GANDHI SCHOOL OF ENGINEERING

BHABANDHA, BERHAMPUR

BRANCH:- ELECTRICAL ENGINEERING

SEMESTER:- 6TH

SUBJECT:- ELECTRICAL INSTALLATION AND ESTIMATING

GROUP- 1&2

Name of the Faculty- ER.SUBRAT KUMAR BISOYI & ER. SURABHI TRIPATHY

		Topic to be taken				Actual topictaken		
Sl. No	**Topic/Module**	**No. of period**	**Details of the topics**	**Date**	**Topic No.**	**Topic Name**	**Date**	**Remarks**
1	**INDIAN ELECTRICITY RULES**	06	1.1 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. 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. 1.4 OH lines : Rule 74, 75, 76, 77, 78, 79, 80, 86, 87, 88, 89, 90, 91	18.01.2024 TO 25.01.2024	1.1 1.2 1.3 1.4	1 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. 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. 1.4 OH lines : Rule 74,	18.01.2024 19.01.2024 20.01.2024 22.01.2024 24.01.2024 25.01.2024	

						75, 76, 77, 78, 79, 80, 86, 87, 88, 89, 90, 91		
2	**ELECTRICAL INSTALLATIONS**	12	2. 1 Electrical installations, domestics, industrial, Wiring System, Internal distribution ofElectrical Energy. Methods of wiring, systems of wiring, wire and cable, conductor materials usedin cables, insulating materials mechanical Protection. Types of cables used in internal wiring, multi-stranded cables, voltage grindingof cables, general specifications of cables. 2. 2 ACCESSORIES: Main switch and distributionboards, conduits, conduit accessories and fittings, lighting accessories and fittings, fuses, important definitions, determination of size of fuse – wire, fuse units. Earthing conductor, earthing, IS specifications regarding earthing ofelectrical installations, points to be earthed. Determination of size of earth wire and earth plate for domestic and industrial installations. Material required for GI pipe earthing. 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, determination of number of points (light,fan, socket, outlets), determination of total load, Determination of Number of sub circuits.	31.01.2024 TO 13.02.2024	2.1 2.2 2.3	2. 1 Electrical installations, domestics, industrial, Wiring System, Internal distribution ofElectrical Energy. Methods of wiring, systems of wiring, wire and cable, conductor materials usedin cables, insulating materials mechanical Protection. Types of cables used in internal wiring, multi-stranded cables, voltage grindingof cables, general specifications of cables. 2. 2 ACCESSORIES: Main switch and distribution boards, conduits, conduit accessories and fittings, lighting accessories and fittings, fuses, important definitions, determination of size of fuse – wire, fuse units. Earthing conductor, earthing, IS specifications regarding earthing of electrical installations, points to be earthed. Determination of size of earth wire and earth plate for domestic and industrial installations. Material required for GI pipe earthing. 2. 3 LIGHTING SCHEME: Aspects of good lighting services. Types of lighting schemes, design of lighting schemes, factory lighting,	31.01.2024 01.02.2024 02.02.2024 03.02.2024 05.02.2024 06.02.2024 07.02.2024 08.02.2024 09.02.2024 10.02.2024 12.02.2024 13.02.2024	

						public lighting installations, street lighting, general rules for wiring, determination of number of points (light,fan, socket, outlets), determination of total load, Determination of Number of sub circuits.		

3	**INTERNAL WIRING**	12	3 . 1 Type of internal wiring, cleat wiring, CTS wiring, wooden casing capping, metal sheathedwiring, conduit wiring, their advantage and disadvantages comparison and applications. 3 . 2 Prepare one estimate of materials requiredfor CTS wiring for small domestic installation of one room and one verandah within 25 m2 with given light, fan & plug points. 3 . 3 Prepare one estimate of materials required for conduit wiring for small domestic installation of one room and one verandha within 25 m2 with given light, fan & plug points. 3. 4 Prepare one estimate of materials required for concealed wiring for domestic installation of two rooms and one latrine, bath, kitchen & verandah within 80m2 with given light, fan & plug points. 3.5 Prepare one estimate of materials required for erection of conduct wiring to a small workshop installation about 30m2 and load within 10 KW.	15.02.2024 TO 28.02.2024	3.1 3.2 3.3 3.4 3.5	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. 3 . 2 Prepare one estimate of materials requiredfor CTS wiring for small domestic installation of one room and one verandah within 25 m2 with given light, fan & plug points. 3 . 3 Prepare one estimate of materials required for conduit wiring for small domestic installation of one room and one verandha within 25 m2 with given light, fan & plug points. 3. 4 Prepare one estimate of materials required for concealed wiring for domestic installation of two rooms and one latrine, bath, kitchen & verandah within 80m2 with given light, fan & plug points. 3.5 Prepare one estimate of materials required for erection of conduct wiring to a small workshop installation about 30m2 and load within 10 KW.	15.022024 16.02.2024 17.02.2024 19.02.2024 20.02.2024 21.02.2024 22.02.2024 23.02.2024 24.02.2024 26.02.2024 27.02.2024 28.02.2024	

