

BHUBANANANDA ORISSA SCHOOL OF  
ENGINEERING, CUTTACK  
ELECTRICAL ENGG.DEPARTMENT

LESSON PLAN

SEMESTER: 6<sup>TH</sup> (B)

SESSION – SUMMER (2021-22)

SUBJECT: ELECTRICAL INSTALLATION AND ESTIMATING

NAME OF FACULTY: Mr. SURYA CHANDAN SAHOO

Discipline: <b>Electrical Engg.</b>	Semester: <b>6<sup>th</sup> (B)</b>	Name of the teaching faculty: <b>Mr. SURYA CHANDAN SAHOO</b>
Subject- <b>ELECTRICAL INSTALLATION AND ESTIMATING</b>	No. of Days/per week class allotted: <b>04 PERIODS /WEEK (MON-1,TUE-1,WED-1,FRI-2 PERIODS )</b>	Semester: From Date: <b>10/03/2022</b> To Date: <b>10/06/2022</b> No. of weeks: <b>14 WEEKS</b>
<b>Week</b>	<b>Class Day</b>	<b>Theory/Practical Topics</b>
1 <sup>st</sup> (10/03/2022-12/03/2022)	11/03/2022	<b>1.INDIAN ELECTRICITY RULES</b> 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.
	11/03/2022	1.2 General safety precautions, rule 29, 30, 31, 32, 33, 34, 35, 36, 40, 41, 43, 44, 45, 46. 1.3 General 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.
2 <sup>nd</sup> (14/03/2022-19/03/2022)	14/03/2022	1.4 OH lines : Rule 74, 75, 76, 77, 78, 79, 80, 86, 87, 88, 89, 90, 91
	15/03/2022	2.1 Electrical Installation, Wiring System,
	16/03/2022	■ Methods of wiring, Types of cable used in internal wiring, voltage grinding of cables, General specification of cable

	18/03/2022	<b>Dola Purnima</b>
3 <sup>rd</sup> (21/03/2022-26/03/2022)	21/03/2022	2. 2 ACCESSORIES: Main switch and distribution boards, conduits, conduit accessories and fittings
	22/03/2022	, lighting accessories and fittings,
	23/03/2022	Fuses
	25/03/2022	, important definitions, determination of size of fuse
	25/03/2022	fuse – wire, fuse units. Earthing conductor, earthing, IS specifications regarding earthing of electrical installations, points to be earthed
4 <sup>th</sup> (28/03/2022-02/04/2022)	28/03/2022	. Determination of size of earth wire and earth plate for domestic and industrial installations. Material required for GI pipe earthing



	29/03/2022	2. 3 LIGHTING SCHEME: Aspects of good lighting services. Types of lighting schemes, design of lighting schemes, factory lighting, public lighting installations, street lighting, general rules for wiring,
	30/03/2022	determination of number of points (light, fan, socket, outlets), determination of total load, determination of Number of sub-circuits.
	01/04/2022	<b>UTKAL DIVAS</b>
5 <sup>TH</sup> (04/04/2022-09/04/2022)	04/04/2022	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
	05/04/2022	<b>CLASS TEST-1</b>
	06/04/2022	3 . 2 Prepare one estimate of materials required for CTS wiring for small domestic installation of one room and one verandah within 25 m <sup>2</sup> with given light, fan & plug points
	08/04/2022	3 . 3 Prepare one estimate of materials required for conduit wiring for small domestic installation of one room and one verandha within 25 m <sup>2</sup> with given light, fan & plug points
	08/04/2022	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 <sup>2</sup> with given light, fan & plug points.
6 <sup>TH</sup> (11/04/2022-16/04/2022)	11/04/2022	3 . 5 Prepare one estimate of materials required for erection of conduct wiring to a small workshop installation about 30m <sup>2</sup> and load within 10 KW.
	12/04/2022	4.1.Main components of overhead lines, line supports, factors Governing Height of pole, conductor materials,
	13/04/2022	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

	15/04/2022	<b>GOOD FRIDAY</b>
7 <sup>th</sup> (18/04/2022-23/04/2022)	18/04/2022	, types of insulators, lighting arresters, danger plates, anti-climbing devices, bird guards, beads of jumpers, jumpers, tee-offs, guarding of overhead lines.
	19/04/2022	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
	20/04/2022	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.
	22/04/2022	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.
	22/04/2022	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.
8 <sup>th</sup> (25/04/2022-30/04/2022)	25/04/2022	, 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.contd.

	26/04/2022	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
	27/04/2022	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 contd.
	29/04/2022	<b>5.OVER HEAD SERVICE LINES</b>
	29/04/2022	5. 1 Components of service lines



9 <sup>th</sup> (01/05/2022-07/05/2022)	02/05/2022	<b>CLASS TEST-2</b>
	03/05/2022	<b>ID-UL-FITRE</b>
	04/05/2022	service line (cables and conductors), bearer wire, lacing rod. Ariel fuse, service support, energy box and meters etc.
	06/05/2022	5. 2 Prepare and estimate for providing single phase supply of load of 5 KW (light, fan, socket) to a single stored residential building
	06/05/2022	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.
10 <sup>th</sup> (09/05/2022-14/05/2022)	09/05/2022	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.
	10/05/2022	<b>INTERNAL ASSESSMENT</b>
	11/05/2022	<b>INTERNAL ASSESSMENT</b>
	13/05/2022	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
	13/05/2022	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.
11 <sup>th</sup> (16/05/2022-21/05/2022)	16/05/2022	<b>BUDDHA PURNIMA</b>
	17/05/2022	5. 4 Prepare one estimate of materials required for service connection to a factory building with load within 15 KW using insulated wire

	18/05/2022	5. 4 Prepare one estimate of materials required for service connection to a factory building with load within 15 KW using insulated wire.contd
	20/05/2022	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.
	20/05/2022	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.
12 <sup>th</sup> (23/05/2022-28/05/2022)	23/05/2022	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.
	24/05/2022	<b>6.ESTIMATING FOR DISTRIBUTION SUBSTATIONS</b>
	25/05/2022	6. 1 Prepare one materials estimate for following types of transformer substations
	27/05/2022	6.1.1.Pole mounted substation
	27/05/2022	6.1.1.Pole mounted substation contd.
13 <sup>th</sup> (30/05/2022-04/06/2022)	30/05/2022	<b>SABITRI AMABASYA</b>
	31/05/2022	6.1.1.Pole mounted substation contd.



	01/06/2022	6.1.2.Plinth Mounted substation
	03/06/2022	6.1.2.Plinth Mounted substation contd.
	03/06/2022	6.1.2.Plinth Mounted substation contd.
14 <sup>th</sup> (06/06/2022-10/06/2022)	06/06/2022	<b>CLASS TEST-3</b>
	07/06/2022	<b>REVISION</b>
	08/06/2022	<b>REVISION</b>
	10/06/2022	<b>REVISION</b>
	10/06/2022	<b>REVISION</b>