J.D. "Compilers Principles, Techniques and Tools", Adision-Wesley, 1988.
- Fischer, C. and LeBlanc, RJ. "Crafting a Compiler with C, Benjamin Commings", 1991.
- Holub, A.C. "Compiler Design in C", Prentice Hall of India, 1993.

(CS1604) Computer Architecture (3- 1 –0)

Overview of von Neumann architecture: Instruction set architecture; The Arithmetic and Logic Unit, The Control Unit, Memory and I/O Devices and their interfacing to the CPU; Measuring and reporting performance ; CISC and RlSC processors, Pipelining, Basic concepts of pipelining, data hazards, control hazards, and structural hazards; Techniques for overcoming or reducing the effects of various hazards. Hierarchical Memory Technology: Inclusion, Coherence and locality properties; Cache memory organizations, Techniques for reducing cache misses; Virtual memory organization, mapping and management techniques, memory replacement policies. Instruction-level parallelism: Concepts of instruction-level parallelism (ILP), Techniques for increasing ILP; Super scalar, super pipelined and VUW processor architectures; Vector and symbolic processors; Case studies of contemporary microprocessors

Multiprocessor Architecture: Taxonomy of parallel architectures; Centralized shared-memory architecture, synchronization, memory consistency, interconnection networks; Distributed shared-memory architecture, Cluster computers. Non von Neumann Architectures: Data flow Computers, Reduction computer architectures, Systolic Architectures.

Suggested Text Books & References

- Hwang, K. "Advanced computer architecture with Parallel programming", McGraw Hill.
- Patterson D.A and Hennessy, J.L. "Computer architecture a quantitative approach", 2nd Edition, Morgan Kaufman, 1996.
- Stone, H.S. "Advanced Compter Architecture" , Adision-Wesley, 1989.
- Siegel, H.J."Interconnection Network for Large Scale Parallel Processing", 2nd Edition, McGraw Hill. 1990.

(CS1605) Operating System II (3- 1 –0)

System Administration: Understand configuration of H/W, configuration of Kernel, Setting up of serial H/W, configuration of TCP/IP Networking, Name Service & Resolve configuration,
Understanding of various Network Application, Management of NIS, Understanding NFS and AFS, configurations of Mail, configuration NNTP/TIN, file System & Quota Management

Suggested Text Books & References

* Linux Administration.
* Hpux Administration Manual
* DELALPHA Administration Manual.
* Tanbaum: Modern Operating System

(CS1606) Analysis and Design of Algorithm (3- 1 –0)

Algorithms and Complexity - asymptotic notations, orders, worst-case and average-case, amortized complexity.
Basic Techniques - divide & conquer, dynamic programming, greedy method, backtracking, branch and bound, randomization. Data Structures - heaps, search trees, union-find problems. Applications - sorting & searching, combinatorial problems, optimization problems, computational geometric problems, string matching. Graph Algorithms - BFS and DFS, connected components, spanning trees, shortest paths, max-flow. NP-completeness.
Approximation algorithms.
Laboratory: Implementation of algorithms covered in class: This will involve running the algorithms under varying Input sets and measuring running times, use of different data structures for the same algorithm (wherever applicable) to see its effect on time and space, comparison of different algorithms for the same problem etc.

Suggested Text Books & References

- Horowitz E. & Sahni,S, "Fundamental of Computer Algorithm", Galgoyia.
- Aho, Hopcroft & Ullman, " The DESIGN & ANALYSIS OF ALGORITHM", Adision-Wesley. Sedgewick,"Algorithms in C".

VI –SEMESTER PRACTICAL

(0-0-3)

6th Semester		
SL. NO.	Name of Lab	List of Experiments
CS1607-P	System Administration	1) TCP/IP configuration 2) Configuration of mail server 3) Configuration of file server 4) Configuration of print server 5) Study of Novel NetWare

(0-0-3)

6th Semester		
SL. NO.	Name of Lab	List of Experiments
CS1608-P	Internet Lab	1) Configuration of IIS server 2) Study of scripting Language 3) Static Web Page designing 4) Dynamic Web Page designing

(0-0-3)

6th Semester		
SL. NO.	Name of Lab	List of Experiments
CS1609-P	Computer Graphics	1) Creation of lines and Plane 2) Creation of different polygons 3) Implementation of different polygons filling algorithms 4) Implementation of different clipping algorithm

(0-0-3)

6th Semester		
SL. NO.	Name of Lab	List of Experiments
CS1610-P	Language Processor	1. Write a Compiler for a small language. 2. Design a predictive parser for small language. 3. Design a Scanner(Lex, Flex) 4. Design a Parser.(Yacc/Bysy) 5. Study of code Optimisation.

(VII Semester)

(CS1701) Software Engineering (3- 1 –0)

Introduction, Software Life-cycle models, Software requirements, specification, specification-axiomatic and algebraic specifications. Function-oriented software design, Object-oriented design, UML, User interface design, coding and unit testing, integration and systems testing, Software reliability and fault-tolerance, Software project planning, monitoring, and control. Software maintenance. Computer-aided software engineering (CASE), Software reuse, Component model of software development. Laboratory: Development of requirements specification, function oriented design using SNSD, Object-oriented design using UML test case.

