GIET POLYTECHNIC, JAGATPUR, CUTTACK

LESSON PLAN

Discipline: ELECTRICAL	Semester: 3rd	Name Of The Teaching Faculty: SUSHREE SUNITA DASH
Subject: ELECTRICAL ENGG. MATERIAL (TH 4)	No. Of Days Per Week Class Allotted: 04 P	Semester From Date: 15.09.2022 To Date: 22.12.2022 No. of weeks: 15

Week	Class Day	Theory Topic
1st week	1st	**UNIT1: CONDUCTING MATERIALS** ➢ 1.1: Introduction
	2nd	➢ 1.2: Resistivity, factors affecting resistivity
	3rd	➢ 1.3: Classification of conducting materials into low resistivity & high resistivity materials
	4th	➢ 1.4: Low resistivity materials & their applications(copper, silver)
2nd week	1st	➢ 1.4: Low resistivity materials & their applications (aluminium, gold, steel)
	2nd	➢ 1.5: Stranded conductors
	3rd	➢ 1.6: Bundled conductors
	4th	➢ 1.7: Low resistivity copper alloys
3rd week	1st	➢ 1.8: High resistivity materials & their applications (Tungsten, Platinum)
	2nd	➢ 1.8: High resistivity materials & their applications (Carbon, Mercury)
	3rd	➢ 1.9: Superconductivity
	4th	➢ 1.10: Superconducting materials
4th week	1st	➢ 1.11: Applications of superconductor materials
	2nd	➢ 1.11: Applications of superconductor materials
	3rd	**UNIT 2: SEMICONDUCTING MATERIALS** ➢ 2.1: Introduction
	4th	➢ 2.2: Semiconductors
5th week	1st	➢ 2.3: Electron energy & energy band theory
	2nd	➢ 2.4: Excitation of atoms
	3rd	➢ 2.5: Insulators, Semiconductors and Conductors
	4th	➢ 2.6: Semiconductor materials
6th week	1st	➢ 2.7: Covalent bonds
	2nd	➢ 2.8: Intrinsic semiconductor
	3rd	➢ 2.9: Extrinsic semiconductor
	4th	➢ 2.10: N-type materials
7th week	1st	➢ 2.11: P-type materials
	2nd	➢ 2.12: Minority and majority carriers
	3rd	➢ 2.13: Semiconductor materials
	4th	➢ 2.14: Application of semiconductor materials 2.14.1: Rectifier
8th week	1st	➢ 2.14.2: Temperature –sensitive resistors or thermistors ➢ 2.14.3: Photo conductive cells ➢ 2.14.4: Varisters
	2nd	➢ 2.14.5: Photovoltaic cells ➢ 2.14.6: Transistors ➢ 2.14.7: Hall effect generators ➢ 2.14.8: Solar power
	3rd	**UNIT 3: INSULATING MATERIAL** ➢ 3.1: Introduction
	4th	➢ 3.2: General properties of insulating materials ➢ 3.2.1: Electrical properties 3.2.2: Visual properties

9th week	1st	➢ 3.2.3: Mechanical properties ➢ 3.2.4: Thermal properties
	2nd	➢ 3.2.5: Chemical properties ➢ 3.2.6: Ageing
	3rd	➢ 3.3: Insulating materials 3.3.1: Introduction
	4th	➢ 3.3.2: Classification of insulating materials on the basis of physical and chemical structure
10th week	1st	➢ 3.3.2: Classification of insulating materials on the basis of physical and chemical structure
	2nd	➢ 3.4: Insulating gases 3.4.1: Introduction 3.4.2: Commonly used insulating gases
	3rd	**UNIT 4: DIELECTRIC MATERIALS** ➢ 4.1: Introduction
	4th	➢ 4.2: Dielectric constant of permittivity
11th week	1st	➢ 4.3: Polarization
	2nd	➢ 4.4: Dielectric loss
	3rd	➢ 4.5: Electric conductivity of dielectrics and their break down
	4th	➢ 4.6: Properties of dielectric
12th week	1st	➢ 4.7: Applications of dielectrics
	2nd	**UNIT 5: MAGNETIC MATERIALS** ➢ 5.1: Introduction ➢ 5.2: Classification ➢ 5.2.1: Diamagnetisms
	3rd	➢ 5.2.2: Para magnetism
	4th	➢ 5.2.3: Ferromagnetism
13th week	1st	➢ 5.3: Magnetization curve
	2nd	➢ 5.4: Hysteresis curve
	3rd	➢ 5.5: Eddy currents
	4th	➢ 5.6: Curie point
14th week	1st	➢ 5.7: Magneto-striction
	2nd	➢ 5.8: Soft and hard magnetic materials ➢ 5.8.1: Soft magnetic materials ➢ 5.8.2: Hard magnetic materials
	3rd	**UNIT 6: MATERIALS FOR SPECIAL PURPOSES** ➢ 6.1: Introduction ➢ 6.2: Structural Materials
	4th	➢ 6.3: Protective Materials ➢ 6.3.1: Lead ➢ 6.3.2: Steel tapes, wires and strips
15th week	1st	➢ 6.4: Other materials ➢ 6.4.1: Thermocouple materials ➢ 6.4.2: Bimetals ➢ 6.4.3: Soldering Materials
	2nd	➢ 6.4.4: Fuse and fuse materials ➢ 6.4.5: Dehydrating material
	3rd	➢ REVISION
	4th	➢ REVISION