

EEL101 Tentative Contents:

The structure can be 3-1-0 with the lab (0-0-2) being optional.

1. Elements in an Electrical circuit : R,L,C, Diode, Voltage and current sources - VI characteristics of these elements
2. DC circuits, KCL, KVL, Network theorems, Mesh and nodal analysis
3. Step response in RL, RC, RLC circuits
4. Phasor analysis of AC circuits
5. Power in single-phase and 3-phase circuits
6. Two port networks, Operational amplifiers : Model and applications
7. Magnetic circuits, Transformers : Modeling and analysis; parameter determination
8. Energy in magnetic field
9. Electromechanical energy conversion principles with respect to a simple actuator and emf production in a moving coil in a magnetic field
10. Principles of measurement of voltage, current and power

EEP101 (0-0-2) Optional

List of experiments

1. CRO
2. KCL, KVL, Network theorem verification
3. step/transient response of R, RL, RC, RLC circuits
4. Steady state response of RLC circuits for sinusoidal excitation
5. Basic circuits using OPAMP
6. Transformer OC and SC tests
7. BH loop in an iron core, DC and AC motor - for observation only
8. A small mini-project component has to be included for the students to explore something new in terms of control of a small toy motor or construction of a simple digital circuit, relay or an amplifier or an antenna etc.