

LESSON PLAN

SUB:- ELECTRICAL INSTALLATION & ESTIMATING

BRANCH:- ELECTRICAL ENGG.

SEMESTER: 6TH

NAME OF FACULTY: - ASHWINI KUMAR SAHU



**GOVERNMENT POLYTECHNIC,
BHADRAK**

SESSION:2023-24

Hod Electrical

**HOD (ELECT.)
G.P.BHADRAK**

Academic Co-ordinator

Academic Co-ordinator

Principal

Govt. Polytechnic Bhadrak

**Principal
Govt. Polytechnic
Bhadrak**

| DISCIPLINE | SEMESTER | NAME OF THE TEACHING FACULTY |
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| ELECTRICAL | 6TH | ASHWINI KUMAR SAHU (Sr. Lect. in Elect. Engrg.) |
| | | SEMESTER FROM DATE 16.01.2024 to 26.04.2024 No of Weeks:15 |
| SUBJECT: ELECTRICAL INSTALLATION & ESTIMATING | NO. OF DAYS/WEEK CLASS ALLOTTED - 75/5 | THEORY TOPICS |
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| 1ST | 1 | Definitions, Amperes, 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. |
| | 2 | General safety precautions, rule 29, 30, 31, 32, 33, 34, 35, 36, 40, 41, 43, 44, 45, 46. |
| | 3 | General conditions relating to supply and use of energy: rule 47, 48, 49, 50, 51, 54, 55 |
| | 4 | General conditions relating to supply and use of energy: rule 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 70 |
| | 5 | TUTORIAL CLASS |
| 2ND | 6 | OH lines : Rule 74, 75, 76, 77, 78. |
| | 7 | OH lines : Rule 79, 80, 86, 87, 88, 89, 90, 91 |
| | 8 | Electrical installations, domestics, industrial, Wiring System. |
| | 9 | Internal distribution of Electrical Energy, Methods of wiring, systems of wiring. |
| | 10 | TUTORIAL CLASS |
| 3RD | 11 | Wire and cable, conductor materials used in cables, insulating materials mechanical protection. |
| | 12 | Types of cables used in internal wiring, multi-stranded cables, voltage grading of cables, general specifications of cables |
| | 13 | Main switch and distribution boards, conduits, conduit accessories and fittings, lighting accessories and fittings |
| | 14 | fuses, important definitions, determination of size of fuse - wire, fuse units, Earthing conductor. |
| | 15 | TUTORIAL CLASS |
| 4TH | 16 | Earthing, IS specifications regarding earthing of electrical installations, points to be earthed. |
| | 17 | Determination of size of earth wire and earth plate for domestic and industrial installations, Material required for GI pipe earthing. |
| | 18 | Aspects of good lighting services, Types of lighting schemes. |
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| | 20 | Design of lighting schemes, factory lighting, public lighting installations, street lighting. TUTORIAL CLASS |

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| 5TH | 21 | General rules for wiring, determination of number of points (light, fan, socket, outlets) |
| | 22 | determination of total load, determination of Number subcircuits |
| | 23 | Type of internal wiring, cleat wiring, CTS wiring, wooden casing capping, metal sheathed wiring. |
| | 24 | Conduit wiring, their advantage and disadvantages comparison and applications. |
| | 25 | TUTORIAL CLASS |
| 6TH | 26 | Prepare one estimate of materials required for CTS w for small domestic installation of one room and one verandah within 25 m ² with given light, fan & plug points. |
| | 27 | Solves different types of problem. |
| | 28 | Solves different types of problem. |
| | 29 | 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, fan & plug points. |
| | 30 | Solves different types of problem. |
| 7TH | 31 | Solves different types of problem. |
| | 32 | Solves different types of problem. |
| | 33 | 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. |
| | 34 | Solves various types of problem. |
| | 35 | Solves various types of problem. |
| 8TH | 36 | Prepare one estimate of materials required for erection conduct wiring to a small workshop installation about 30m ² and load within 10 KW |
| | 37 | Solves various types of problem |
| | 38 | Main components of overhead lines, line supports, fact 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, type of insulators, lighting arresters, danger plates, anti-climbing devices, bird guards, beads of jumpers, jumper tee-offs, guarding of overhead lines. |
| | 39 | 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. |

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| 9TH | 40 | Solves different types of problem. |
| | 41 | Solves different types of problem. |
| | 42 | 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. |
| | 43 | Solves various types of problem. |
| | 44 | Solves various types of problem. |
| | 45 | Solves various types of problem. |
| 10TH | 46 | 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 |
| | 47 | Solves various types of problem. |
| | 48 | Solves various types of problem. |
| | 49 | Solves various types of problem. |
| | 50 | Solves various types of problem. |
| 11TH | 51 | Components of service lines, service line (cables and conductors), bearer wire, lacing rod. Ariel fuse, service support, energy box and meters etc. |
| | 52 | Prepare and estimate for providing single phase supply of load of 5 KW (light, fan, socket) to a single stored residential building. |
| | 53 | Solves various types of problem. |
| | 54 | Prepare and estimate for providing single phase supply load of 3KW to each floor of a double stored building having separate energy meter |
| | 55 | Solves various types of problem. |
| 12TH | 56 | Solves various types of problem. |
| | 57 | Prepare one estimate of materials required for service connection to a factory building with load within 15 KW using insulated wire. |
| | 58 | Solves various types of problem. |
| | 59 | Solves various types of problem. |
| | 60 | Solves various types of problem. |
| 13TH | 61 | 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. |
| | 62 | Solves various types of problem |

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| | 63 | Solves various types of problem |
| | 64 | Prepare one materials estimate for following types of transformer substations. Pole mounted substation. |
| | 65 | Solves various types of problem on Pole mounted substation |
| 14TH | 66 | Solves various types of problem on Pole mounted substation |
| | 67 | Prepare one materials estimate for Plinth Mounted substation |
| | 68 | Solves various types of problem on Plinth mounted substation |
| | 69 | Solves various types of problem on Plinth mounted substation |
| | 70 | Solves various types of problem |
| 15TH | 71 | Solves various types of problem |
| | 72 | Solves various types of problem |
| | 73 | Solves various types of problem |
| | 74 | Solves various types of problem |
| | 75 | Solves various types of problem |

Signature of the Faculty

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