Subjects : Electronics and (Tele-) Communication Engineering

1. Basic Electrical Engineering: **DC networks, Single phase AC circuits, Magnetic circuits, Three-phase AC circuits**
2. Network Theory: **Overview of Network Theorems, Two Port Networks and Network Functions, Resonance and Coupled Circuits, Laplace Transform for Network Analysis, Network Synthesis, Network Topology, Passive Filter**
3. Electronic Circuits: **Amplifiers Design and Analysis - Single Stage and multi stage, Feed Back Amplifier, Oscillators.**

4. Electronic Devices: **Energy Bands and Charge Carriers in Semiconductors, PN Junction Diode, Bipolar Junction Transistor, Field Effect Transistor**
5. Analog System Design: **Fundamentals of Operational Amplifier, Linear Op-amp Circuit, Non-linear Circuit Applications, Signal Generators, Limitations of Practical Op-amps, Voltage Reference, Voltage Regulators, D/A and A/D converters, Active Filters.**
6. Digital Electronic Circuits: **Basics of Digital Electronic Circuits, Logic gates, Boolean Algebra, Combinational logic circuits, Sequential logic circuits, Logic Families**
7. Digital System Design: **Basics of VHDL, HDL Modeling of Combinational Logics, HDL Modeling of Sequential-Circuit Building Blocks, Memory and Programmable logic**

8. Signals and Systems: **Basic of Signals and Systems, LTI Systems, Fourier Analysis – continuous time and discrete time, Sampling and Reconstruction, Laplace Transform.**
9. Analog Communication: **Amplitude Modulation, Angle Modulation, Radio Receivers, Noise, Pulse Modulation**
10. Digital Communication : **Information Theory, Pulse Modulation, Signal Space Analysis.**
11. Wireless Communication: **Basics of Wireless Communication, Cellular Concept.**
12. Antenna and Wave Propagation: **Electromagnetic Theory, Basic Concepts of Antenna, Antenna Arrays, Practical Antennas, Matching Network, Wave Propagation**

13. Microprocessor: **Architecture of Microprocessor, Programming of Microprocessor, Data Transfer, Interfacing, Advanced microprocessors**
14. Microcontrollers and Embedded System:**Basics of Microcontrollers, 8051 Microcontroller.**
15. Instrumentation and Electronic Measurements: **Measurement and Error, Bridges, Electromagnetic Instruments (D – Arsonval, etc.), Electronic Instruments (Multimeter, Frequency Meter, Oscilloscopes, Digital Storage Oscilloscopes, etc.).**