GUJARAT TECHNOLOGICAL UNIVERSITY
Syllabus for Bachelor of Vocation (B.Voc.), 2nd Semester
Branch: Solar & Renewable Energy
Subject Name: Fundamental of Electrical Engineering-2
Subject Code: 1120703

Type of course: Core

Prerequisite: None

Rationale:

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
				Theory Marks		Practical		
L	T	P	C	ESE (E)	PA(M)	ESE (V)	PA (I)	
3	0	0	3	50	0	0	0	50

L- Lectures; T- Tutorial/Teacher Guided Student Activity; P- Practical; C- Credit; ESE- End Semester Examination; PA-Progressive Assessment

Content:

Sr. No.	Content	Total Hrs.	Module % Weightage
1	**Alternating Current** • Representation of sinusoidal waveforms, • Peak and RMS values, Impedance, Form Factor, Peak Factor • Phasor representation of AC quantities, • Real power, Reactive power, Apparent power • Power Triangle	10	20
2	**AC Circuit Analysis** • Power factor and It's important, Phasor Representation , • Analyzing Single phase AC Circuits • Purely Resistive circuit (R Circuit), • Purely Inductive circuit (L Circuit) • Purely Capacitive circuit (C Circuit)	8	20
3	**Series AC Circuit** • Series RL Circuit • Series RC Circuit • Series RLC Circuit • Parallel RLC Circuit • Resonance, Series and parallel resonance.	8	25
4	**Three Phase circuit** • Importance of Three phase circuit • Balanced Circuit, Unbalanced Circuit • Star Connection of Impedance • Delta Connection of Impedance • Line Voltage, Phase Voltage • Voltage and Current relations in star and delta connections • Power measurement in three phase circuits	10	20

5	**Complex Quantities** • Polar Representation • Rectangular Representation • Polar to Rectangular Conversion and Vice versa • Addition , Subtractions, Multiplication and Division of Quantities	6	15
	Total	**42**	**100**

Reference Books:

1. B. L. Theraja, "Electrical Technology – Part I and II", S. Chand and Co. 2012
2. D. C. Kulshreshtha, "Basic Electrical Engineering", McGraw Hill, 2009

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks					
R Level	U Level	A Level	N Level	E Level	C Level
20	20	5	5	0	0

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate C: Create and above Levels (Revised Bloom's Taxonomy)

Course Outcomes:

Sr. No.	CO Statement	Marks % Weightage
CO-1	Describe the Alternating Quantities applied to the Electrical Circuits	30
CO-2	Analyze Single Phase A.C Circuits	30
CO-3	Evaluate Single Phase Series Circuits	20
CO-4	Evaluate Complex problems of A.C Circuits	20

List of Open Source Software/learning website:

Students must refer to following sites to enhance their learning ability.

1. www.nptel.ac.in
2. http://www.vlab.co.in/