

Discipline – Electrical Engg	Semester 5 th	NAME OF THE TEACHING FACULTY- SIBANI PANDA, LECT(ELECT.)	
SUB-UEET	No Of Days Per Week Class Alloted- 4 P	SEMESTER FROM 01.10.2021 TO 28.02.2022	
WEEK	CLASS DAY	THEORY	STATUS
1 st WEEK	1 st day 2 nd day 3 rd day 4 th day	ELECTROLYTIC PROCESS 1.1. Definition and Basic principle of Electro Deposition. 1.2. Important terms regarding electrolysis. 1.3. Faradays Laws of Electrolysis. 1.4. Definitions of current efficiency, Energy efficiency.	complete
2 nd WEEK	1 st day 2 nd day 3 rd day 4 th day	1.5. Principle of Electro Deposition. 1.6. Factors affecting the amount of Electro Deposition. 1.7. Factors governing the electro deposition. 1.8. State simple example of extraction of metals. Application of Electrolysis.	complete
3 rd WEEK	1 st day 2 nd day 3 rd day 4 th day	ELECTRICAL HEATING 2.1. Advantages of electrical heating. 2.2. Mode of heat transfer and Stephen's Law. 2.3. Principle of Resistance heating. (Direct resistance and indirect resistance heating.)	complete
4 th WEEK	1 st day 2 nd day 3 rd day 4 th day	2.4. Discuss working principle of direct arc furnace and indirect arc furnace. 2.5. Principle of Induction heating. 2.5.1. Working principle of direct core type, vertical core type and indirect core type Induction furnace. 2.5.2. Principle of coreless induction furnace and skin effect. 2.6. Principle of dielectric heating and its application. Principle of Microwave heating and its application	complete
5 th WEEK	1 st day 2 nd day 3 rd day 4 th day	PRINCIPLE OF ARC WELDING 3.1. Explain principle of arc welding. 3.2. Discuss D. C. & A. C. Arc phenomena. 3.3. D.C. & A. C. arc welding plants of single and multi-operation type.	complete
6 th WEEK	1 st day 2 nd day 3 rd day 4 th day	3.4. Types of arc welding. 3.5. Explain principles of resistance welding. Descriptive study of different resistance welding methods.	complete
7 th WEEK	1 st day 2 nd day 3 rd day 4 th day	ILLUMINATION 4.1. Nature of Radiation and its spectrum. 4.2. Terms used in Illuminations. [Lumen, Luminous intensity, Intensity of illumination, MHCP,	complete

8 th WEEK	1 ST day 2 nd day 3 rd day 4 th day	<p>MSCP, MHSCP, Solid angle, Brightness, Luminous efficiency.]</p> <p>4.3. Explain the inverse square law and the cosine law.</p> <p>4.4. Explain polar curves.</p>	
9 th WEEK	1 ST day 2 nd day 3 rd day 4 th 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> <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 & low consumption florescent lamps</p>	Complete
10 th WEEK	1 ST day 2 nd day 3 rd day 4 th day 1 ST day 2 nd day 3 rd day 4 th day	<p>INDUSTRIAL DRIVE</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>	Complete
12 th week	1 ST day 2 nd day 3 rd day 4 th day	<p>5.4.4. Single phase induction, series motor, universal motor and repulsion motor</p> <p>ELECTRIC TRACTION</p> <p>6.1. Explain system of traction.</p> <p>6.2. System of Track electrification.</p>	Complete
13 th week	1 ST day 2 nd day 3 rd day 4 th day	<p>6.3. Running Characteristics of DC and AC traction motor.</p>	Complete

14 th week	1 ST day 2 nd day 3 rd day 4 th day	6.4. Explain control of motor: 6.4.1. Tapped field control. 6.4.2. Rheostatic control. 6.4.3. Series parallel control. 6.4.4. Multi-unit control.	Complete
15 th week	1 ST day 2 nd day 3 rd day 4 th day	6.4.5. Metadyne control. 6.5. Explain Braking of the following types: 6.5.1. Regenerative Braking. 6.5.2. Braking with 1-phase series motor. Magnetic Braking.	complete
16 th week	1 ST day 2 nd day 3 rd day 4 th day	REVISION FOR SEMESTER EXAM	

