Format K1

Maharashtra State Board of Technical Education, Mumbai

TEACHING PLAN (TP) Academic Year: **2024-25 (EVEN)**

Institute Code and Name: 0078- K. K. Wagh Polytechnic, Nashik **Semester**: Fourth
Programme and Code: Electrical Engineering (EE) **Course Index:** 405
Course and Code: Electrical Estimating And Contracting **Course Code:** 314325
Scheme: K **Allocated Hrs.:** 45 **Name of Faculty:** Miss. M.R.Ramtirthkar **CLASS:** SYEE-OHM

COURSE LEVEL LEARNING OUTCOMES (COS):

CO1 - Prepare generic tender document, quotation, comparative statement, and supply order.
CO2 - Prepare estimate of domestic and commercial electrical installations.
CO3 - Prepare estimate of industrial electrical installations.
CO4 - Prepare estimate of public lighting installations.
CO5 - Prepare estimate of overhead and underground distribution lines.

TEACHING-LEARNING & ASSESSMENT SCHEME :

Course Code	Course Title	Abbr	Course Category	Learning Scheme					Credits	Paper Duration	Assessment Scheme										Total Marks
				Actual Contact Hrs/Week			SLH	NLH			Theory				Based on LL & TSL Practical				Based on SL		
											FA-TH	SA-TH	Total		FA-PR		SA-PR		SLA		
				CL	TL	LL					Max	Max	Max	Min	Max	Min	Max	Min	Max	Min	
314325	ELECTRICAL ESTIMATING AND CONTRACTING	EEC	DSC	3	-	4	1	8	4	3	30	70	100	40	25	10	25#	10	25	10	175

Total IKS Hrs for Sem.: 1 Hrs

Abbreviations: CL- Classroom Learning , TL- Tutorial Learning, LL-Laboratory Learning, SLH-Self Learning Hours, NLH-Notional Learning Hours, FA - Formative Assessment, SA -Summative assessment, IKS - Indian Knowledge System, SLA - Self Learning Assessment Legends: @ Internal Assessment, # External Assessment, *# On Line Examination , @$ Internal Online Examination

SUGGESTED COS - POS MATRIX FORM

Course Outcomes (COs)	Programme Outcomes (POs)							Programme Specific Outcomes (PSOs)	
	PO-1 Basic and Discipline Specific Knowledge	PO-2 Problem Analysis	PO-3 Design/ Development of Solutions	PO-4 Engineering Tools	PO-5 Engineering Practices for Society, Sustainability and Environment	PO-6 Project Management	PO-7 Life Long Learning	PSO- 1	PSO- 2
CO1	3	-	-	-	-	1	3	2	3
CO2	3	-	3	2	1	1	3	2	3
CO3	3	-	3	2	1	1	3	2	3
CO4	3	-	3	2	1	1	3	2	3
CO5	3	-	3	2	1	1	3	2	3

Maharashtra State Board of Technical Education K-1

Teaching Plan (TP)

Academic Year: 2025-26 **Institute Code:** 0078
Program: Electrical Engineering (OHM) **Course Code:** 314325
Course: Electrical Estimating And Contracting **Semester:** Third (EE-4K)
Name of faculty: Mr. V. B. Rao
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Unit No. (Alloted Hrs.)	CO Mention only Number	TLO Mention only Number	Unit Name and Learning Content Title/ Details	No. of Lecture	Plan (From-To)	Actual Execution (From-To)	Teaching method/ Media	Remark
I(05)	CO-1	1.1 1.2 1.3 1.4	**Unit - I Estimates and Contracts** 1.1 National Electrical Code 2023 (NEC 2023): Scope and features, Types of electrical installation- Non industrial and industrial, Standard value of voltages and their limits, Fundamental principles for electrical installations, Safety in electrical work, permit to electrical work, safety instruction and safety practices	1	**18/12/2025**		Chalk,Board + LCD Projector + Class room Demonstration+ PPT Presentations + MKCL ERA LMS	
			1.2 Estimating and costing: Purpose, Qualities of good estimator, essential elements of estimating and costing, Meaning and purpose of- Rough estimate, detailed estimate, supplementary estimate, annual maintenance estimate and revised estimate, Factors to be considered while preparation of detailed estimate and economical execution of work.	1	**20/12/2025**			
			1.3 Contracts: Concepts, types, roles, and qualities of good contractor	1	**20/12/2025**			
			1.4 Tender and Quotation: Types of tenders, tender notice, preparation of tender document, and method of opening of tender, Government e-Market Place (GeM), features and benefits of GeM, Quotation, quotation	2	**01/01/2026 TO 3/01/2026**			

			format, comparison between tender and quotation, Comparative statement, format of comparative statement. Order format, placing of purchasing order, Principles of execution of works, planning, organizing and completion of work, Billing of work.					
II(12)	**CO-2**	**2.1**	**Unit - II Domestic and Commercial Installations** 2.1 Electrical Drawing: Electrical symbols used in electrical diagrams as per NEC 2023, multiline and single line representation of conductors, Electrical diagrams, their Classification. Methods of representation for the wiring diagram- multiline and single line representation, conversion of multiline representation into single line and vice versa. Necessity and reading of Civil Engineering building drawing. Interpretation of electrical installation plan and electrical diagrams.	3	**11/01/2025 TO 17/01/2025**		Chalk,Board + LCD Projector + PPT Presentations + MKCL ERA LMS	
		2.2 **2.3** **2.4**	2.2 Design of Domestic Installations: Steps to be followed for design and estimation of domestic installations. Design consideration of electrical installation in domestic installations. Design, drawing, estimation, and costing of a domestic installation having maximum 5 kW load.	3	**8/01/2026 TO 10/01/2026**			
			2.3 Design of Commercial Installations: Steps to be followed for design and estimation of commercial installations. Design consideration of electrical installation in commercial installations. Design electrical installation scheme of small commercial installations of classrooms in educational	3	**15/01/2026 TO 17/01/2026**			

