Discipline :Electrical Engineering	Semester:-3rd sem	Name of the teaching faculty:- MANMOHAN PANDA
Subject:-Electrical Engineering Materials	No. of Days/week class Allotted :-4	No. of weeks:-15 Session - 2024 - 2025 (Winter)
No. of week	No. of class	Topic to be Taught
1st	1st	**Conducting Materials:** Introduction
	2nd	Resistivity, factors affecting resistivity
	3rd	Resistivity, factors affecting resistivity
	4th	Classification of conducting materials into low-resistivity and high resistivity materials
2nd	1st	Classification of conducting materials into low-resistivity and high resistivity materials
	2nd	Low Resistivity Materials and their Applications. (Copper, Silver.Gold. Aluminum, Steel)
	3rd	Low Resistivity Materials and their Applications. (Copper, Silver.Gold. Aluminum, Steel)
	4th	Stranded conductors
3rd	1st	Bundled conductors
	2nd	Low resistivity copper alloys
	3rd	High Resistivity Materials and their Applications(Tungsten, Carbon,Platinum, Mercury)
	4th	High Resistivity Materials and their Applications(Tungsten, Carbon,Platinum, Mercury)
4th	1st	High Resistivity Materials and their Applications(Tungsten, Carbon,Platinum, Mercury)
	2nd	Superconductivity
	3rd	Superconducting materials
	4th	Application of superconductor materials
5th	1st	**Semiconducting Materials:** Introduction to Semiconductors
	2nd	Electron Energy and Energy Band Theory
	3rd	Excitation of Atoms Insulators, Semiconductors and Conductors
	4th	SemiconductorMaterials Covalent Bonds

6th	1st	Intrinsic Semiconductors Extrinsic Semiconductors
	2nd	N-Type Materials P-Type Materials
	3rd	Minority and Majority Carriers Semi-Conductor Materials
	4th	**Applications of Semiconductor materials** Rectifiers Temperature-sensitive resistors or thermistors
7th	1st	Photoconductive cells Photovoltaic cells
	2nd	Varisters Transistors Hall effect generators Solar power
	3rd	**Insulating Materials:** Introduction General properties of Insulating Materials
	4th	Electrical properties Visual properties Mechanical properties
8th	1st	Thermal properties Chemical properties Ageing
	2nd	Insulating Materials – Classification, properties, applications
	3rd	Insulating Materials – Classification, properties, applications
	4th	Classification of insulating materials on the basis of physical structure
9th	1st	Classification of insulating materials on the basis of chemical structure
	2nd	Insulating Gases
	3rd	Commonly used insulating gases
	4th	**Dielectric Materials:** Introduction
10th	1st	Dielectric Constant of Permittivity
	2nd	Polarization
	3rd	Dielectric Loss
	4th	Electric Conductivity of Dielectrics and their Break Down

11th	1st	Electric Conductivity of Dielectrics and their Break Down
	2nd	Properties of Dielectrics
	3rd	Applications of Dielectrics
	4th	**Magnetic Materials:** Introduction
12th	1st	Classification of magnetic materials introduction to Diamagnetism • Para magnetism Ferromagnetism
	2nd	Classification of magnetic materials Details Study of Diamagnetism Para magnetism Ferromagnetism
	3rd	Magnetization Curve Hysteresis
	4th	Eddy Currents Curie Point
	5th	Magneto-striction
13th	1st	Soft magnetic materials
	2nd	Hard magnetic materials
	3rd	**Materials for Special Purposes** Introduction
	4th	Structural Materials
14th	1st	Protective Materials
	2nd	Lead Steel tapes, wires and strips
	3rd	Other Materials
	4th	Thermocouple materials
15th	1st	Bimetals
	2nd	Soldering Materials
	3rd	Fuse and Fuse materials
	4th	Dehydrating material

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