**Lesson Plan**

**Name of Faculty :- SHRIKANT BHARDWAJ**

**Discipline :- Electrical Engineering**

**Semester :- 4th Semester**

**Subject :- Estimating and Costing in Electrical Engineering**

**Lesson Plan Duration:- 15 Week**

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| **Week** | **Theory** | | **Practical** | |
| **1st** | **Lecture Day** | **Topic** | **Practical Day** | **Topic** |
| **1st** | **Unit-1 Introduction**  Purpose of estimating and costing | **1st** | **Practical-1**  Framing of Tender and reply to tender to get job/project |
| **2nd** | Proforma for making estimates, preparation of materials schedule, |
| **3rd** | Costing, price list, preparation of tender document (with 2-3 exercises), | **2nd** | **Practical-1**  Framing of Tender and reply to tender to get job/project |
| **4th** | Net price list, market survey, overhead charges, labour charges |
| **2nd** | **5th** | Electrical point method and fixed percentage method, | **3rd** | **Practical-2**  Identification of wiring for different applications |
| **6th** | Contingency, profit, purchase system, enquiries |
| **7th** | Comparative statements, orders for supply, payment of bills | **4th** | **Practical-2**  Identification of wiring for different applications |
| **8th** | Tenders – its constituents, finalization, specimen tender. |
| **3rd** | **9th** | REVISION UNIT-1 | **5th** | **Practical-3**  Prepare an estimate for a Two room residential building as per given plan |
| **10th** | REVISION UNIT-1 |
| **11th** | REVISION UNIT-1 | **6th** | **Practical-3**  Prepare an estimate for a Two room residential building as per given plan |
| **12th** | REVISION UNIT-1 |
| **4th** | **13th** | **Unit-2 Types of wiring**  Cleat, batten, casing capping and conduit wiring, | **7th** | **Practical-4**  Prepare an estimate for service connection for residential building having connected load ---- kW. |
| **14th** | Comparison of different wiring systems, |
| **15th** | Selection and design of wiring schemes for particular situation (domestic and Industrial). | **8th** | **Practical-4**  Prepare an estimate for service connection for residential building having connected load ---- kW. |
| **16th** | Selection of wires and cables, wiring accessories |
| **5th** | **17th** | Use of protective devices i.e. Mcb, elcb etc. | **9th** | **Practical-5**  Visit a nearby substation and list the components with diagram |
| **18th** | Use of wire-gauge and tables ( to be prepared/arranged) |
| **19th** | REVISION UNIT-2 | **10th** | **Practical-5**  Visit a nearby substation and list the components with diagram |
| **20th** | REVISION UNIT-2 |
| **6th** | **21st** | REVISION UNIT-2 | **11th** | REVISION PRACTICAL-1 |
| **22nd** | REVISION UNIT-2 |
| **23rd** | **Unit-3 Estimating and Costing**  Domestic installations; description of various tests to test the wiring installation before commissioning, | **12th** | REVISION PRACTICAL-1 |
| **24th** | Standard practice as per IS and IE rules. |
| **7th** | **25th** | Planning of circuits, sub-circuits and position of different accessories, | **13th** | REVISION PRACTICAL-2 |
| **26th** | Electrical layout, preparing estimates including cost as per schedule rate pattern and actual market rate |
| **27th** | For house of two room set along with layout sketch. | **14th** | REVISION PRACTICAL-2 |
| **28th** | REVISION UNIT-3(Domestic Installation) |
| **8th** | **29th** | REVISION UNIT-3(Domestic Installation) | **15th** |
| **30th** | REVISION UNIT-3(Domestic Installation) |
| **31st** | Industrial installations; relevant IE rules and IS standard practices, | **16th** | REVISION PRACTICAL-3 |
| **32nd** | Planning, designing and estimation of installation for single phase motors of different ratings, |
| **9th** | **33rd** | Electrical circuit diagram, starters, | **17th** | REVISION PRACTICAL-4 |
| **34th** | Preparation of list of materials, estimating and costing exercises on workshop with singe-phase, |
| **35th** | 3-phase motor load and the light load (3-phase supply system) | **18th** | REVISION PRACTICAL-4 |
| **36th** | Service line connections estimate for domestic upto 10 KW |
| **10th** | **37th** | Industrial loads upto 20 KW (over-head) | **19th** | REVISION PRACTICAL-5 |
| **38th** | And under ground connections from pole to energy meter |
| **39th** | REVISION UNIT-3(Industrial Installation) | **20th** | REVISION PRACTICAL-5 |
| **40th** | REVISION UNIT-3(Industrial Installation) |
| **11th** | **41st** | REVISION UNIT-3(Industrial Installation) | **21st** | REVISION PRACTICAL- |
| **42nd** | REVISION UNIT-3(Service Line Installation) |
| **43rd** | REVISION UNIT-3(Service Line Installation) | **22nd** | REVISION PRACTICAL |
| **44th** | REVISION UNIT-3(Service Line Installation) |
| **12th** | **45th** | **Unit-4 Eatimating the material required for**  Transmission and distribution lines (overhead) planning and designing of lines with different fixtures, earthing etc. | **23rd** | REVISION PRACTICAL |
| **46th** | Transmission and distribution lines (underground)planning and designing of lines with different fixtures, earthing etc. |
| **47th** | Based on unit cost calculations | **24th** | REVISION PRACTICAL |
| **48th** | Substation: Types of substations, |
| **13th** | **49th** | Substation schemes | **25th** | REVISION PRACTICAL |
| **50th** | Components, estimate of 11/0.4 KV pole mounted substation up to 200 KVA rating, |
| **51st** | Methods of earthing of substations, Key Diagram of 66 KV/11KV | **26th** | REVISION PRACTICAL |
| **52nd** | Key Diagram of 11 KV/0.4 KV Substation. |
| **14th** | **53rd** | Single line diagram of 11kv sub-station | **27th** | REVISION PRACTICAL |
| **54th** | Single line diagram 33kv sub-station |
| **55th** | Layout sketching of outdoor 11Kv | **28th** | REVISION PRACTICAL |
| **56th** | Layout sketching of indoor 33Kv |
| **15th** | **57th** | REVISION UNIT-4 | **29th** | REVISION PRACTICAL |
| **58th** | REVISION UNIT-4 |
| **59th** | **Unit-5**  Preparation of Tender Documents | **30th** | REVISION PRACTICAL |
| **60th** | Tender – constituents finalization, specimen tender |