			institutions, small shops, and dispensaries.					
			2.4 Service Connection: Underground and overhead, it's diagram and description. Calculation of material required for underground and overhead service connection.	3	**022/01/2026 5 TO 17/01/2026**			
III(12)	**CO-3**	**3.1 3.2 3.3 3.4**	**Unit - III Industrial Installations** 3.1 Classification of industrial installations based on fire safety and power consumption, Difference between non-industrial and industrial installations, General characteristics of industrial installation, selection of wiring system.	3	**31/01/2026 TO 7/02/2026**		Chalk,Board + LCD Projector + Class room Demonstration+ PPT Presentations	
			3.2 Wiring diagram and single line diagram for single phase and three phase motors. Installation plan.	3	**12/02/2026 TO 14/02/2026**			
			3.3 Design Considerations: Calculation of Motor current, deciding the cable size, deciding the size of Conduit, deciding the fuse rating, deciding distribution board and main switch/MCB, deciding the starter for Motors.	3	**19/02/2026 TO 21/02/2026**			
			3.4 Design electrical installation scheme and preparation of estimate of agricultural pump, flourmill and small industrial unit having total aggregate three - phase load less than 30 kW.	3	**26/02/2026 TO 28/02/2026**			
IV(08)	**CO-4**	**4.1 4.2 4.3 4.4**	**Unit - IV Public Lighting Installation** 4.1 Classification of outdoor installations, streetlight/ public lighting installation, Terminology used according to NEC 2023 – Terms related to highway, lighting installation, photometric terms,	2	**5/03/2026 TO 7/03/2026**		Chalk,Board + LCD Projector +	

			luminaries etc. Aim of public lighting installation, classification of roads, standard layout of roads.				Class room Demonstration+ PPT Presentations	
			4.2 Streetlight pole structures. Selection of equipment, sources used in streetlight installations. Cables, recommended types and sizes of cable. On off Control of equipment of streetlight installation.	2	**12/03/2026 TO 14/03/2026**			
			4.3 High-mast pole structure, selection of equipment, wiring diagram.	2	**19/03/2026 TO 21/03/2026**			
			4.4 Design, estimation and costing of streetlights and High-mast lighting.	2	**26/03/2026 TO 28/04/2026**			
V(08)	**CO-5**	**5.1 5.2 5.3**	**Unit - V Distribution Lines** 5.1 Block Diagram of Electrical Power system, Types of Distribution lines - Primary and Secondary, Overhead and Underground, and it's comparison.	2	**26/04/2026 TO 28/04/2026**		Chalk,Board + LCD Projector + Class room Demonstration+ PPT Presentations + MKCL ERA LMS	
			5.2 Materials used for distribution line HT (11kV) and LT (415 V), Cables used for distribution line, factors determining selection of LT/ HT power cables, and cable termination methods.	2	**04/04/2025 TO 04/04/2025**			
			5.3 Design, estimation and costing of HT (11kV), LT (415 V) overhead line and underground cabling.	4	**04/04/2025 TO 04/04/2025**			

ASSESSMENT METHODOLOGIES/TOOLS

A. Formative assessment (Assessment for Learning) (FA-TH)

- Continuous assessment based on process and product related performance indicators. Each practical will be assessed considering
  - 60% weightage is to process
  - 40% weightage to product

B. Summative Assessment (Assessment of Learning) (SA-TH)

- Continuous Assessment based on Process and Product related performance indicators. Each practical will be assessed considering
  - 60% weightage to Process
  - 40% weightage to Product

SUGGESTED LEARNING MATERIALS / BOOKS

Sr.No	Author	Title	Publisher with ISBN Number
1	K.B.Raina, S.K.Bhattacharya	Electrical Design Estimating and Costing	New Age International Publisher, First, Reprint 2010, ISBN:13: 978-8122443585
2	Surjit Singh, Ravi Deep Singh	Electrical Estimating and Costing	Dhanpat Rai and Sons, 2014 New Delhi, ISBN:1234567150995
3	J.B. Gupta	A Course in Electrical Installation Estimating and Costing	S.K. Kataria and Sons; New Delhi Reprint Edition, 2013, ISBN: 13: 978-9350142790
4	BIS	SP-30:2023, National Electrical Code, 2023	Bureau of Indian Standards
5	BIS	IS: 732-1989, Code of Practice for Electrical Wiring Installation	Bureau of Indian Standards

LEARNING WEBSITES & PORTALS

Sr.No	Link / Portal	Description
1	https://www.electricaltechnology.org/2013/09/electrical-wiring.htm	Basics of Electrical wiring system
2	https://www.electrical4u.com/types-of-electrical-insulator-overhead-insulator/	Distribution line materials
3	https://www.electrical4u.com/lamps-types-and-performance-comparison/	Different types of lamps.
4	https://youtu.be/yhzhloBF_eo?si=Esgl05OzWNCOQaiD	High mast light wiring
5	https://www.youtube.com/watch?v=IoMXX6xct1g	Streetlight wiring
6	https://standardsbis.bsbedge.com/	SP:30 NEC 2023
7	https://gem.gov.in/	GeM portal for procurement.

Mr.V. B. Rao **Prof.S. B. Pawar**

(Name & Signature of Staff) **(Name & Signature of HOD)**