

| ENGG, 6 TH SEM | NAME OF FACULTY- Er. N.C Behara, Sr. Lecturer (Electrical) SESSION : 2023-24 | |
|---|---|--------|
| SUB-ELECTRICAL INSTALLATION AND WIRING (EIE) | SEMESTER FROM 16.01.2024 TO 26.04.2024 NO OF WEEKS – 15 WEEKS | |
| WEEK | THEORY | STATUS |
| 1 ST WEEK | INDIAN ELECTRICITY RULES 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. | |
| 2 ND WEEK | 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 ELECTRICAL INSTALLATIONS:- 2.1. Electrical installations, domestics, industrial, Wiring System, Internal distribution of Electrical Energy. | |
| 3 RD WEEK | Methods of wiring, systems of wiring, wire and cable, conductor materials used in cables, insulating materials mechanical protection. Types of cables used in internal wiring. Multi-stranded cables, voltage grinding of cables, general specifications of cables. (CONDUCT OF CLASS TEST -1) | |
| 4 TH WEEK | Multi-stranded cables, voltage grinding of cables, general specifications of cables. lighting accessories and fittings, fuses, important definitions, determination of size of fuse – wire, fuse units. Earthing conductor, earthing | |

| | | |
|----------------------|---|--|
| 5 TH WEEK | Determination of size of earth wire and earth plate for domestic and industrial installations. Material required for GI pipe earthing. | |
| 6 TH WEEK | LIGHTING SCHEME :- 2.3 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. INTERNAL WIRING:- 3.1 introduction and types. | |
| 7 TH WEEK | Type of internal wiring, cleat wiring, CTS wiring, wooden casing capping metal sheathed wiring, conduit wiring, their advantage and disadvantages comparison and applications of different types of internal wiring. 3.2 Prepare one estimate of materials required for CTS wiring for small domestic installation of one ROOM within 25 m2 with given light, fan & plug points | |
| 8 TH WEEK | 3.3 Prepare one estimate of materials required for CTS wiring for small domestic installation of one VERANDAH within 25 m2 with given light, fan & plug points 3.4 Prepare one estimate of materials required for CONDUIT wiring for small domestic installation of one ROOM within 25 m2 with given light, fan & plug points. 3.5 Prepare one estimate of materials required for CONDUIT wiring for small domestic installation of one VERANDAH within 25 m2 with given light, fan & plug points. (CONDUCT OF I.A-1) | |

| | | |
|-----------------------------|---|--|
| <p>9TH WEEK</p> | <p>OVER HEAD INSTALLATION</p> <p>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, lighting arresters, danger plates, anti-climbing devices of overhead lines.</p> | |
| <p>10TH WEEK</p> | <p>bird guards, beads of jumpers, jumpers, tee-offs, guarding of overhead lines. overhead line insulators, types of insulators, 4.2 Prepare an estimate of materials required for LT distribution line within load of 100 KW maximum standard spans involving calculation of the size of conductor (from conductor chart), current carrying capacity and voltage regulation consideration using ACSR.</p> | |
| <p>11TH WEEK</p> | <p>4.3 Prepare an estimate of materials required for LT distribution line within load of 100KW 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 2km 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.</p> <p>(CONDUCT OF CLASS TEST -2)</p> | |
| <p>12TH WEEK</p> | <p>OVER HEAD SERVICE LINES:-</p> <p>5.1 Components of service lines, service line (cables and conductors) component of bearer wire, lacing rod. component of 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.</p> | |

| | | |
|-----------------------|--|--|
| | | |
| 13 TH WEEK | <p>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.</p> <p>5.4 Prepare one estimate of materials required for service connection to a factory building with load within 15 KW using insulated wire</p> <p>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.</p> | |
| 14 TH WEEK | <p>ESTIMATING FOR DISTRIBUTION SUBSTATIONS:-</p> <p>6.1Introduction</p> <p>6.1.1 Types of transformer substations.</p> <p>6.1.2 Pole mounted substation.</p> <p>(CONDUCT OF I.A-2)</p> | |
| 15 TH WEEK | REVISION FOR EXAM | |