Discipline: Electrical Engineering	Semester: 3rd	Name of the Teaching Faculty: CHANDRAMANI MAHAPATRA, Lecturer
Subject: ELECTRICAL ENGINEERING MATERIAL	Numbers of classes per week: 4	Semester from date: 01.07.2024 to date: 08.11.2024
week	Class day	Theory
1st	1st	**1.Conducting Materials:**
		1. 1 Introduction
	2nd	1. 2 Resistivity, factors affecting resistivity.
	3rd	1. 2 Resistivity, factors affecting resistivity. (contd.)
	4th	1. 3 Classification of conducting materials into low-resistivity
2nd	1st	1. 3 Classification of conducting materials into high resistivity materials
	2nd	1. 4 Low Resistivity Materials and their Applications. (Copper, Silver, Gold, Aluminum, Steel)
	3rd	1. 4 Low Resistivity Materials and their Applications. (Copper, Silver, Gold, Aluminum, Steel) (contd.)
	4th	1. 5 Stranded conductors
3rd	1st	1. 6 Bundled conductors
	2nd	1. 7 Low resistivity copper alloys
	3rd	1. 8 High Resistivity Materials and their Applications(Tungsten, Carbon, Platinum, Mercury)
	4th	1. 9 Superconductivity
4th	1st	1. 10 Superconducting materials
	2nd	1. 11 Application of superconductor materials
	3rd	*Doubt clearing class*
	4th	**2. Semiconducting Materials:** 2. 1 Introduction, 2. 2 Semiconductors
5th	1st	2. 3 Electron Energy and Energy Band Theory
	2nd	2. 4 Excitation of Atoms, 2. 5 Insulators, Semiconductors and Conductors
	3rd	2. 6 Semiconductor Materials, 2. 7 Covalent Bonds,
	4th	2. 8 Intrinsic Semiconductors, 2. 9 Extrinsic Semiconductors
6th	1st	2. 10 N-Type Materials , 2. 11 P-Type Materials, 2. 12 Minority and Majority Carriers
	2nd	2. 13 Semi-Conductor Materials
	3rd	2. 14 Applications of Semiconductor materials , 2.14.1 Rectifiers

	4th	2.14.2 Temperature-sensitive resisters or thermistors, 2.14.3 Photoconductive cells, 2.14.4 Photovoltaic cells
7th	1st	2.14.5 Varisters , 2.14.6 Transistors , 2.14.7 Hall effect generators , 2.14.8 Solar power
	2nd	*Doubt clearing class*
	3rd	**3. Insulating Materials: 3. 1 Introduction**
	4th	3. 2 General properties of Insulating Materials 3.2.1 Electrical properties
8th	1st	3.2.2 Visual properties, 3.2.3 Mechanical properties
	2nd	3.2.4 Thermal properties, 3.2.5 Chemical properties
		3.2.6 Ageing
	3rd	3.3 Insulating Materials – Classification, properties, applications 3.3.1 Introduction
	4th	3.3.2 Classification of insulating materials on the basis physical and chemical structure
9th	1st	3.3.2 Classification of insulating materials on the basis physical and chemical structure(contd.)
	2nd	3.4 Insulating Gases, 3.4.1 Introduction
	3rd	3.4.2 Commonly used insulating gases
	4th	*Doubt clearing class*
10th	1st	**4. Dielectric Materials: 4.1 Introduction, 4.2 Dielectric Constant of Permittivity**
	2nd	4.3 Polarization, 4.4 Dielectric Loss
	3rd	4.5 Electric Conductivity of Dielectrics and their Break Down
	4th	4.6 Properties of Dielectrics,
11th	1st	4.7 Applications of Dielectrics.
	2nd	*Doubt clearing class*
	3rd	**5. Magnetic Materials: 5.1 Introduction**
	4th	5.2 Classification, 5.2.1 Diamagnetism, 5.2.2 Para magnetism, 5.2.3 Ferromagnetism
12th	1st	5.3 Magnetization Curve, 5.4 Hysteresis
	2nd	5.5 Eddy Currents
	3rd	5.6 Curie Point ,
	4th	5.7 Magneto-striction
13th	1st	5.8 Soft magnetic Materials , 5.8.2 Hard magnetic materials
	2nd	*Doubt clearing class*
	3rd	**6. Materials for Special Purposes 6.1 Introduction**

	4th	6.2 Structural Materials
	1st	6.3 Protective Materials , 6.3.1 Lead, Steel tapes. 6.3.2 wires and strips
	2nd	6.4 Other Materials ,
	3rd	6.4.1 Thermocouple materials
14th	4th	6.4.2 Bimetals,
	1st	6.4.3 Soldering Materials
	2nd	6.4.4 Fuse and Fuse materials.
	3rd	6.4.5 Dehydrating material.
15th	4th	*Doubt clearing class*

29/06/2024

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Signature of faculty **Head of Department** **Academic Co-ordinator**