Suggested Text Books & References

* Jalote,Pankaj,**"** Integrated Approach to S/W", Narosa.
* Pressman, R,"S/W Engg., A Practioner's Approach", 4th Edition., , McGraw Hill. 1990, Pfleerger,S.L. "S/W Engineering" , MacMillon.

(CS1702) Object Oriented Programming & Methodology (3- 1 –0)

Introduction to the principles of object-oriented programming (classes, object messages, encapsulation, inheritance, polymorphism. exception handling, and object-oriented containers). Object design implementation in a programming language, e.g., C++ or Java. Object oriented analysis, modeling and design. UML may be introduced. Use cases, Use case driven analysis. Structural Modeling: classes, relationship., interfaces, class diagrams, and object diagrams, in UML. Behavioral Functional modeling: use case diagram., sequence diagrams, in UML. Dynamic Modeling: state charts. Architectural Modeling. Analysis, patterns. Design patterns. Distributed Object Model.

Suggested Text Books & References

* Rumbaugh, James Michel Blaha William Premerlani, Frederick, Eddy and William Lorensen," OBJECT ORIENTED MODELLING& DESIGN"

* Dillon T. and Tan, Poh Lee "OBJECT ORIENTED CONCEPTUAL MODELLING", Prentice Hall, 1993.

(CS 1703) Data Base Application Design (3- 1 –0)

Design Theory for Relational Database
Functional Dependencies, Decomposition of Relation Scheme, Normal for Relations Schemes, Normal Forms for Relations Scheme, Multi valued and other kinds of Dependencies.

Query Optimization
Basic Optimization strategies, Algebra Manipulation, Optimization of Selections in System, Exact optimization under weak equivalence.

Database Protection
Integrity, Integrity constraints in query – by - example, Security in Query –by example, Security in Statistical Database.

Concurrent Operations on the Database
Basic concepts, a simple transaction model, A model with Read - and - Write only model, Concurrency for Hierarchical structured items, protecting against crashes, optimistic concurrency control.

Distributed Database System
Fragment of relations, Optimization transmission cot by semi joins, distributed concurrency control.

VII-SEMESTER PRACTICAL

(0-0-3)

7th Semester		
SL. NO.	Name of Lab	List of Experiments
CS1704-P	Software Engineering	1) Study of waterfall model 2) Study of spiral model. 3) Study of case tools. 4) Study of project scheduling 5) Study of different testing tools 6) Study of bottom-up and Top-down designing

(0-0-3)

7th Semester		
SL. NO.	Name of Lab	List of Experiments
CS1705-P	Database Application	1) Study and application of normalization. 2) Study and application of de- normalization. 3) Study and application of different types of locking 4) Study and application of different types of joins . 6) Study and application of database security.

(0-0-3)

7th Semester		
SL. NO.	Name of Lab	List of Experiments
CS1706-P	Object Oriented Programming	1)Write a program that consists of two classes time 12 and time 24. The first class maintains time on a 12- hour basis , where as the other maintains the same in 24-hour basis. Provide conversion function to carry out the conversion from one object to another . 2) Write a program that implements a Data class containing data members day, month and year . Implement copy constructer in this class. 3) Write a program in C++ to implement a stack. 4) Implementation a String class containing the following function ➢ Overloaded '+' operator function to concatenation of string ➢ Overloaded '=' operator function to carryout of string copy 5) Write a program that contains a class derived , derived from base . The base class should have virtual function f() and it should be overridden in the derived class .

(VIII Semester)

(CS1801) Web Technology (3- 1 –0)

History of the Web, growth of the web in past decade, TCP/IP, FTP, Telnet. World Wide web: HTTP protocol. Designing web pages: HTML, DHTML, CGI scripts and JavaScript. E-Commerce and security aspects on the web, encryption and digital signature. Emerging trends, introduction to ASP.Net, active server page object, ASP components, creating components with application scope. ASP forms. JAVA applet programming, JAVA applets. Cookies and its application.

(CS1802) Visual Programming (3- 1 –0)

Creating windows, menus, file handling in windows, dialogue boxes, scroll bars, list boxes, mouse techniques, reading key strokes in windows, windows message, debugging in Visual C++, multi document interface (MDI), Object linking and embedding (OLE), writing X applications, constructing Graphical User Interface.

Suggested Text Books & References

- V. RAJARAMAN, "Introduction to Computer Programming"
- Morris," Computer Organization".
- Hamacher,"Computer Organization".
- Kanter,"Managing Information System".

LIST OF OPEN ELECTIVE
&
PROFECTIONAL ELECTIVES

OPEN ELECTIVE I

1. Enterprise Resource Management.
2. E-Commerce, Strategic IT Management.
3. Technology Management.
4. Decision Support and Executive Information system.
5. Software Technology
6. Knowledge Management.
7. IT in Marketing Management.

PROFESSIONAL ELECTIVE I

1. Network Management.
2. Enterprise Network Management.
3. Distributed Computing.
4. Client Server Architecture.
5. Relational database system.
6. JAVA Programming.
7. RISC architecture.
8. Object Oriented data base system

----------*----------