

STATE INSTITUTE OF ENGINEERING & TECHNOLOGY, NILOKHERI
DEPARTMENT OF ELECTRICAL ENGINEERING

LESSON PLAN

Subject Name: Basic Electrical and Electronics Engineering (BEEE)

Subject Code: B24-ESC-103

Faculty Name: Er. Deepak Verma, Assistant Professor, Deptt. of Electrical Engg.

Year: 1st

Semester: 2nd

Lecture No.	Unit No.	Topic	COs Covered
L1	Unit I	Introduction: Ohm's Law, circuit elements classification	CO1
L2		KVL, KCL, Nodal Analysis	
L3		Star-Delta Transformation	
L4		Superposition Theorem	
L5		Thevenin's Theorem	
L6		Norton's Theorem	
L7		Maximum Power Transfer Theorem	
L8		AC Fundamentals: AC signal, Average & RMS values	
L9		Phasor representation (polar & rectangular)	
L10		Addition & subtraction of phasors	
L11		Steady-state response of R, L, C circuits	
L12		RL & RC series circuits	
L13		Power factor, active/reactive/apparent power	
L14		Frequency response of RLC circuits	
L15		Revision of Unit I	
L16	Unit II	Balanced 3-phase AC circuits: advantages	CO2
L17		Star & Delta connections	
L18		Line & phase voltage/current relationships	
L19		Three-phase power measurement (2-wattmeter method)	

L20	Unit II	Magnetic circuits: MMF, reluctance, flux	CO2
L21		Transformer principle & construction	
L22		EMF equation & phasor diagram	
L23		Equivalent circuit & losses	
L24		Efficiency condition	
L25		OC/SC test & direct load test	
L26		Revision of Unit II	
L27	Unit III	Principle of dynamo, synchronous speed relation	CO3
L28		Principle of motoring, torque & mechanical power	
L29		Construction & working of DC machines	
L30		Generated & back EMF	
L31		Types of DC machines	
L32		Speed control of a DC motor	
L33		Applications of DC machines	
L34		3-phase induction motor: principle & construction	
L35		Slip, advantages, phase sequence	
L36		Synchronous machines: alternator & motor	
L37		Revision of Unit III	
L38	Unit IV	PN junction diode characteristics	CO4
L39		Zener diode & breakdown	
L40		Rectifiers: half-wave & full-wave	
L41		Introduction to BJT: characteristics & regions	
L42		Diode as a binary switch	
L43		Decimal to binary representation	
L44		Addition & subtraction, Boolean algebra	
L45		Logic gates & truth tables, Revision	

Reference Textbook

1. Edward Hughes (revised by Ian McKenzie Smith), *Electrical & Electronics Technology*, Pearson Education Limited, Indian Reprint 2002.
2. Cotton, *Advanced Electrical Technology*, CBS Publishers, New Delhi, 7th Edition.
3. C.L. Wadhwa, *Electrical Engineering*, New Age International Publishers.
4. Kulshreshtha, *Basic Electrical Engineering*, Tata McGraw Hill.
5. Parker Smith, *Problems in Electrical Engineering*, Asia Publications.
6. B.L. Theraja, *Electrical Technology* (Volumes I & II), S. Chand & Co.
7. J.B. Gupta, *Basic Electrical Engineering*, Katson Publishers.
8. Charles K. Alexander & Matthew N.O. Sadiku, *Fundamentals of Electric Circuits*, McGraw Hill.
9. Fawwaz T. Ulaby, Michel Maharbiz, Cynthia Furse, *Circuit Analysis and Design*, Pearson.
10. Basic Electrical Engg.: A Complete solution by Vijay Kumar Garg, Wiley India Ltd.
11. A.K. Maini, Digital Electronics, Wiley India