|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Course No | | Course Name | L-T-P-Credits | |
| **EE 272** | | **Electrical Technology** | **2-0-0: 2** | |
| Prerequisite: nil; Co requisite: nil | | | | |
| **Course Objectives**:   1. To obtain an overview of electrical system. 2. To acquaint with the conventional and advanced components of electrical system. | | | | |
| **SYLLABUS** | | | | |
| **Module** | **Contents** | | | **Hours** |
| I | **Introduction to electrical system**  Concept of electrical power and energy; Voltage profile: AC & DC; Voltage level: Generation, transmission and distribution; Types of electrical load; Components of electrical system. | | | 04 |
| II | **Electrical Power System**  Generation of Electrical Power, Types of Conventional Power generation plants; Transmission and Distribution system, Single phase & Three phase system; Power factor correction; Electric Power Tariff System. | | | 05 |
| III | **Electrical machines**  DC machine, Induction machine, Synchronous machine: Motor & generator principle, construction and types, principle of operation, equivalent circuit, EMF and torque equation, Losses and efficiency. Transformer: Construction and types, equivalent circuits, principle of operation, losses and efficiency, Voltage regulation. Applications of electrical machine. | | | 10 |
| IV | **Advances in electrical systems**  Non-conventional source of energy: Solar, Wind, Tidal, Geothermal; HVDC transmission system; Applications of inverters and converters; Concept of electrical drives and traction system. | | | 05 |

**Essential Readings:**

1. B.L. Theraja & A.K. Theraja, “A Textbook of Electrical Technology – Vol. III”, S. Chand & Co. Ltd., 23rd Edition, 2005
2. B.L. Theraja & A.K. Theraja, “A Textbook of Electrical Technology – Vol. II”, S. Chand & Co. Ltd., 23rd Edition, 2005
3. V.K. Mehta & Rohit Mehta, “Principles of Power System”, S. Chand & Co. Ltd., 3rd Edition, 2005.

**Supplementary Readings:**

1. D. P. Kothari and I.J. Nagrath, “Basic Electrical Engineering”, Tata McGraw Hill, 3rd Edition, 2009.
2. N.K. Bansal, M. Kleeman & M. Meliss, “Renewable energy sources and conversion Technology” Tata McGraw Hill, 1990
3. C.L. Wadhwa, “Generation, Distribution and Utilisation of Electrical Energy”, New Age