BHUBANANANDA ORISSA SCHOOL OF ENGINEERING, CUTTACK

ELECTRICAL ENGG.DEPARTMENT

LESSON PLAN

SEMESTER: 6TH (C)

SESSION – SUMMER (2022-23)

SUBJECT: ELECTRICAL INSTALLATION AND ESTIMATING

NAME OF FACULTY: KUMUDINI BEHERA

Kumudini Behera

Discipline: **Electrical Engg.**	Semester:**6Th (C)**	Name of the teaching faculty: **KUMUDINI BEHERA**
Subject-**ELECTRICAL INSTALLATION AND ESTIMATING**	No. of Days/per week class allotted: **05 PERIODS /WEEK (MON-1,WED-2,THU-1,FRI-1 PERIODS)**	Semester: From Date: **14/02/2023** To Date: **23/05/2023** No. of weeks: **15 WEEKS**
Week	**Class Day**	**Theory/Practical Topics**
1st (14/02/2023-18/02/2023)	15/02/2023	**1.INDIAN ELECTRICITY RULES** Definitions, Ampere, Apparatus, Accessible, Bare, cable, circuit, circuit breaker, conductor voltage (low, medium, high, EH), live, dead, cut-out, conduit, system, danger, Installation, earthing system, span, volt, switch gear, etc.
	15/02/2023	1.2 General safety precautions, rule 29, 30, 31, 32, 33, 34, 35, 36, 40, 41, 43, 44, 45,46 1.3General conditions relating to supply and use of energy : rule 47, 48, 49, 50, 51, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 70.
	16/02/2023	1.4 OH lines : Rule 74, 75, 76, 77, 78, 79, 80, 86, 87, 88, 89, 90, 91
	17/02/2022	**2. Electrical Installations.** 2.1ElectricalInstallation,Wiring System ▪ Methods of wiring ,Types of cable used in internal wiring ,voltage grinding of cables, General specification of cable
2nd (20/02/2023-25/02/2023)	20/02/2023	2.1ElectricalInstallation,Wiring System ▪ Methods of wiring ,Types of cable used in internal wiring ,voltage grinding of cables, General specification of cable

	22/02/2023	2. 2 ACCESSORIES: Main switch and distribution boards, conduits, conduit accessories and fittings ,lighting accessories and fitting .
	22/02/2023	2. 2 ACCESSORIES: Main switch and distribution boards, conduits, conduit accessories and fittings ,lighting accessories and fitting
	23/02/2023	Fuses, important definitions, determination of size of fuse
	24/02/2023	fuse – wire, fuse units. Earthing conductor, earthing, IS specifications regarding earthing of electrical installations, points to be earthed
3rd (27/02/2023-04/03/2023)	27/02/2023	fuse – wire, fuse units. Earthing conductor, earthing, IS specifications regarding earthing of electrical installations, points to be earthed
	01/03/2023	. Determination of size of earth wire and earth plate for domestic and industrial installations. Material required for GI pipe earthing
	01/03/2023	Determination of size of earth wire and earth plate for domestic and industrial installations. Material required for GI pipe earthing
	02/03/2023	2. 3 LIGHTING SCHEME: Aspects of good lighting services. Types of lighting schemes, design of lighting schemes, factory lighting, public lighting installations, street lighting.
	03/03/2023	2.3 LIGHTING SCHEME: Aspects of good lighting services. Types of lighting schemes, design of lighting schemes, factory lighting, public lighting installations, street lighting
4th (06/03/2023-11/03/2023)	06/03/2023	General rules for wiring, determination of number of points (light, fan, socket, outlets), determination of total load, determination of Number of sub circuits.
	08/03/2023	**HOLI**

