

COURSE CODE: 1154EE124	COURSE TITLE: ELECTRICAL SAFETY AND SAFETY MANAGEMENT	L	T	P	C
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COURSE CATEGORY:

University Elective

PREAMBLE :

To study the basic concepts of electrical safety and regulations

PREREQUISITE COURSES:

Basic Electrical Engineering

RELATED COURSES:

Power Quality

COURSE EDUCATIONAL OBJECTIVES:

The objectives of the course are to make the students,

- To study the electrical safety rules, regulations and quality management by the power factor improvement.

COURSE OUTCOMES :

Upon the successful completion of the course, students will be able to:

CO Nos.	Course Outcomes	Knowledge Level (Based on revised Bloom's Taxonomy)
CO1	Understand the Indian electricity rules and their significance	K2
CO2	Explain the safety standard in residential, commercial, and agricultural	K2
CO3	Learn about electrical safety installation, testing.	K2
CO4	Understand about flashovers and corona discharge	K2
CO5	Understand about electrical safety in distribution system	K2

CORRELATION OF COs AND POs

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	H		H					M	M			
CO2	M		H	L				H	M			
CO3	M		M	H	L			H	M		M	
CO4	M		M	H	L			H	M		M	
CO5	M		M	H	L			H	M		M	

COURSE CONTENT:		
UNIT I	INDIAN ELECTRICITY RULES AND ACTS AND THEIR SIGNIFICANCE	9
Objective and scope – ground clearances and section clearances – standards on electrical safety - safe limits of current, voltage – earthing of system neutral – Rules regarding first aid and fire fighting facility.		
UNIT II	ELECTRICAL SAFETY IN RESIDENTIAL, COMMERCIAL AND AGRICULTURAL INSTALLATIONS	9
Wiring and fitting – Domestic appliances – water tap giving shock – shock from wet wall – fan firing shock – multi-storied building – Temporary installations – Agricultural pump installation – Do's and Don'ts for safety in the use of domestic electrical appliances.		
UNIT III	SAFETY DURING INSTALLATION, TESTING AND COMMISSIONING, OPERATION AND MAINTENANCE	9
Preliminary preparations – safe sequence – risk of plant and equipment – safety documentation – field quality and safety - personal protective equipment – safety clearance notice – safety precautions – safeguards for operators – safety		
UNIT IV	ELECTRICAL SAFETY IN HAZARDOUS AREAS	9
Hazardous zones – class 0,1 and 2 – spark, flashovers and corona discharge and functional requirements – Specifications of electrical plants, equipment's for hazardous locations – Classification of equipment enclosure for various hazardous gases and vapours – classification of equipment/enclosure for hazardous locations.		
UNIT V	ELECTRICAL SAFETY IN DISTRIBUTION SYSTEM	9
Total quality control and management – Importance of high load factor – Disadvantages of low power factor – Causes of low P.F. – power factor improvement – equipment's – Importance of P.F. improvement.		
TOTAL: 45 PERIODS		
TEXT BOOKS:		
<ol style="list-style-type: none"> 1. Rao, S. and Saluja, H.L., "Electrical Safety, Fire Safety Engineering and Safety Management", Khanna Publishers, 1988. 2. Pradeep Chaturvedi, "Energy Management Policy, Planning and Utilization", Concept Publishing Company, 1997. 		
REFERENCE BOOKS:		
<ol style="list-style-type: none"> 1. Nagrath, I.J. and Kothari, D.P., "Power System Engineering", Tata McGraw Hill, 1998. 2. Gupta, B.R., "Power System Analysis and Design", S.Chand and Sons, 2003. 3. Wadhwa, C.L., "Electric Power Systems", New Age International, 2004 		