ELECTRONICS

1. Basic Circuit Theory :

Loop and nodal analysis. Matrix methods of solving loop and nodal circuit equation. Network Theorems. Fourier analysis of periodic waveforms. Laplace transforms and applications. Coupled circuits.

2. Electronic Devices :

Basic semiconductor theory (device physics). Diodes, BJTs and MOSFETS.

3. Electronic Circuits :

Amplifiers (common circuits, biasing methods, small signal analysis etc.), Op-Amp basics and applications. Large signal amplifiers and filters. Feedback.

4. Digital Electronic Circuits :

Number system and codes. Boolean algebra and logic circuits. Minimization of Boolean expressions (K-maps). Logic families (TTL, ECL and CMOS)-comparison on the basis of performance Combinational logic circuit design, sequential circuits (FF, Shift Registers, Counters), RAM and ROMS.

5. Communication :

Fourier analysis, sampling, Z-transforms, random variables and stochastic process. Amplitude and Frequency modulations, TDM, FDM, Noise, Pulse Modulation. Baseband digital transmission. Digital Modulation technique. Error control coding.

6. Microprocessor :

UP architecture, Memory interfacing, interrupts and timing. Flow charts and pseudo codes. Study of common peripheral chips. Assembly language programming, 1/0 programming and simple applications.