Electrical Wiring Estimation and Costing

Course code	23EE2602	Year	III	Semester	II
Course Category	OE-II	Branch	EEE	Course Type	Theory
Credits	3	L-T-P	3-0-0	Prerequisites	---
Continuous Internal Evaluation	30	Semester End Evaluation	70	Total	100

Course Outcomes		
Upon successful completion of the course, the student will be able to		BL
CO1	Understand the fundamental electrical symbols, wiring diagrams, installation practices, substation components, and motor control circuits used in domestic, commercial, and industrial electrical systems.	L2
CO2	Apply design considerations to prepare simple electrical installation layouts with appropriate selection of wiring systems, protective devices, earthing, and conductor size.	L3
CO3	Analyze simple electrical installation schemes to determine protection requirements, voltage drop limits, wiring methods, and suitability of loads.	L4
CO4	Apply standard procedures to estimate materials and design electrical installations for residential, commercial buildings, substations, and motor control circuits.	L4
CO5	Analyze electrical installations, substation layouts, and motor control circuits to assess operational requirements, protection needs, starting methods, and overall system performance .	L4

Mapping of course outcomes with Program outcomes (CO/ PO/PSO Matrix)

Note: 1- Weak correlation 2-Medium correlation 3-Strong correlation

* - Average value indicates course correlation strength with mapped PO

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PSO1	PSO2
CO1	3	2	–	–									
CO2	3	2	2	1									
CO3	3	3	2	2									
CO4	3	2	3	2	1								
CO5	3	3	2	3									
Average	3	2	2	2	1								

Syllabus		
Unit No.	Contents	Mapped CO
1	**Electrical Symbols and Simple Electrical Circuits:** Identification of electrical symbols - Electrical wiring Diagrams - Methods of representation of wiring diagrams - Introduction to simple light and fan circuits - system of connection of appliances and accessories.	CO1,CO2, CO3
2	**Design Considerations of Electrical Installations:** Electric supply system - Three-phase four wire distribution system - protection of electric installation	CO1,CO2 CO3

	against overload - short circuit and earth fault - earthing - neutral and earth wire - types of loads - systems of wiring - permissible of voltage drops and sizes of wires - estimating and costing of electrical installations.	
3	**Electrical Installation for Different Types of Buildings and Small Industries:** Electrical installations for electrical buildings - estimating and costing of material - simple examples on electrical installation for residential buildings - electrical installations for commercial buildings - electrical installation for small industries-case study.	CO1,CO4, CO5
4	**Substations:** Introduction - types of substations - outdoor substations-pole mounted type - indoor substations-floor mounted type - simple examples on quantity estimation-case study.	CO1,CO4, CO5
5	**Motor control circuits:** Introduction to AC motors - starting of three phase squirrel cage induction motors - starting of wound rotor motors - starting of synchronous motors - contractor control circuit components - basic control circuits - motor protection – Schematic and wiring diagrams for motor control circuits.	CO1,CO4, CO5

Learning Resources
Text Books:
1. K. B. Raina and S.K.Bhattacharya –Electrical Design and Estimation Costing - New Age International Publishers - 2007.
References:
1. S.L.Uppal and G.C.Garg – Electrical wiring estimating and costing –Khanna publishers - 6th Ed.,- 1987. 2. J.B.Gupta –A course in electrical installation estimating and costing –Kataria SK & Sons - 2013.
E-Resources:
https://onlinecourses.swayam2.ac.in/nou25_ec07/preview

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