COURSE TITLE	PRINCIPLES OF ELECTRICAL ENGINEERING
Course number	EEA1110
Credit Value	3.0
Course Category	ESA
Pre-requisite	Nil
Contact Hours (L-T-P)	2-1-0
Type of Course	Theory

Course Objectives

The objective of this course is to introduce the basic concepts of electrical engineering

Course Outcomes

At the end of the course the students will be able to:

CO1. Solve the problems of AC/DC circuits and transients.

CO2. Solve the problems of magnetic circuits and single-phase transformers.

CO3. Describe the basics of Electrical Rotating Machines and solve related engineering problems.

CO4. Describe the basics of Power Systems and solve related engineering problems.

Syllabus

UNIT 1 - ELECTRIC CIRCUITS Single phase ac circuits; concept of phasor, RLC series and parallel circuits, Network theorems for ac & dc circuits, Three phase ac circuit; star and delta connections, Three phase power, Transients in Electric circuits	9 Lectures
UNIT 2 - MAGNETIC CIRCUITS & TRANSFORMERS Magnetic circuits: Definitions, Magnetization & Magnetic losses, Equivalence of magnetic & electric circuits. Series & parallel magnetic circuits.Transformers: Construction & principle of operation of single-phase transformer; equivalent circuit, calculation of losses, efficiency and voltage regulation.	9 Lectures
UNIT 3 - INTRODUCTION TO ROTATING ELECTRIC MACHINES Rotating magnetic field, Alternator construction, principle of operation & emf equation. Induction motor: Classification, Construction & principle of operation of 3-phase Induction motor, Applications.	9 Lectures
UNIT 4 - INTRODUCTION TO POWER SYSTEM Elements of power system: Generation, Transmission & Distribution line diagram, Electric power generation, Concept of Green energy.	9 Lectures
	Total No. of Lectures: 36

Books*/References

1. Vincent Del Toro, “Electrical Engineering Fundamentals”., 2nd edition, Pearson Education, 2015** (Textbook).
2. Jimmie J. Cathey, Syed A. Nasar, J. Cathey J., “Basic Electrical Engineering”, Schaum's Outlines, Tata McGraw Hill, 1997.
3. Stephen Chapman "Electric Machinery Fundamentals", 4th edition, Tata McGraw Hill, 2017.
4. Ashfaq Hussain, “Fundamentals of Electrical Engineering”, Dhanpat Rai & Co., 3rd edition, 2007.

Course Assessment/ Evaluation/ Grading Policy

Sessional - 40 Marks:
Assignments / Quiz / Presentations (3 to 4) – 15 Marks
Mid Term Examination (1 Hour) – 25 Marks

End Semester Examination (2 Hours) – 60 Marks

CO-PO MAPPING

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	1		1	1					2		2
CO2	2	3	3	1		1						3		2
CO3	2	3	2	2		2						3		1
CO4	3	2	1	2		2	3					3		2