

EC 101 Electrical and Magnetic Circuits

Topics	Lecture Classes	Tutorial Classes
Circuit elements and their characteristics R, L, C, M (dot convention), Sources, Non-Linear Resistances	3	1
DC Circuit analysis Mesh & Node method	3	1
Network theorems	2	1
AC Circuit analysis – Periodic waveforms	2	-
Steady state response; R, L, C and M elements	1	1
Phasors. Application of phasors to steady state ac analysis Reactance, impedance, admittance, susceptance	5	2
Power in ac circuits	1	1
Variable elements and Locus diagrams	2	1
Resonance in ac circuits	3	1
Three-phase systems, star and delta connection	1	1
Balanced 3-phase circuits, unsymmetrical loads	2	1
Power in 3-phase circuits	1	-
Symmetrical components	2	1
Magnetic circuits-fundamentals, electrical analogy	1	1
Simple magnetic circuit calculations	1	1
Static B-H loop, B-H curve and hysteresis losses	1	-
Magnetic circuits with ac excitation, Dynamic B-H curve , hysteresis and eddy current losses.	3	1
	35	15

Books

1. **William H. Hayt and J.E. Kemmerly: Engineering Circuit Analysis** McGraw Hill, 7th Edition 2007
2. **K.V.V.Murthy and M.S. Kamath: Basic Circuit Analysis** Tata McGraw Hill Publishing Company, 1998
3. **Vincent Del Toro: Electrical Engineering Fundamentals** Prentice Hall India, 2002.