(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