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| **Lesson Plan**  |
| **Name of the Faculty: Mr. Naveen Sharma** |
| **Discipline : Electrical Engineering** |
| **Semester : 4th** |
| **Subject : Utilization of Electrical Energy** |
| **Lesson Plan Duration : 15 weeks(**from 20 January 2025 to 02 May 2025**)** |
| **Work load (Lecture/Practical) per week (in Hours):Lecture-03,Practical -00** |
| **Week** | **Day** | **Topic** |
| 1 | 1 | Introduction Of The Subject |
| 2 | Application of UEE |
| 3 | Scope of the Subject |
| 2 |  | I Illumination Introduction,  |
|  | terms used in illumination,  |
|  | laws of illumination,  |
| 3 |  | indoor and outdoor illumination levels.  |
|  | Discharge lamps, MV and SV lamps.  |
|  | General ideas about time switches, street lighting, flood lighting and decorative lighting. |
| 4 |  |  Electric Heating & Electric Welding  |
|  | Advantages and methods of electric heating,. |
|  | resistance heating,  |
| 5 |  | induction heating, and dielectric heating.  |
|  | Electric welding, resistance and arc welding |
|  |  electric welding equipment,  |
| 6 |  | comparison between A.C. and D.C, Welding |
|  | Assignment no.1 |
|  | Test no.1 |
| 7 |  | Electrolytic Processes Need of electro-deposition |
|  | ; Laws of electrolysis ,process of electro-deposition |
|  | ; clearing, operation, deposition of metals, polishing and buffing; |
| 8 |  | Principle of galvanizing and its applications;  |
|  | Principles of anodizing and its applications;  |
|  | Electroplating of non-conducting materials,  |
| 9 |  | Electrical Circuits used in Refrigeration & Air Conditioning and Water Coolers |
|  | Assignment no.2 |
|  | Test no.2 |
| 11 |  | Electric Drives Electric Drive and its part, Advantages of electric drives,  |
|  | Types of electric Drives,  |
|  | Characteristics of different mechanical loads,  |
| 12 |  | Types of motors used in used in Industrial Drives, Factors affecting selection of motors,. |
|  | Applications of Electric Drive. Introduction to Energy efficient drives |
|  | Electrical Traction Advantages of electric traction, Concept of diesel electric Traction system, Systems of Track Electrification (DC & AC system) |
| 13 |  |  types of services – urban, sub-urban, and main line and their speed-time curves.  |
|  | Electrical block diagram and accessories of an electric locomotive and different accessories for track electrification such as overhead centenary wire, conductor rail system, current collector / pentagraph etc.  |
|  | Power supply arrangements and types of motors used for electric traction. Starting and braking of electric locomotives.  |
| 14 |  | Introduction to EMU and metro railways |
|  | Assignment no.3 |
|  | Test no.3 |
| 15 |  | Revison of Unit I & Unit II |
|  | Revison of Unit II & Unit III |
|  | Previous HSBTE Exam Papers solved |