

**ELECTRICAL ENGINEERING DEPARTMENT**  
**SYLLABUS OF M.E. (Control System and Power System)**  
**ENTRANCE EXAMINATION–2018**

**Circuit Theory:**

Thevenin's, Norton's, Superposition, Maximum Power Transfer Theorem and their applications to A.C. & D.C. circuits with dependent and independent sources, Transient response analysis of A.C. & D.C. networks, Three Phase Circuits. Response to non-sinusoidal input function of periodic and aperiodic nature

**Electronics:**

Construction, working and transfer characteristics of diode, BJT, JFET & MOSFET. Clipper, Clamper & rectifier circuits. Biasing, DC Analysis & small signal models of BJT, JFET. Boolean Algebra, Minimization techniques, Combinational & Sequential Circuits.

**Power Electronics:**

Uncontrolled & Controlled Rectifier Circuits, Principle of operation of DC-DC Converters i.e. boost & buck-boost converters

**Measurement:**

Measurement of Voltage, Current, Power, Energy and Power Factor, Bridges- Measurement of resistance, inductance and capacitance.

**Control System:**

Principles of Feedback Control Systems, Block Diagram, Signal Flow Graph, Time & Frequency domain Analysis, Introduction to state space representation of control systems, Stability Analysis.

**Power System:**

Parameters & Performance of transmission lines, corona. Fuse & Circuit Breakers, Over Current, Directional, Distance, and Field Failure Relays. Protection of Generator & Transformer. Thermal, Hydel and Nuclear Power Generation. Transmission & Distribution Systems. Power system stability.

**Electrical Machines:**

D.C. Machines: Generator, Parallel Operation, Starting & Speed Control of D.C. Motor.

Transformer: Losses, Efficiency and Voltage Regulation.

Induction Motor: Torque-Slip Characteristics, Starting & Speed Control.

Synchronous Machines: Alternator, parallel operation, Voltage Regulation, Synchronous Motors, Performance, Characteristics & Starting.