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| **Lesson Plan** | | | |
| **Faculty** | **Sh. Ajit Singh** | | |
| **Discipline** | **Electrical Engineering** | | |
| **Semester** | **6th** | | |
| **Subject** | **Energy Conservation and Audit** | | |
| **Duration** | **15 Weeks (from 20 January 2025 to 2nd May 2025)** | | |
| **Work Load per Week** | **Lecture – 02 ; Practical - 02** | | |
|  |  | **Theory** | **PRACTICALS** |
| **Week** | **Lecture Day** | **Topic** | **Name of Practical** |
| **I** | **1** | **Introduction of the Subject:** Energy Conservation and Audit | **Introduction of the Lab** |
| **2** | Fundamentals of Energy Conservation |
| **II** | **1** | 1.1 Energy Scenario: Primary and Secondary Energy, Energy demand and supply. | 1. Identify star labelled electrical apparatus and compare the data for various star  ratings. |
| **2** | 1.2 Introduction to Energy conservation, energy management , energy efficiency and its need |
| **III** | **1** | 1.3 Bureau of Energy efficiency ( BEE) and its Roles | 2. Study of various instrument used for energy audit |
| **2** | 1.4 Star Labelling: Need and its benefits. |
| **IV** | **1** | Energy Conservation in Electrical Installation Systems | 3. Use APFC unit for improvement of p. f. of electrical load. |
| **2** | 2.1 General energy saving tips in Lighting system |
| **V** | **1** | 2.2 Energy efficiency measures in fans , water pumps, Room Air Conditioners, Refrigerators,  Heaters, Blowers , Washing Machines etc | File checking and Viva voce |
| **2** | Assignment No 01 |
| **VI** | **1** | Test No.01 | 4. Determine the reduction in power consumption by replacement of lighting  system in a class room / laboratory. |
| **2** | 2.3 Energy conservation in Electricity Bill: concept of Electricity billing, Maximum Demand  Controller kVAR Controller , Maximum demand controllers; Automatic power factor  controllers (APFC) |
| **VII** | **1** | Energy Conservation in Electrical Machines | 5. Collect electricity bill of a residential consumer and suggest suitable means for conservation and reduction of the energy bill. |
| **2** | 3.1 General energy saving tips for transformer and AC/DC motor. |
| **VIII** | **1** | 3.2 Energy efficient motor; significant features, advantages, applications and limitations | 6. Prepare an energy audit report for your Institute. |
| **2** | 3.3 Energy efficient transformers, amorphous transformers; epoxy Resin cast transformer /  Dry type of transformer. |
| **IX** | **1** | 3.4 Energy saving factors for the selection of DG system. | File checking and Viva voce |
| **2** | Assignment No 02 |
| **X** | **1** | Test No.03 | 7. Prepare a technical report on energy conservation act 2003. |
| **2** | Energy Audit of Electrical System |
| **XI** | **1** | 4.1 Energy audit : Definition, and Need of energy audit | 8. Prepare a technical report on Energy Conservation Building Code (ECBC). |
| **2** | 4.2 Types of Energy audit and Instruments used for energy audit |
| **XII** | **1** | 4.3 Roles and responsibilities of energy Manager and Accountability | 9. Studying the various energy conservation methods useful in power generation, transmission and distribution. |
| **2** | 4.4 Energy Audit procedure: Techniques involved in conducting energy audits, including  data collection, analysis, and evaluation of energy consumption patterns. |
| **XIII** | **1** | Energy Conservation Act | 10. Visit an industry and studying various energy management systems in an industry. Further identify the various energy conservation methods useful in a particular industry |
| **2** | 5.1 Energy conservation Act 2001: Objectives, features and its amendments. |
| **XIV** | **1** | 5.2 Salient features of Energy Conservation Building Code (ECBC): Building Envelope,  Comfort System and Controls, Lighting & Controls and Electrical & Renewable Energy  Systems**.** | **File checking and Viva voce** |
| **2** | 5.3 Salient features of Eco Niwas Samhita Code (ENS) |
| **XV** | **1** | Assignment No 03 | **File checking and Viva voce** |
| **2** | Test No.03 |