	09/03/2023	**3.Internal Wiring** 3.1 Type of internal wiring, cleat wiring, CTS wiring, wooden casing capping, metal sheathed wiring, conduit wiring, their advantage and disadvantages comparison and applications
	10/03/2023	**CLASS TEST-1**
5TH (13/03/2023-18/03/2023)	13/03/2023	3.1 Type of internal wiring, cleat wiring, CTS wiring, wooden casing capping, metal sheathed wiring, conduit wiring, their advantage and disadvantages comparison and applications
	15/03/2023	3 . 2 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
	15/03/2023	3 . 2 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
	16/03/2023	3 . 2 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
	17/03/2023	3 . 3 Prepare one estimate of materials required for conduit wiring for small domestic installation of one room and one verandha within 25 m^2 with given light
6TH (19/03/2023-25/03/2023)	20/03/2023	3 . 3 Prepare one estimate of materials required for conduit wiring for small domestic installation of one room and one verandha within 25 m^2 with given light
	22/03/2023	3.4 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
	22/03/2023	3.4 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.
	23/03/2023	3. 5 Prepare one estimate of materials required for erection of conduct wiring to a small workshop installation about 30m^2 and load within 10 KW.
	24/03/2023	3. 5 Prepare one estimate of materials required for erection of conduct wiring to a small workshop installation about 30m^2 and load within 10 KW.

7th (26/03/2023-01/04/2023)	27/03/2023	4.**Overhead Installations** 4.1.Main components of overhead lines, line supports, factors Governing Height of pole, 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, overhead line insulators
	29/03/2023	, types of insulators, lighting arresters, danger plates, anti-climbing devices, bird guards, beads of jumpers, jumpers, tee-offs, guarding of overhead lines.
	29/03/2023	4.2Prepare 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
	30/03/2023	**SHREERAM NAVAMI**
	31/03/2023	4.2Prepare 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
8th (03/04/2023-08/04/2023)	03/04/2023	4.2Prepare 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 contd.
	05/04/2023	4.3.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.

	05/04/2023	4.3.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.
	06/04/2023	4.4.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
	07/04/2023	**GOOD FRIDAY**
9th (10/04/2023-15/04/2023)	10/04/2023	4.4.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
	12/04/2023	**CLASS TEST-2**
	12/04/2023	4.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
	13/04/2023	**5. OVER HEAD SERVICE LINES** **5. 1 Components of service lines** service line (cables and conductors), bearer wire, lacing rod. Ariel fuse, service support, energy box and meters etc
	14/04/2023	**MAHAVISHUVASANKRANTI**

10th (17/04/2023-22/04/2023)	17/04/2023	5. 2 Prepare and estimate for providing single phase supply of load of 5 KW (light, fan, socket) to a single stored residential building contd.
	19/04/2023	5. 2 Prepare and estimate for providing single phase supply of load of 5 KW (light
	19/04/2023	5. 2 Prepare and estimate for providing single phase supply of load of 5 KW (light
	20/04/2023	5. 3 Prepare and estimate for providing single phase supply load of 3KW to each floor of a double stored building having separate energy meter.contd.
	21/04/2023	5. 3 Prepare and estimate for providing single phase supply load of 3KW to each floor of a double stored building having separate energy meter.contd.
11th (24/04/2023-29/04/2023)	24/04/2023	5. 3 Prepare and estimate for providing single phase supply load of 3KW to each floor of a double stored building having separate energy meter.contd.
	26/04/2023	**INTERNAL ASSESSMENT**
	27/04/2023	**INTERNAL ASSESSMENT**
	28/04/2023	5. 4 Prepare one estimate of materials required for service connection to a factory building with load within 15 KW using insulated wire.contd
12th (30/04/2023-06/05/2023)	01/05/2023	5. 4 Prepare one estimate of materials required for service connection to a factory building with load within 15 KW using insulated wire.contd
	03/05/2023	5. 4 Prepare one estimate of materials required for service connection to a factory building with load within 15 KW using insulated wire.contd
	03/05/2023	5.5.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.contd.
	04/05/2023	5.5.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.contd.
	05/05/2023	**BUDHHA PURNIMA**
13th (07/05/2023-13/05/2023)	08/05/2023	5.5.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.contd.
	10/05/2023	5 .5.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.contd.
	10/05/2023	**ESTIMATING FOR DISTRIBUTION SUBSTATIONS** 6. 1 Prepare one materials estimate for following types of transformer substations
	11/05/2023	6. 1 Prepare one materials estimate for following types of transformer substations
	12/05/2023	6.1.1.Pole mounted substation
14th (15/05/2023-20/05/2023)	15/05/2023	6.1.1.Pole mounted substation
	16/05/2023	6.1.2.Plinth Mounted substation contd.
	18/05/2023	**REVISION**
	19/05/2023	**SABITRI AMAVASYA**
15th (22/05/2023-23/05/2023)	22/05/2023	**REVISION**