

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 | | |
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| 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 | 1.4 | 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 | |

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|---|---------------|----|-----------------------------------------------|------------|-----|-------------------------------|------------|---|
| | | | | | | 75, 76, 77, 78, 79, 80, | | |
| | | | | | | 86, 87, 88, 89, 90, 91 | | |
| | | | | | | | | |
| 2 | ELECTRICAL | 12 | 2. 1 Electrical installations, domestics, | 31.01.2024 | 2.1 | | 31.01.2024 | |
| | INSTALLATIONS | | industrial, Wiring System, Internal | TO | 2.2 | | 01.02.2024 | |
| | | | distribution of Electrical Energy. Methods | 13.02.2024 | 2.3 | System, Internal distribution | 02.02.2024 | |
| | | | of wiring, systems of wiring, wire and | | | ofElectrical Energy. | 03.02.2024 | |
| | | | cable, conductor materials used in cables, | | | Methods of wiring, systems | 05.02.2024 | |
| | | | insulating materials mechanical | | | of wiring, wire and cable, | 06.02.2024 | |
| | | | Protection. Types of cables used in | | | conductor materials usedin | 07.02.2024 | |
| | | | internal wiring, multi-stranded cables, | | | cables, insulating materials | 08.02.2024 | |
| | | | voltage grinding of cables, general | | | mechanical | | |
| | | | specifications of cables. | | | Protection. Types of | 09.02.2024 | |
| | | | 2. 2 ACCESSORIES: Main switch and | | | cables used in internal | 10.02.2024 | |
| | | | distributionboards, conduits, conduit | | | wiring, multi-stranded | 12.02.2024 | |
| | | | accessories and fittings, lighting | | | cables, voltage grindingof | 13.02.2024 | |
| | | | accessories and fittings, fuses, important | | | cables, general | | |
| | | | definitions, determination of size of fuse | | | specifications of cables. | | |
| | | | – wire, fuse units. Earthing conductor, | | | 2. 2 ACCESSORIES: Main | | |
| | | | earthing, IS specifications regarding | | | switch and distribution | | |
| | | | earthing of electrical installations, points | | | boards, conduits, conduit | | |
| | | | to be earthed. Determination of size of | | | accessories and fittings, | | |
| | | | earth wire and earth plate for domestic | | | lighting accessories and | | |
| | | | and industrial installations. Material | | | fittings, fuses, important | | |
| | | | required for GI pipe earthing. | | | definitions, determination | | |
| | | | 2. 3 LIGHTING SCHEME: Aspects of | | | of size of fuse – wire, fuse | | |
| | | | good lighting services. Types of lighting | | | units. Earthing conductor, | | |
| | | | schemes, design of lighting schemes, | | | earthing, IS specifications | | |
| | | | factory lighting, public lighting | | | regarding earthing of | | |
| | | | installations, street lighting, general rules | | | electrical installations, | | |
| | | | for wiring, determination of number of | | | points to be earthed. | | |
| | | | points (light, fan, socket, outlets), | | | Determination of size of | | |
| | | | determination of total load, | | | earth wire and earth plate | | |
| | | | Determination of Number of sub circuits. | | | 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, | |
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| | | street lighting, general rules | |
| | | Consolidate del marine di conse | |
| | | for wiring, determination of | |
| | | number of points (light, fan, | |
| | | socket, outlets), | |
| | | determination of total load, | |
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| | | Determination of Number of | |
| | | sub circuits. | |
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| 2 | TAMBEDALAT | 12 | 2 1 True of internal raining alors | 15.02.2024 | 2.1 | 2 1 True of internal | 45.022024 | 1 |
|---|------------|----|--------------------------------------------|------------|-----|-------------------------------|------------|---|
| 3 | INTERNAL | 12 | 3 . 1 Type of internal wiring, cleat | 15.02.2024 | 3.1 | 3 . 1 Type of internal | 15.022024 | |
| | WIRING | | wiring, CTS wiring, wooden casing | TO | | wiring, cleat wiring, CTS | 16.02.2024 | |
| | | | capping, metal sheathedwiring, conduit | 28.02.2024 | | wiring, wooden casing | 17.02.2024 | |
| | | | wiring, their advantage and | | | capping, metal sheathed | 19.02.2024 | |
| | | | disadvantages comparison and | | 3.5 | wiring, conduit wiring, | 20.02.2024 | |
| | | | applications. | | | their advantage and | 21.02.2024 | |
| | | | 3 . 2 Prepare one estimate of materials | | | disadvantages comparison | 22.02.2024 | |
| | | | requiredfor CTS wiring for small | | | and applications. | 23.02.2024 | |
| | | | domestic installation of one room and one | | | 3 . 2 Prepare one estimate of | 24.02.2024 | |
| | | | verandah within 25 m2 with given light, | | | materials required for CTS | 26.02.2024 | |
| | | | fan & plug points. | | | wiring for small domestic | 27.02.2024 | |
| | | | 3 . 3 Prepare one estimate of materials | | | installation of one room and | 28.02.2024 | |
| | | | required for conduit wiring for small | | | one verandah within 25 m2 | 28.02.2024 | |
| | | | domestic installation of one room and one | | | with given light, fan & plug | | |
| | | | verandha within 25 m2 with given light, | | | points. | | |
| | | | fan & plug points. | | | 3 . 3 Prepare one estimate of | | |
| | | | | | | materials required for | | |
| | | | | | | conduit wiring for small | | |
| | | | 3. 4 Prepare one estimate of materials | | | domestic installation of one | | |
| | | | required for concealed wiring for | | | room and one verandha | | |
| | | | domestic installation of two rooms and | | | within 25 m2 with given | | |
| | | | one latrine, bath, kitchen & verandah | | | light, fan & plug points. | | |
| | | | within 80m2 with given light, fan & plug | | | 3. 4 Prepare one estimate of | | |
| | | | points. | | | materials required for | | |
| | | | | | | concealed wiring for | | |
| | | | | | | domestic installation of two | | |
| | | | 3.5 Prepare one estimate of materials | | | rooms and one latrine, bath, | | |
| | | | required for erection of conduct wiring to | | | kitchen & verandah within | | |
| | | | a small workshop installation about 30m2 | | | 80m2 with given light, fan | | |
| | | | and load within 10 KW. | | | & 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. | | |
| | | | | | | | | |

