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| **Lesson Plan**  |
| **Name of the Faculty: Sh. Rajesh Kamboj** |
| **Discipline : Electrical Engineering** |
| **Semester : 5th** |
| **Subject : Utilisation of Electrical Energy** |
| **Lesson Plan Duration : 15 weeks(w.e.f. Sept, 2020 to Dec,2020)** |
| **Work load (Lecture/Practical) per week (in Hours):Lecture-04,Practical -00** |
| **Week** | **Day** | **Topic** |
| 1 | 1 | Introduction Of The Subject |
| 2 | Application of UEE |
| 3 | Scope of the Subject |
| 4 | Electrical Heating-Introduction |
| 2 | 1 | Advantages Of Electrical Heating, Resistance Heating - Direct Resistance Heating |
| 2 | Indirect Resistance Heating, Electric Ovens, Their Temperature Range |
| 3 | Properties Of Resistance Heating Elements, Domestic Water Heaters  |
| 4 | Other Heating Appliances, Thermostat Control Circuit |
| 3 | 1 | Induction Heating; Principle Of Core Type Induction Furnace, Their Construction And Applications |
| 2 | Principle Of Coreless Type Induction Furnace, Their Construction And Applications |
| 3 | Electric Arc Heating; Direct And Indirect Arc Heating |
| 4 | Construction, Working And Applications Of Arc Furnace |
| 4 | 1 | Dielectric Heating, Applications In Various Industrial Fields |
| 2 | Infra-Red Heating And Its Applications |
| 3 | Microwave Heating And Its Applications |
| 4 | Solar Heating |
| 5 | 1 | Calculation Of Resistance Heating Elements Electric welding-Introduction |
| 2 | Advantages Of Electric Welding, Principles Of Resistance Welding |
| 3 | Spot, Projection And Seam Welding |
| 4 | Butt Welding, Welding Equipment |
| 6 | 1 | Principle Of Arc Production, Electric Arc Welding, Characteristics Of Arc |
| 2 | Carbon Arc And Metal Arc Welding |
| 3 | Hydrogen Arc Welding Method And Their Applications |
| Power Supply Requirement. Advantages Of Using Coated Electrodes |
| 4 | Comparison Between Ac And Dc Arc Welding |
| Welding Control Circuits, Welding Of Aluminum And Copper |
| 7 | 1 | Assignment no.1 |
| Test no.1 |
| 2 | Electrolytic Processes-Introduction |
| 3 | Introduction To Electro Deposition, Need Of Electro-Deposition |
| 4 | Laws Of Electrolysis |
| 8 | 1 | Process Of Electro-Deposition - Clearing, Operation, Deposition of Metals, Polishing And Buffing |
| 2 | Equipment And Accessories For Electroplating |
| 3 | Factors Affecting Electro-Deposition |
| 4 | Principle Of Galvanizing And Its Applications, Principles Of Anodizing And Its Applications |
| 9 | 1 | Electroplating Of Non-Conducting Materials |
| 2 | Manufacture Of Chemicals By Electrolytic Process |
| 3 | Power Supplies For Electroplating |
| 4 | Principle Of Air Conditioning, Vapour Pressure, Refrigeration Cycle, Eco-Friendly Refrigerants |
| 10 | 1 | Introduction of Electrical circuits used in UEE |
| 2 | Electrical Circuits Used In Refrigeration |
| 3 | Electrical Circuits Used In Air Conditioning |
| 4 | Electrical Circuits Used In Water Coolers. |
| Assignment no.2 |
| Test no.2 |
| 11 | 1 | Electric Drives-Introduction |
| Advantages Of Electric Drives, Characteristics Of Different Mechanical Loads |
| 2 | Types Of Motors Used As Electric Drive |
| Electric Braking - Plugging |
| 3 | Electric Braking - Rheostatic Braking |
| 4 | Electric Braking - Regenerative Braking |
| 12 | 1 | General Idea About The Methods Of Power Transfer By Direct Coupling And Belt Drive |
| Gears, Chain Drives Etc. |
| 2 | Examples Of Selection Of Motors For Different Types Of Domestic Loads |
| 3 | Selection Of Drive For Applications Such As General, Workshop, Textile Mill, Paper mill |
| 4 | Selection Of Drive For Applications Such As Steel Mill, Printing Press, Crane And Lift Etc |
| 13 | 1 | Application Of Flywheel, Specifications Of Commonly Used Motors E.G. Squirrel Cage Motors, Slip Ring Induction Motors |
| 2 | Specifications Of Ac Series Motors, Fractional Kilo Watt(Fkw) Motors |
| 3 | Selection Of Motors For Domestic Appliances |
| 4 | Electric Traction-Introduction |
| Advantages Of Electric Traction Over Other Types Of Traction |
| 14 | 1 | Different Systems Of Electric Traction, Dc And Ac Systems, Diesel Electric System |
| 2 | Types Of Services - Urban, Sub-Urban, And Main Line And Their Speed-Time Curves |
| 3 | Different Accessories For Track Electrification; Such As Overhead Catenary Wire |
| Conductor Rail System, Current Collector-Pantograph |
| 4 | Factors Affecting Scheduled Speed |
| Electrical Block Diagram Of An Electric Locomotive With Description Of Various Equipment And Accessories Used |
| 15 | 1 | Types Of Motors Used For Electric Traction, Power Supply Arrangements |
| 2 | Starting And Braking Of Electric Locomotives |
| 3 | Introduction To Emu And Metro Railways, Train Lighting Scheme |
| 4 | Assignment no.3 and tuff topic discussion etc |
| Test no.3 review of old question papers |