

NIT MIZORAM
DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

EEL1201 BASIC ELECTRICAL ENGINEERING

3-0-0-6

- 1. Introduction:** Introduction to electrical equipments, circuit components, Electrical Elements and their classification, KCL, KVL equation, nodal, mesh analysis, voltage method, D.C. circuits steady state analysis with independent and dependent sources, Series and parallel circuits, star delta conversion, Superposition theorem, Thevenin's theorem, Norton's theorem, Maximum Power Transfer Theorem. LECTURES-10
- 2. A.C. circuits:** Common signals and their waveform, RMS and Average value, form factor and peak factor of sinusoidal wave, Impedance of series and parallel circuits, Phasor diagram, Power, Power factor, Power Triangle, coupled circuits, Resonance and Q-factor. LECTURES-10
- 3. Magnetic circuits:** Introduction, Series & Parallel magnetic circuits, Analysis of Linear and non-linear magnetic circuits, Energy storage, A.C. excitation, Eddy current and hysteresis losses. LECTURES-5
- 4. Three Phase Balanced Supply & Power Measurement:** Star-delta connection, Power measurement. LECTURES-2
- 5. Introduction of Electrical Machines:** Transformer, DC machines, Induction Machines. LECTURES-8
- 6. Introduction of Electrical Measurement:** MI & MC types meter, Energy meter, Wattmeter. LECTURES-5

Text Book:

1. R.J. Smith and R.C. Dorf: Circuits, Devices and Systems; John Wiley & Sons, 1992.
2. V. Del Toro: Electrical Engineering Fundamentals; PHI, 1994.

Reference Books :

1. Fundamentals of Electrical Engg. By Leonard S. Bobrow, Oxford
2. Fundamentals of Electrical Engineering by R. Prasad, PHI Publication
3. J. Nagrath and D. P. Kothari, 'Electric Machines', Tata McGraw Hill, 1985,

1. Study of Network Theorems(KCL & KVL, Thevenin's, Norton's, Maximum Power transfer Theorem).
2. Familiarization of Voltmeter, Ammeter & Wattmeter
3. Study of RL & RLC circuit.
4. Study of calibration of Energy Meter.
5. Study of characteristic Fluorescent lamp connection.
6. Study of characteristic of carbon tungsten lamp.
7. Study of Locas diagram of RL & RC circuit.

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1. R.J. Smith and R.C. Dorf: Circuits, Devices and Systems; John Wiley & Sons, 1992.
2. V. Del Toro: Electrical Engineering Fundamentals; PHI, 1994.