PAPER – III: APPLIED ELECTRONICS AND COMPUTER PROGRAMMING

UNIT I: OPERATIONAL AMPLIFIER: CHARACTER TICS AND APPLICATIONS

Basic information of operational amplifier – AC and DC characteristics – Basic operational amplifier application: -multiplier, divider, differentiator, integrator-Instrumentation amplifier – AC amplifier-voltage and current and current to voltage converter – sample and hold circuit-log and antilog amplifiers-electronic analog computation-simultaneous and linear differential equation-comparator – Schmitt trigger.

UNIT II: ACTIVE FILTERS, OSCILLATORS AND 555 TIMER

Active filters-low pass, high pass, band pass, band reject filters-filter design – oscillators-principles and various types-Phase Shift oscillator-Wien's bridge oscillator, Voltage controlled oscillator-555 Timer: Description of functional diagram-monostable, astable and bistable multivibrators-phase lock loop-operating principles and monolithic phase-lock loops.

UNIT III: DIGITAL ELECTRONICS

Simplification of Boolean functions using Karnaugh map-combinational logic: Design procedure-adders, subtractors, Code conversion – Sequential logic: Flip-flops, Design of counters (Binary, BCD, Modulo) – state equation-state diagram – Shift registers.

UNIT IV: PROGRAMMING I

Overview of C – Character set – Constants: Integer, Real, Character and string – Variables: local and global variables – Data types: Primary, User-defined, derived, empty data set – Operators and expression: arithmetic, relational, conditional, bitwise, special operators – Input/Output operations: getchar(), putchar(), gets(), puts(), scanf, printf.

UNIT-V: PROGRAMMING II

Control structures: if, if …else, nested if…. else, elseif ladder, goto, while, do…while, for break, continue, switch statements – Arrays: one, two and multi-dimensional arrays – Functions – Structures and Unions – Pointers – File management in 'C'.

BOOKS FOR STUDY AND REFERENCE:

1. D.Roy Choudhury, Shail Jain, Linear Integrated Circuits, New age International Pvt. Ltd., New Delhi, 1999. (Unit-I & II)
2. R.A.Gayakwad, Operational amplifier and Linear Integrated Circuits, PHI Pvt. Ltd., New Delhi, 1999. (Unit-II)
3. M. Mano, Digital logic and computer design, PHI Pvt. LTd., New Delhi 1999. (Unit-III)
4. E.Balagurusamy, Programming in ANSI C, Tata McGraw Hill Publishing Company Ltd., Second Edition, New Delhi. (Unit-IV & V)
5. B.S. Gottfroed, Programming with C, Tata McGraw Hill Publishing Company Ltd., New Delhi, 1996.