

ELECTRICAL SAFETY

Course Code	19ES5501B	Year	III	Semester	I
Course Category	Open Elective I	Branch	-	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	-
Continuous Internal Evaluation :	30	Semester End Evaluation:	70	Total Marks:	100

Course Outcomes

Upon successful completion of the course, the student will be able to

CO1	Understand the Indian power sector organization and Electricity rules, electrical safety in residential, commercial, agriculture, hazardous areas and use of fire extinguishers.(L2)
CO2	Outline the electrical safety during installation, testing and commissioning procedure.(L2)
CO3	Make use of specification of electrical plants and classification of safety equipment for various hazardous locations.(L3)
CO4	Distinguish various fire extinguishers and their classification.(L4)

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlations (3:Substantial, 2: Moderate, 1:Slight)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3		2		1	2		2			1		2	1
CO2	3		2		1	2		2			1		2	1
CO3	3		2		1	2		2			1		2	1
CO4	3		2		1	2		2			1		2	1
Average* (Rounded to nearest integer)	3		2		1	2		2			1		2	1

Syllabus

Unit No	Contents	Mapped CO
I	Indian Electricity Rules & Regulations: Power sector organization and their roles; significance of IE rules & IE acts; general safety requirements: Span, conductor configuration, spacing and clearing, sag, erection, hazards of electricity	CO1,
II	Electrical Safety in Residential, Commercial and Agricultural Installations: 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.	CO1
III	Electrical Safety during Installation, Testing and Commissioning, Operation and Maintenance: 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.	CO2

IV	Electrical Safety in Hazardous Areas: Hazardous zones –class 0,1 and 2 – spark, flashovers and corona discharge and functional requirements – Specifications of electrical plants, equipments for hazardous locations – Classification of equipment enclosure for various hazardous gases and vapours –classification of equipment/enclosure for hazardous locations	CO1, CO3,
V	Fire Extinguishers: Fundamentals of fire - initiation of fires, types; extinguishing techniques, prevention of fire, types of fire extinguishers, fire detection and alarm system; CO2 and Halogen gas schemes; foam schemes.	CO1, CO4

Learning Resources

Text books

1. Rao, S. and Saluja, H.L., “Electrical Safety, Fire Safety Engineering and Safety Management”, Khanna Publishers, 1988.

References

1. Cooper. W.F, “Electrical Safety Engineering”, Newness-Butterworth Company, 1978.
2. John Codick, “Electrical safety hand book”, McGraw Hill Inc., New Delhi, 2000.
3. Nagrath, I.J. and Kothari, D.P., “Power System Engineering”, Tata McGraw Hill, 1998.
4. Wadhwa, C.L., “Electric Power Systems”, New Age International, 2004.