**Lesson Plan**

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| **Name of Faculty** | Rajiv Kumar |
| **Discipline** | Electrical Engineering |
| **Semester** | 3rd |
| **Subject** | Estimating and Costing in Electrical Engineering |
| **Work load (Theory + Practical) Per Week** | [04+02]  |

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| **Week** | **Day** | **Theory Topic/ Assignment/ Test** | **Practical Day** | **Topic** |
| 1st | 1 | **1 Introduction**  | Day1 | Framing of Tender and reply to tender to get job/project |
| 2 | Purpose of estimating and costing |
| 3 | Performa for making estimates, Preparation of materials schedule, Costing, price list |
| 2nd | 1 | Preparation of tender document, Net price list | Day1 | Identification of wiring for different applications |
| 2 | Market survey, Overhead charges |
| 3 | Labour charges, EPM and FPM, Contingency, Profit |
| 3rd | 1 | Purchase system, Enquiries, Comparative statements, Payment of bills, orders for supply | Day1 | Practical Quiz No.1/ Revision and file checking |
| 2 | Assignment /revision of unit 1st |
| 3 | Class Test (1st unit) |
| 4th | 1 | **Unit-2:** **Types of wiring**: Cleat, batten | Day1 | Prepare an estimate for a Two room residential building as per given plan |
| 2 | Casing capping and conduit wiring, Comparison of different wiring systems |
| 3 | Design of wiring schemes for particular situation of domestic and industrial installation. |
| 5th | 1 | Wiring accessories used for Electrical Installation Use of protective devices i.e. MCB | Day1 | Practical Quiz No.2/ Revision and file checking |
| 2 | ELCB ,Use of wire-gauge and table |
| 3 | Revision/ queries of unit-2 |
| 6th | 1 | Tentative 1stsessional test | Day1 | Prepare an estimate for service connection for residential building having connected load -kW |
| 2 | Evaluation of sessional marks etc. Display and analysis of sessional marks |
| 3 | **Unit-3** Domestic installations , Electrical layout of Domestic Installation |
| 7th | 1 | Standard practice as per IS and IE rules, Planning of circuits, sub circuits | Day1 | Practical Quiz No.3/ Revision and file checking |
| 2 | Industrial installations Position of different accessories |
| 3 | Preparing estimates including cost as per , schedule rate pattern and actual market rate |
| 8th | 1 | Industrial Installation : Planning of installation for single phase, Motors of different rating | Day1 | Mid-term Viva—voce and practical assessment |
| 2 | Designing for single phase motors of different ratings |
| 3 | Electrical circuit diagram for Industrial installations, Starters for Industrial installations |
| 9th | 1 | Preparation of list of materials for Industrial installations | Day1 | Visit a nearby substation and list the components with diagram |
| 2 | Estimating and costing exercises on workshop with singe-phase motor load |
| 3 | Estimating and costing exercises on workshop with 3-phase motor load and the light load |
| 10th | 1 | Service line connections estimate for domestic up to 10 KW from pole to energy meter. | Day1 | Assignments and quiz/class tests |
| 2 | Service line connections estimate for Industrial loads up to 20 KW over-head & underground connection from pole to energy meter |
| 3 | Class test /assignment 3rd unit |
| 11th | 1 | Problem solving/checking | Day1 | Laboratory and practical work drawing single and wiring diagram |
| 2 | **Unit 4th Estimating Materials Required** Transmission and distribution lines overhead planning and designing of lines with different fixtures based on unit cost calculations |
| 3 | Types of substations, substation schemes and components |
| 12th | 1 | Estimate of 11/0.4 KV pole mounted substation up to 200 KVA rating | Day1 | Viva—voce/class test |
| 2 | Methods of earthling of substations |
| 3 | Key Diagram of 66 KV/11KV |
| 13th | 1 | Key Diagram of 11 KV/0.4 KV Substation | Day1 | Practical Quiz / Revision and file checking |
| 2 | Single line diagram, layout sketching of outdoor, indoor 11kV sub-station |
| 3 | Single line diagram, layout sketching of outdoor, indoor 33kV substation |
| 14th | 1 | Class test /assignment 4th unit | Day1 | Practical Quiz / Revision and file checking |
| 2 | Problem solving/checking |
| 3 | **Unit-5: Preparation of Tender Documents** |
| 15th | 1 | Tender – constituents finalization, specimen tender | Day1 | Internal practical evaluation |
| 2 | HSBTE old Question paper solution |
| 3 | HSBTE old Question paper solution |