



Orissa School of Mining Engineering Keonjhar

Department of Electrical Engineering

Lesson Plan

(Electrical Installation and Estimating)

VISION OF OUR DEPARTMENT:

To provide excellent knowledge and enrich the problem solving skills of the students in the field of Electrical Engineering with a focus to prepare the students for industry need, recognized as innovative leader, responsible citizen and improve the environment.

MISSION OF OUR DEPARTMENT:

1. Prepare the students with strong fundamental concepts, analytical capability, and problem solving skills. Create an ambience of education through faculty training, self-learning, sound academic practices and research endeavors.
2. Provide opportunities to promote organizational and leadership skills in students through various extra-curricular and co-curricular events.
3. To make the students as far as possible industry ready to enhance their employability in the industries.
4. To improve department industry collaboration and to maintain effective operational environment.

Program Educational Objectives

The Program Educational Objectives (PEOs) of the Electrical Engineering Department are given below:

1. PEO1- To engage in Design of Systems, tools and applications in the field of electrical Engineering and allied engineering Industries.
2. PEO2- To apply the knowledge of electrical engineering to solve problems of social relevance and/or pursue higher education
3. PEO3- To work effectively as individuals and as team members in multidisciplinary projects by exhibit leadership capability, triggering social and economic commitment and inculcate community services and protect environment
4. PEO4- Engage in lifelong learning, career enhancement and adapt to changing professional and societal needs.

Subject : ELECTRICAL INSTALLATION AND ESTIMATING (14/02/2023- 23/05/2023)			
Discipline: Electrical Engineering		Name of the Faculty: Suchismita Sahoo	
Course Code:	TH-1	Semester:	6th
Total Periods:	60	Examination:	2023(SUMMER)
Theory Periods:	5P/W	Class Test:	20
Maximum Marks:	100	End Semester Examination:	80

Week	Class/period with date		Theory Topics
1 st	1 st	14/02/23 1p	INTRODUCTION Briefing Syllabus discussion
	2 nd	15/02/2023 1p	INDIAN ELECTRICITY RULES Definitions, Ampere, Apparatus, Accessible, Bare, cable, circuit, circuit breaker, conductor voltage (low, medium, high, EH), 1.4 OH lines : Rule 74, 75, 76, 77, 78, 79, 80, 86, 87, 88, 89, 90, 91
	3 rd	16/02/2023 1p	live, dead, cut-out, conduit, system, danger, Installation, earthing system, span, volt, switch gear, etc.
	4 th	17/02/2023 1p	General conditions relating to supply and use of energy : rule 47, 48, 49, 50, 51, 54, 55.
2 nd	1 st	20/02/2023 1p	General conditions relating to supply and use of energy 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 70.
	2 nd	21/02/2023 1p	General safety precautions, rule 29, 30, 31, 32, 33, 34, 35
	3 rd	22/02/2023 1p	General safety precautions 36, 40, 41, 43, 44, 45, 46.
	4 th	23/02/2023 1p	ELECTRICAL INSTALLATIONS Electrical installations, domestics, industrial, Wiring System,
	5 th	24/02/2023 1p	Internal distribution of Electrical Energy. Methods of wiring, systems of wiring, wire and cable
3 rd	1 st	27/02/2023 1p	Conductor materials used in cables, insulating materials mechanical protection.
	2 nd	28/02/2023 1p	Types of cables used in internal wiring, multi-stranded cables, voltage grinding of cables, general specifications of cables.
	3 rd	01/03/2023 1p	ACCESSORIES: Main switch and distribution boards, conduits, conduit accessories and fittings, lighting accessories and fittings
	4 th	02/03/2023 1p	Fuses, important definitions, determination of size of fuse – wire, fuse units. Earthing conductor.
	5 th	03/03/2023 1p	Earthing, IS specifications regarding earthing of electrical installations, points to be earthed.
4 th	1 st	06/03/2023 1p	Determination of size of earth wire and earth plate for domestic and industrial installations. Material required for GI pipe earthing.
	2 nd	09/03/2023 1p	LIGHTING SCHEME: Aspects of good lighting services. Types of lighting schemes
	3 rd	10/03/2023	Design of lighting schemes, factory lighting, public lighting installations