4	**OVER HEAD INSTALLATION**	12	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, types of insulators, lighting arresters, danger plates, anti-climbing devices, bird guards,beads of jumpers, jumpers, tee-offs, guarding of overhead lines. 4.2.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. 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. 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 capacityand voltage regulation of the size of conductor (from conductor chart), current carrying capacityand voltage regulation consider action using ACSR.	29.02.2024 TO 16.03.2024	4.1 4.2 4.3	4.1Main 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, types of insulators, lighting arresters, danger plates, anti-climbing devices, bird guards,beads of jumpers, jumpers, tee-offs, guarding of overhead lines. 4.2 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 andvoltage regulation consideration using ACSR. 4.3 Prepare an estimate of materials required for LT distribution line within load of 100 KW maximum and standard spans involving calculation	29.02.2024 01.03.2024 02.03.2024 04.03.2024 06.03.2024 07.03.2024 11.03.2024 12.03.2024 13.03.2024 14.03.2024 15.03.2024 16.03.2024	

						of the size of conductor (from conductor chart), current carrying capacity andvoltage regulation consideration using ACSR. 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 capacityand voltage regulation of the size of conductor (from conductor chart), current carrying capacityand voltage regulation consider action using ACSR.		

5	**OVER HEAD SERVICE LINES**	12	5. 1 Components of service lines, service line (cables and conductors), bearer wire, lacing rod.Ariel fuse, service support, energy box and meters etc. 5. 2 Prepare and estimate for providing single phase supply of load of 5 KW (light, fan, socket)to a single stored residential building. 5. 3 Prepare and estimate for providing singlephase supply load of 3KW to each floor of a double stored building having separate energymeter. 5.4 Prepare one estimate of materials required for service connection to a factory building with load within 15 KW using insulated wire. 5. 5 Prepare one estimate of materials requiredfor service connection to a factory building withload within 15 KW using bare conductor and insulated wire combined.	18.03.2024 TO 04.04.2024	5.1 5.2 5.3 5.4 5.5	5. 1 Components of service lines, service line (cables and conductors), bearer wire, lacing rod.Ariel fuse, service support, energy box and meters etc. 5. 2 Prepare and estimate for providing single phase supply of load of 5 KW (light, fan, socket)to a single stored residential building. 5. 3 Prepare and estimate for providing singlephase supply load of 3KW to each floor of a double stored building having separate energymeter. 5.4 Prepare one estimate of materials required for service connection to a factory building with load within 15 KW using insulated wire. 5. 5 Prepare one estimate of materials requiredfor service connection to a factory building withload within 15 KW using bare conductor and insulated wire combined	18.03.2024 19.03.2024 20.03.2024 21.03.2024 22.03.2024 23.03.2024 27.03.2024 28.03.2024 30.03.2024 02.04.2024 03.04.2024 04.04.2024	
6	**ESTIMATING FOR DISTRIBUTION SUBSTATIONS**	06	6. 1 Prepare one materials estimate for following types of transformer substations. 6.1.1 Pole mounted substation. 6.1.2 Plinth Mounted substation.	05.04.2024 TO 18.04.2024	6.1 6.1.1 6.1.2	6. 1 Prepare one materials estimate for following types of transformer substations. 6.1.1 Pole mounted substation.	05.04.2024 06.04.2024 08.04.2024 09.04.2024 10.04.2024 12.04.2024 13.04.2024 15.04.2024	

						6.1.2 Plinth Mounted substation.	16.04.2024 18.04.2024	

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