

Discipline – Electrical Engg	Semester 5 <sup>th</sup>	NAME OF THE TEACHING FACULTY- SIBANI PANDA, LECT(ELECT.)	
SUB-UEET	No Of Days Per Week Class Alloted- 4 P	SEMESTER FROM 15.09.2022 to 22.12.2022 NO OF WEEK – 13 WEEKS	
WEEK	CLASS DAY	THEORY	STATUS
1 <sup>st</sup> WEEK	1 <sup>ST</sup> day 2 <sup>nd</sup> day 3 <sup>rd</sup> day 4 <sup>th</sup> day	<b>ELECTROLYTIC PROCESS</b> <ol style="list-style-type: none"> <li>1.1. Definition and Basic principle of Electro Deposition.</li> <li>1.2. Important terms regarding electrolysis.</li> <li>1.3. Faradays Laws of Electrolysis.</li> <li>1.4. Definitions of current efficiency, Energy efficiency.</li> </ol>	
2 <sup>nd</sup> WEEK	1 <sup>ST</sup> day 2 <sup>nd</sup> day 3 <sup>rd</sup> day 4 <sup>th</sup> day	<ol style="list-style-type: none"> <li>1.5. Principle of Electro Deposition.</li> <li>1.6. Factors affecting the amount of Electro Deposition.</li> <li>1.7. Factors governing the electro deposition.</li> <li>1.8. State simple example of extraction of metals.</li> </ol> Application of Electrolysis.	
3 <sup>rd</sup> WEEK	1 <sup>ST</sup> day 2 <sup>nd</sup> day 3 <sup>rd</sup> day 4 <sup>th</sup> day	<b>ELECTRICAL HEATING</b> <ol style="list-style-type: none"> <li>2.1. Advantages of electrical heating.</li> <li>2.2. Mode of heat transfer and Stephen's Law.</li> <li>2.3. Principle of Resistance heating. (Direct resistance and indirect resistance heating.)</li> </ol>	
4 <sup>th</sup> WEEK	1 <sup>ST</sup> day 2 <sup>nd</sup> day 3 <sup>rd</sup> day 4 <sup>th</sup> day	<ol style="list-style-type: none"> <li>2.4. Discuss working principle of direct arc furnace and indirect arc furnace.</li> <li>2.5. Principle of Induction heating.               <ol style="list-style-type: none"> <li>2.5.1. Working principle of direct core type, vertical core type and indirect core type Induction furnace.</li> <li>2.5.2. Principle of coreless induction furnace and skin effect.</li> </ol> </li> <li>2.6. Principle of dielectric heating and its application.</li> </ol> Principle of Microwave heating and its application	
5 <sup>th</sup> WEEK	1 <sup>ST</sup> day 2 <sup>nd</sup> day 3 <sup>rd</sup> day 4 <sup>th</sup> day	<b>PRINCIPLE OF ARC WELDING</b> <ol style="list-style-type: none"> <li>3.1. Explain principle of arc welding.</li> <li>3.2. Discuss D. C. &amp; A. C. Arc phenomena.</li> <li>3.3. D.C. &amp; A. C. arc welding plants of single and multi-operation type.</li> </ol>	
6 <sup>th</sup> WEEK	1 <sup>ST</sup> day 2 <sup>nd</sup> day 3 <sup>rd</sup> day 4 <sup>th</sup> day	<ol style="list-style-type: none"> <li>3.4. Types of arc welding.</li> <li>3.5. Explain principles of resistance welding.</li> </ol> Descriptive study of different resistance welding methods.	
7 <sup>th</sup> WEEK	1 <sup>ST</sup> day 2 <sup>nd</sup> day 3 <sup>rd</sup> day 4 <sup>th</sup> day	<b>ILLUMINATION</b> <ol style="list-style-type: none"> <li>4.1. Nature of Radiation and its spectrum.</li> <li>4.2. Terms used in Illuminations. [Lumen, Luminous intensity, Intensity of illumination, MHCP, MSCP, MHSCP, Solid angle, Brightness, Luminous efficiency.]</li> <li>4.3. Explain the inverse square law and the cosine law.</li> <li>4.4. Explain polar curves.</li> </ol>	

8 <sup>th</sup> WEEK	1 <sup>ST</sup> day 2 <sup>nd</sup> day 3 <sup>rd</sup> day 4 <sup>th</sup> day	<p>4.5 Describe light distribution and control. Explain related definitions like maintenance factor and depreciation factors.</p> <p>4.6 Design simple lighting schemes and depreciation factor.</p> <p>4.7 Constructional feature and working of Filament lamps, effect of variation of voltage on working of filament lamps</p>	
9 <sup>th</sup> WEEK	1 <sup>ST</sup> day 2 <sup>nd</sup> day 3 <sup>rd</sup> day 4 <sup>th</sup> day	<p>4.8. Explain Discharge lamps.</p> <p>4.9. State Basic idea about excitation in gas discharge lamps.</p> <p>4.10. State constructional factures and operation of Fluorescent lamp. (PL and PLL Lamps)</p> <p>4.11. Sodium vapor lamps.</p> <p>4.12. High pressure mercury vapor lamps.</p> <p>4.13. Neon sign lamps.</p> <p>High lumen output &amp; low consumption fluorescent lamps</p>	
10 <sup>th</sup> WEEK	<p>1<sup>ST</sup> day 2<sup>nd</sup> day 3<sup>rd</sup> day 4<sup>th</sup> day</p> <p>1<sup>ST</sup> day 2<sup>nd</sup> day 3<sup>rd</sup> day 4<sup>th</sup> day</p>	<p><b>INDUSTRIAL DRIVE</b></p> <p>5.1. State group and individual drive.</p> <p>5.2. Method of choice of electric drives.</p> <p>5.3. Explain starting and running characteristics of DC and AC motor.</p> <p>5.4. State Application of:</p> <p>5.4.1. DC motor.</p> <p>5.4.2. 3-phase induction motor.</p> <p>5.4.3. 3 phase synchronous motors.</p>	
12 <sup>th</sup> week	1 <sup>ST</sup> day 2 <sup>nd</sup> day 3 <sup>rd</sup> day 4 <sup>th</sup> day	<p><b>5.4.4.</b> application of Single phase induction, series motor, universal motor and repulsion motor</p> <p><b>ELECTRIC TRACTION</b></p> <p>6.1. Explain system of traction.</p> <p>6.2. System of Track electrification.</p> <p>6.3. Running Characteristics of DC and AC traction motor.</p>	
13 <sup>th</sup> week	1 <sup>ST</sup> day 2 <sup>nd</sup> day 3 <sup>rd</sup> day 4 <sup>th</sup> day	<p>6.4. Explain control of motor:</p> <p>6.4.1. Tapped field control.</p> <p>6.4.2. Rheostatic control.</p> <p>6.4.3. Series parallel control.</p>	
14 <sup>th</sup> week	1 <sup>ST</sup> day 2 <sup>nd</sup> day 3 <sup>rd</sup> day 4 <sup>th</sup> day	<p>6.4.4. Multi-unit control.</p> <p>6.4.5. Metadyne control.</p>	

15 <sup>th</sup> week	1 <sup>st</sup> day 2 <sup>nd</sup> day 3 <sup>rd</sup> day 4 <sup>th</sup> day	6.5. Explain Braking of the following types: 6.5.1. Regenerative Braking. 6.5.2. Braking with 1-phase series motor 6.5.3. Magnetic Braking.	Extra classes will be needed to complete the course syllabus.
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*Daniel*  
14.9.2022