| 4 1 | OVED HEAD | 10 | | 20.02.202.4 | 4 1 | 4.13.4 | 2000 |
|-----|------------------------|----|----------------------------------------------|-------------|-----|-----------------------------|------------|
| 4 | OVER HEAD INSTALLATION | 12 | 4.1. Main components of overhead lines, | 29.02.2024 | 4.1 | 4.1Main components of | 29.02.2024 |
| | I DIMEDITION | | line supports, factors Governing Height | TO | | overhead lines, line | 01.03.2024 |
| | | | of pole, conductor materials, | 16.03.2024 | | supports, factors Governing | 02.03.2024 |
| | | | determination of size of conductor for | | | Height of pole, conductor | |
| | | | overhead transmission line, cross arms, | | | materials, determination of | |
| | | | pole brackets and clamps, guys and stays, | | | size of conductor for | |
| | | | conductors configurations, spacing and | | | overhead transmission line, | |
| | | | clearances, span lengths, overhead line | | | cross arms, pole brackets | |
| | | | insulators, types of insulators, lighting | | | and clamps, guys and stays, | 04.03.2024 |
| | | | arresters, danger plates, anti-climbing | | | conductors configurations, | |
| | | | devices, bird guards, beads of jumpers, | | | spacing and clearances, | 06.03.2024 |
| | | | jumpers, tee-offs, guarding of overhead | | | span lengths, overhead line | 07.03.2024 |
| | | | lines. | | | insulators, types of | 11.03.2024 |
| | | | 4.2.Prepare an estimate of materials | | | insulators, lighting | |
| | | | required for LT distribution line within | | | arresters, danger plates, | |
| | | | load of 100 KW maximum and | | | anti-climbing devices, bird | |
| | | | standard spans involving calculation of | | | guards, beads of jumpers, | |
| | | | the size of conductor (from conductor | | | jumpers, tee-offs, guarding | 12.03.2024 |
| | | | chart), current carrying capacity and | | | of overhead lines. | 13.03.2024 |
| | | | voltage regulation consideration using | | | 4.2 Prepare an estimate of | 13.03.2021 |
| | | | ACSR. | | | materials required for | |
| | | | Tiesta | | | LT distribution line | |
| | | | 4.3. Prepare an estimate of materials | | | within load of 100 | |
| | | | required for LT distribution line within | | | KW maximum and | |
| | | | load of 100 KW maximum and | | | standard spans | |
| | | | standard spans involving calculation of | | | involving calculation | 14.03.2024 |
| | | | the size of conductor (from conductor | | 4.2 | of the size of | |
| | | | chart), current carrying capacity and | | 7.2 | conductor (from | |
| | | | | | | conductor chart), | |
| | | | voltage regulation consideration using ACSR. | | | current carrying | |
| | | | | | | | |
| | | | 4.4. Prepare an estimate of materials | | | capacity andvoltage | |
| | | | required for HT distribution line (11 | | | regulation | |
| | | | KV) within 2 km and load of 2000 | | 4.2 | consideration using | |
| | | | KVA maximum and standard spans | | 4.3 | ACSR. | |
| | | | involving calculation of the size of | | | 1.25 | |
| | | | conductor (from conductor chart), | | | 4.3 Prepare an estimate of | |
| | | | current carrying capacity and voltage | | | materials required for | 15.03.2024 |
| | | | regulation of the size of conductor | | | LT distribution line | 16.03.2024 |
| | | | (from conductor chart), current | | | within load of 100 | |
| | | | carrying capacity and voltage regulation | | | KW maximum and | |
| | | | consider action using ACSR. | | | standard spans | |
| | | | | | | involving calculation | |

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| | | 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 capacity and 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. | 18.03.2024 TO 04.04.2024 | 5.1 | - | 18.03.2024 19.03.2024 20.03.2024 | |
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| | | | 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. | | 5.2 | 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. | 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 | |
| | | | 5.4 Prepare one estimate of materials required for service connection to a factory building with load within 15 KW using insulated wire. | | 5.3 5.4 | 5. 3 Prepare and estimate for providing singlephase supply load of 3KW to each floor of a double stored building having separate energymeter. | | |
| | | | 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. | | 5.5 | 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 required for service connection to a factory building withload within 15 KW using bare conductor and insulated wire combined | | |
| 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 | |

| | | | | 16.04.2024 | |
|--|--|--|-------------|------------|--|
| | | | substation. | 18.04.2024 | |
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