

Syllabus of Electrical Engineering (Diploma)

(1) Measurements and Instrumentation:

Units and Standards. Error analysis, measurement of current. Voltage, power, Power-factor and energy. Indicating instruments. Measurement of resistance, inductance, capacitance and frequency. Bridge measurements. Electronic measuring instruments. Digital voltmeter and frequency counter. Transducers and their applications to the measurement of non-electrical quantities like temperature, pressure, flow-rate displacement, acceleration, noise level, etc. Data acquisition systems. A/D and D/A Converters.

(2) Electrical Machines and Power Transformers:

Construction and testing. Equivalent circuits. Losses and efficiency. Regulation. Auto-transformer. 3-phase transformer. Parallel operation.

Basic concepts in rotating machines. EMF, torque, basic machine types. (Prime Construction and operation, leakage, losses and efficiency.

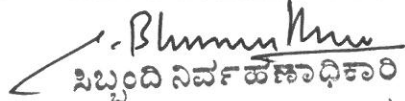
AC & D.C. Machines. Construction, Excitation methods. Circuit models. Armature reaction and commutation. Characteristics and performance analysis. Generators and motors. Starting and speed control. Testing. Losses and efficiency.

(3) Power systems:

Power transmission lines. Modeling and performance characteristics. Voltage control. Load flow studies. Optimal power system operation. Load frequency control. Symmetrical short circuit analysis. Z-Bus formulation. Symmetrical Components. Per Unit representation. Fault analysis. Transient and steady-state stability of power systems. Equal area criterion.

(4) Communication Systems:

Types of modulation; AM, FM and PM. Demodulators. Noise and bandwidth considerations. Digital communication systems. Pulse code modulation and demodulation. Elements of sound and vision broadcasting. Carrier communication. Frequency division and time division multiplexing, Telemetry system in power engineering.


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