

SEEA1103	ELECTRICAL AND ELECTRONICS ENGINEERING (Common to CSE & IT)	L	T	P	Credits	Total Marks
		3	0	0	3	100

COURSE OBJECTIVES

- To impart knowledge on the analysis of DC and AC Circuits.
- To gain knowledge about the magnetic circuits.
- To impart Knowledge on electronic devices and their applications.

UNIT 1 D.C. CIRCUITS**9 Hrs.**

Electrical Quantities - Ohm's law - Kirchoff's laws -Resistance in series and parallel combinations - Current and Voltage division rules - Mesh analysis and Nodal analysis.

UNIT 2 A.C. CIRCUITS**9 Hrs.**

Sinusoidal functions - R.M.S and Average values for Sinusoidal waveform - Phasor representation - Sinusoidal excitation applied to purely resistive, inductive and capacitive circuits - RL , RC and RLC series circuits - power and power factor - Introduction to three phase circuits with balanced load.

UNIT 3 MAGNETIC CIRCUITS**9 Hrs.**

Definition of MMF, Flux and reluctance -- Electromagnetic induction - Fleming's rule - Lenz's law - Faraday's laws - statically and dynamically induced EMF - Self and mutual inductance - Analogy of electric and magnetic circuits.

UNIT 4 SEMICONDUCTOR DEVICES**9 Hrs.**

VI Characteristics of PN-junction diodes and Zener diodes, BJT and its configurations – input/output Characteristics, Junction Field Effect Transistor – Drain and Transfer Characteristics, MOSFET – Depletion type and Enhancement type, Uni Junction Transistors - Silicon Controlled Rectifiers.

UNIT 5 RECTIFIERS, AMPLIFIERS AND OSCILLATORS**9 Hrs.**

Half and full wave rectifiers - Capacitive and inductive filters - ripple factor- PIV-rectification efficiency - RC coupled amplifier- positive and negative feedback - Barkhausen criterion for oscillations - RC and LC oscillators.

Max. 45 Hrs.**COURSE OUTCOMES**

On completion of the course, student will be able to

- CO1 - Analyze electrical circuits using Kirchoff's Laws.
- CO2 - Compare the behaviour of R, L and C and their combinations in AC circuits.
- CO3 - Understand the concepts of magnetic circuits
- CO4 - Demonstrate the characteristics of various semi-conductor devices
- CO5 - Recognize the importance of electronic devices.
- CO6 - Design Electronic Circuits for various applications.

TEXT / REFERENCE BOOKS

1. B.N.Mittle & Aravind Mittle, Basic Electrical Engineering, 2nd edition, Tata McGraw Hill, 2011.
2. B.L.Theraja, Fundamentals of Electrical Engineering and Electronics, 1st edition, S.Chand & Co., 2009.
3. Smarajit Ghosh, Fundamentals of Electrical and Electronics Engineering, 2nd edition, PHI Learning Private Ltd, 2010.
4. Dr.Sanjay Sharma, Electronic Devices and Circuits, 2nd edition, S.K.Kataria & Sons, 2012.
5. G.K.Mithal, Basic Electronic Devices and circuits, 2nd Edition, G.K.Publishers Pvt, 2008

END SEMESTER EXAMINATION QUESTION PAPER PATTERN**Max. Marks: 100****PART A:** 10 Questions of 2 marks each-No choice**PART B:** 2 Questions from each unit with internal choice, each carrying 16 marks**Exam Duration: 3 Hrs.****20 Marks****80 Marks**