**University of Management and Technology**

**Course Outline**

Course code EE422L Course title: Power system distribution and utilization Lab

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| Program | BSEE |
| Credit Hours | 1 |
| Duration | One Semester |
| Prerequisites | Electrical Network Analysis |
| Resource Persons | Fahad Usman Khan, Khalid Ejaz |
| Counseling Timing | See Office doors. |
| Contact | [Khalid.ijaz@umt.edu.pk](mailto:Khalid.ijaz@umt.edu.pk)  [Fahad.khan@umt.edu.pk](mailto:Fahad.khan@umt.edu.pk) |

**Chairman/Director signature………………………………….**

**Dean’s signature…………………………… Date………………………………………….**

**Learning Objective:**

**The objectives of this course are:**

Students are introduced to the basics of power distribution systems and effective utilization of power in heating and illumination applications.

**Learning Methodology:**

**Lecture, interactive, participative ,active learning.**

**Grade Evaluation Criteria**

Following is the criteria for the distribution of marks to evaluate final grade in a semester.

**Marks Evaluation Marks in percentage**

Lab Sessional Evaluation 40%

Final Viva Voce 60%

Total 100%

**Recommended Text Books:**

Lab Manual.

**Reference Books:**

1. M. L. Anand, "A Text Book of Electrical Power", Latest Edition.
2. TuranGonen, "Electrical Power Distribution System", Latest Edition

**Calendar of Course contents to be covered during semester**

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| --- | --- | --- |
| **Week** | **Course Contents** | **Reference Chapter(s)** |
| 1 | Parts of power cables for underground cables | Lab 1 |
| 2 | Cable Size Calculation for the given load. | Lab 2 |
| 3 | Calculating the Total Cost in a Residential and Commercial or Industrial Bill. | Lab 3 |
| 4 | Earth Resistance and Soil Resistivity Measurement | Lab 4 |
| 5 | Introduction to basics of Electrical Transient Analyser  Program(ETAP) | Lab 5 |
| 6 | How to Draw A one line Diagram+ lab Assignment 1 | Lab 6 |
| 7 | Load Flow analysis using ETAP Software over A simple diagram | Lab 7 |
| 8 | Load flow analysis including transmission lines | Lab 8 |
| 9 | Power Factor Improvement using ETAP | Lab 9 |

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| 10 | Using CalculuxFirst project on design of general lighting scheme for an office. | Lab 10 |
| 11 | Second project on design of general lighting scheme for an office.To design a task & accent lighting foran office (optional). | Lab 11 |
| 12 | Different types of lamps & comparing the Illuminance level. | Lab 12 |