

**Electrical Engineering Department**  
**Lesson plan**

<b>Name of Faculty</b>	<b>Dr. Sarika Sharma</b>
<b>Discipline</b>	<b>Electrical Engineering</b>
<b>Semester</b>	<b>Fifth Sem (5th sem)</b>
<b>Subject</b>	<b>Utilization of Electrical Energy(UEE)</b>
<b>Lesson Plan Duration</b>	<b>From Sep 2023</b>
<b>Work load [Theory + Practical] Per Week</b>	<b>[04+00]</b>

<b>Week</b>	<b>Day</b>	<b>Theory Topic/ Assignment/ Test</b>	<b>No.</b>	<b>Practical</b>
<b>1<sup>st</sup></b>	<b>1</b>	<b>Unit1: Electric Heating</b>	<b>1</b>	
	<b>2</b>	<b>Heating methods: Resistance heating</b>		
	<b>3</b>	<b>Induction heating</b>		
	<b>4</b>	<b>Electric arc heating</b>		
<b>2<sup>nd</sup></b>	<b>1</b>	<b>Dielectric heating</b>	<b>2</b>	
	<b>2</b>	<b>Infra-red heating</b>		
	<b>3</b>	<b>Microwave heating</b>		
	<b>4</b>	<b>Solar Heating</b>		
<b>3<sup>rd</sup></b>	<b>1</b>	<b>Calculation of resistance heating elements</b>	<b>3</b>	
	<b>2</b>	<b>Revision/Problem solution</b>		
	<b>3</b>	<b>Unit2: Electric Welding</b>		
	<b>4</b>	<b>Welding methods</b>		
<b>4<sup>th</sup></b>	<b>1</b>	<b>Principles of resistance welding, types</b>	<b>4</b>	
	<b>2</b>	<b>Principle of arc production</b>		
	<b>3</b>	<b>comparison between AC and DC arc welding</b>		
	<b>4</b>	<b>Revision/Problem solution</b>		
<b>5<sup>th</sup></b>	<b>1</b>	<b>Unit3 : Electrolytic Processes</b>	<b>5</b>	
	<b>2</b>	<b>Need of electro-deposition</b>		
	<b>3</b>	<b>Laws of electrolysis,</b>		
	<b>4</b>	<b>Equipment and accessories for electroplating</b>		
<b>6<sup>th</sup></b>	<b>1</b>	<b>Principle of galvanizing</b>	<b>6</b>	
	<b>2</b>	<b>Principles of anodizing and its applications</b>		
	<b>3</b>	<b>Electroplating of non-conducting materials</b>		

	4	<b>Electroplating of non-conducting materials</b>		
7 <sup>th</sup>	1	<b>Electric Traction:</b>		
	2	<b>Revision/Problem solution</b>		
	3	<b>Unit 4: Electrical Circuits used in Refrigeration, Air Conditioning and Water Coolers</b>		
	4	<b>Principle of air conditioning</b>		
8 <sup>th</sup>	1	<b>Description of Electrical circuit used in Refrigerator</b>		
	2	<b>Description of Electrical circuit used in Air conditioner</b>		
	3	<b>Description of Electrical circuit used in Water cooler</b>		
	4	<b>Unit 5 : Electric Drives:</b>		
9 <sup>th</sup>	1	<b>Advantages of electric drives</b>	8	
	2	<b>Characteristics of different mechanical load</b>		
	3	<b>Types of motors used as electric drive</b>		
	4	<b>General idea about the methods of power transfer by direct coupling by using devices like belt drive, gears, chain drives etc.</b>		
10 <sup>th</sup>	1	<b>Examples of selection of motors for different types of domestic loads</b>	9	
	2	<b>Selection of drive for applications such as general workshop</b>		
	3	<b>Selection of motors for Domestic Appliances</b>		
	4	<b>Revision/Problem solution</b>		
11 <sup>th</sup>	1	<b>Revision/Problem solution</b>	10	
	2	<b>Unit 5: Electric Traction:</b>		
	3	<b>Advantages of electric traction</b>		
	4	<b>Different systems of electric traction</b>		
12 <sup>th</sup>	1	<b>DC and AC systems</b>	11	
	2	<b>diesel electric system, types of services – urban, sub-urban</b>		
	3	<b>Different accessories for track electrification</b>		
	4	<b>conductor rail system, current collector-pentagraph</b>		
13 <sup>th</sup>	1	<b>Factors affecting scheduled speed</b>	12	
	2	<b>Electrical block diagram of an electric locomotive with description of various equipment and accessories used.</b>		
	3	<b>Types of motors used for electric traction</b>		

	<b>4</b>	<b>Power supply arrangements</b>		
<b>14<sup>th</sup></b>	<b>1</b>	<b>Introduction to EMU and metro railways</b>	<b>13</b>	
	<b>2</b>	<b>Train Lighting Scheme</b>		
	<b>3</b>	<b>Starting and braking of electric locomotives</b>		
	<b>4</b>	<b>Revision/Problem solution</b>		
<b>15<sup>th</sup></b>	<b>1</b>	<b>Revision of Old Question Papers</b>	<b>14</b>	
	<b>2</b>	<b>Revision of Old Question Papers</b>		
	<b>3</b>	<b>Revision of Old Question Papers</b>		
	<b>4</b>	<b>Revision of Old Question Papers</b>		