Discipline - Electrical Engg	SEMESTER 3 RD	NAME OF THE TEACHING FACULTY- SIBANI PANDA, LECT(ELECT.)	
SUB-EEM	No Of Days Per Week Class Alloted- 4 P	SEMESTER FROM 01.10.2021 TO 28.02.2022	
WEEK	CLASS DAY	THEORY	NO OF WEEK – 16 WEEKS
			STATUS
1 st week	1 ST day 2 nd day 3 rd day 4 th day	Conducting Materials: 1 . 1 Introduction 1 . 2 Resistivity, factors affecting resistivity 1.3 Classification of conducting materials into low resistivity and high resistivity materials	
2 nd week	1 ST day 2 nd day 3 rd day 4 th day	1 . 4 Low Resistivity Materials and their Applications. (Copper, Silver, Gold, Aluminum, Steel) 1 . 5 Stranded conductors 1 . 6 Bundled conductors	
3 rd week	1 ST day 2 nd day 3 rd day 4 th day	1 . 7 Low resistivity copper alloys 1 . 8 High Resistivity Materials and their Applications(Tungsten, Carbon, Platinum, Mercury) 1 . 9 Superconductivity	
4 th week	1 ST day 2 nd day 3 rd day 4 th day	1 . 10 Superconducting materials 1 . 11 Application of superconductor materials	
5 th week	1 ST day 2 nd day 3 rd day 4 th day	Semiconducting Materials: 2 . 1 Introduction 2 . 2 Semiconductors 2 . 3 Electron Energy and Energy Band Theory 2 . 4 Excitation of Atoms 2 . 5 Insulators, Semiconductors and Conductors	
6 TH WEEK	1 ST day 2 nd day 3 rd day 4 th day	2 . 6 Semiconductor Materials 2 . 7 Covalent Bonds 2 . 8 Intrinsic Semiconductors 2 . 9 Extrinsic Semiconductors 2 . 10 N-Type Materials 2 . 11 P-Type Materials 2 . 12 Minority and Majority Carriers 2 . 13 Semi-Conductor Materials	
7 TH WEEK	1 ST day 2 nd day 3 rd day 4 th day	2 . 14 Applications of Semiconductor materials 2.14.1 Rectifiers 2.14.2 Temperature-sensitive resistors or thermistors 2.14.3 Photoconductive cells 2.14.4 Photovoltaic cells	

		<p>2.14.5 Varistors 2.14.6 Transistors 2.14.7 Hall effect generators 2.14.8 Solar power</p> <p>Insulating Materials: 3.1 Introduction</p>
8 TH WEEK	1 ST day 2 ND day 3 RD day 4 TH day	3.2 General properties of Insulating Materials 3.2.1 Electrical properties 3.2.2 Visual properties 3.2.3 Mechanical properties 3.2.4 Thermal properties 3.2.5 Chemical properties 3.2.6 Ageing 3.3.1
9 TH WEEK	1 ST day 2 ND day 3 RD day 4 TH day	3.3 Insulating Materials – Classification, properties, applications 3.3.1 Introduction Classification of insulating materials on the basis physical and chemical structure 3.4 Insulating Gases 3.4.1 Introduction. 3.4.2 Commonly used insulating gases
10 TH WEEK	1 ST day 2 ND day 3 RD day 4 TH day	Dielectric Materials: 4.1 Introduction 4.2 Dielectric Constant of Permittivity 4.3 Polarization 4.4 Dielectric Loss
11 TH WEEK	1 ST day 2 ND day 3 RD day 4 TH day	4.5 Electric Conductivity of Dielectrics and their Break Down 4.6 Properties of Dielectrics. 4.7 Applications of Dielectrics.
12 TH WEEK	1 ST day 2 ND day 3 RD day 4 TH day	Magnetic Materials: 5.1 Introduction 5.2 5.3 Classification 5.3.1 Diamagnetism 5.3.2 Para magnetism 5.3.3 Ferromagnetism 5.4 Magnetization Curve
13 TH WEEK	1 ST day 2 ND day 3 RD day 4 TH day	5.5 Hysteresis 5.6 Eddy Currents 5.7 Curie Point 5.8 Magneto-striction 5.9 Soft and Hard magnetic Materials 5.9.1 Soft magnetic materials 5.9.2 Hard magnetic materials

14 TH WEEK	1 ST day 2 ND day 3 RD day 4 TH day	Materials for Special Purposes 6.1 Introduction 6.2 Structural Materials 6.3 Protective Materials 6.3.1 Lead 6.3.2 Steel tapes, wires and strips	
15 TH WEEK	1 ST day 2 ND day 3 RD day 4 TH day	6.4 Other Materials 6.3.3 Thermocouple materials 6.3.4 Bimetals 6.3.5 Soldering Materials 6.3.6 Fuse and Fuse materials. 6.3.7 Dehydrating material.	
16 TH WEEK	1 ST day 2 ND day 3 RD day 4 TH day	Revision for Semester exam	