EE 151	**APPLIED ELECTRICITY**	T	P	C	
	Total Contact Hours	3	0	3	
	Prerequisite				
	Nil				

PURPOSE	
This course provides comprehensive idea about circuit analysis, working principles of machines and common measuring instruments.	
INSTRUCTIONAL OBJECTIVES	
1.	Understand the basic concepts of magnetic circuits, AC & DC circuits.
2.	Explain the working principle, construction, applications of DC & AC machines and measuring instruments.
3.	Gain knowledge about the fundamentals of wiring and earthing

UNIT I – FUNDAMENTALS OF DC CIRCUITS

Introduction to DC and AC circuits, Active and passive two terminal elements, Ohms law, Voltage-Current relations for resistor, inductor, capacitor, current division, voltage division Kirchhoff's laws, Mesh analysis, Nodal analysis, Ideal sources –equivalent resistor, Maximum power Transfer

UNIT II – MAGNETIC CIRCUITS

Introduction to magnetic circuits-Simple magnetic circuits-Faraday's laws, induced emfs and inductances.

UNIT III – AC CIRCUITS

Sinusoids, Generation of AC, Average and RMS values, Form and peak factors, concept of phasor representation, J operator. Analysis of R-L, R-C, R-L-C circuits. Introduction to three phase systems - types of connections, relationship between line and phase values, Power factor calculation.

UNIT IV–ELECTRICAL MACHINES & MEASURING INSTRUMENTS

Working principle, construction and applications of DC machines and AC machines (1 - phase transformers, single phase induction motors: split phase, capacitor start and capacitor start & run motors). Basic principles and classification of instruments -Moving coil and moving iron instruments.

UNIT V–ELECTRICAL SAFETY, WIRING &INTRODUCTION TO POWER SYSTEM

Safety measures in electrical system- types of wiring- wiring accessories-staircase, fluorescent lamps & corridor wiring- Basic principles of earthing-Types of earthing- Simple layout of generation, transmission & distribution of power.

REFERENCES

1. Smarajt Ghosh, "Fundamentals of Electrical & Electronics Engineering", Second edition, PHI Learning, 2007.
2. Metha. V. K, Rohit Metha, "Basic Electrical Engineering", Fifth edition, Chand. S& Co, 2012.
3. Kothari.D.P and Nagrath. I. J, "Basic Electrical Engineering", Second edition, Tata McGraw - Hill, 2009.
4. Bhattacharya. S. K, "Basic Electrical and Electronics Engineering", First edition, Pearson Education, 2011
5. Dash. S. S, Subramani. C, Vijayakumar. K," Basic Electrical Engineering", First
6. edition, Vijay Nicole Imprints Pvt.Ltd,2013