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.