		1p	
5 th	1 st	13/03/2023	Determination of total load, determination of Number of sub-circuits
	2 nd	14/03/2023	Street lighting, general rules for wiring, determination of number of points (light, fan, socket, outlets)
	3 rd	15/03/2023	1 ST CLASS TEST
	4 th	16/03/2023	INTERNAL WIRING Type of internal wiring, cleat wiring, CTS wiring, wooden casing capping.
	5 th	17/03/2023	Metal sheathed wiring, conduit wiring, their advantage and disadvantages comparison and applications.
6 th	1 st	20/03/2023	Prepare one estimate of materials required for CTS wiring for small domestic installation of one room and one verandah within 25 m ² with given light, fan & plug points.
	2 nd	21/03/2023	Prepare one estimate of materials required for CTS wiring for small domestic installation of one room and one verandah within 25 m ² with given light, fan & plug points.
	3 rd	22/03/2023	Continue with CTS wiring
	4 th	23/03/2023	Prepare one estimate of materials required for conduit wiring for small domestic installation of one room and one verandah within 25 m ² with given light, fan & plug points
	5 th	24/03/2023	Continue with conduit wiring
7 th	1 st	27/03/2023	Continue with conduit wiring
	2 nd	28/03/2023	Prepare one estimate of materials required for concealed wiring for domestic installation of two rooms and one latrine, bath, kitchen & verandah within 80m ² with given light, fan & plug points.
	3 rd	29/03/2023	Continue with concealed wiring
	4 th	31/03/2023	Prepare one estimate of materials required for erection of conduit wiring to a small workshop installation about 30m ² and load within 10 KW.
8 th	1 st	03/04/2023	Continue with conduit wiring of a small workshop.
	2 nd	04/04/2023	Doubt clearing class.
	3 rd	05/04/2023	OVER HEAD INSTALLATION Main components of overhead lines, line supports, factors Governing Height of pole
	4 th	06/04/2023	conductor materials, determination of size of conductor for overhead transmission line, cross arms, pole brackets and clamps, guys and stays, conductors configurations, spacing and clearances, span lengths,
9 th	1 st	10/04/2023	Overhead line insulators, types of insulators .
	2 nd	11/04/2023	lighting arresters, danger plates, anti-climbing devices, bird guards, beads of jumpers, jumpers, tee-offs, guarding of overhead lines.
	3 rd	12/04/2023	Prepare an estimate of materials required for LT distribution line within load of 100 KW maximum and standard spans involving calculation of the size of conductor (from conductor chart), current carrying capacity and voltage regulation consideration using ACSR

	4th	13/04/2023 1p	Continue with LT distribution line
10th	1 st	17/04/2023 1p	Continue with LT distribution line
	2nd	18/05/2023 1p	Prepare an estimate of materials required for LT distribution line within load of 100 KW maximum and standard spans involving calculation of the size of conductor (from conductor chart), current carrying capacity and voltage regulation consideration using ACSR.
	3rd	19/04/2023 1p	Continue with LT distribution line
	4th	20/04/2023 1p	Continue with LT distribution line
	5th	21/04/2023 1p	Prepare an estimate of materials required for HT distribution line (11 KV) within 2 km and load of 2000 KVA maximum and standard spans involving calculation of the size of conductor (from conductor chart), current carrying capacity and voltage regulation of the size of conductor (from conductor chart), current carrying capacity and voltage regulation consider action using ACSR.
11th	1 st	24/04/2023 1p	Continue with HT distribution line
	2nd	25/04/2023 1p	INTERNAL ASSESMENT
	3rd	26/04/2023 1p	OVER HEAD SERVICE LINES Components of service lines, service line (cables and conductors),
	4th	27/04/2023 1p	Bearer wire, lacing rod. Ariel fuse, service support, energy box and meters etc.
	5th	28/04/2023 1p	Prepare and estimate for providing single phase supply of load of 5 KW (light, fan, socket) to a single stored residential building.
12th	1 st	01/05/2023 1p	Continue with single phase supply
	2nd	02/05/2023 1p	Continue with single phase supply
	3rd	03/05/2023 1p	Prepare and estimate for providing single phase supply load of 3KW to each floor of a double stored building having separate energy meter.
	4th	04/05/2023 1p	Continue with double stored building
13th	1 st	08/05/2023 1p	Prepare one estimate of materials required for service connection to a factory building with load within 15 KW using insulated wire.
	2nd	09/05/2023 1p	Continue with service connection to a factory building
	3rd	10/05/2023 1p	Prepare one estimate of materials required for service connection to a factory building with load within 15 KW using bare conductor and insulated wire combined.
	4th	11/05/2023 1p	Continue with previous class
	5th	12/05/2023 1p	Continue with previous class
14th	1 st	15/05/2023 1p	2ND CLASS TEST

	2nd 1p	16/05/2023	ESTIMATING FOR DISTRIBUTION SUBSTATIONS Prepare one materials estimate for following types of transformer substations. Pole mounted substation. Plinth Mounted substation.
	3rd 1p	17/05/2023	Pole mounted substation
	4th 1p	18/05/2023	Plinth Mounted substation.
15th	1st 1p	22/05/2023	Doubt clearing class.
	2nd 1p	23/05/2023	VST

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13/2/23
Faculty

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13/2/23
PRINCIPAL