

ACADEMIC LESSON PLAN OF WINTER 2023

Discipline: ELECTRICAL	Semester: 3 rd Sem (Sec B)	Name of the Teaching Faculty: Sandeep Mohapatra
Subject: Electrical Engineering Material	No. of days/per week class allotted: 4p/week	Semester From: 1 st Aug 2023 to 30 th Nov 2023 No. of Weeks: 17 weeks
1 st	1 st	Unit-1: CONDUCTING MATERIALS 1.1 Introduction, Resistivity, factors affecting resistivity, Classification of conducting materials into low-resistivity and high resistivity materials.
	2 nd	1.2 Low Resistivity Materials and their Applications. (Copper, Silver, Gold, Aluminium, Steel)
	3 rd	1.3 Stranded Conductors
	4 th	1.4 Bundle Conductors
2 nd	1 st	1.5 Low resistivity copper alloys
	2 nd	1.6 High Resistivity Materials and their Applications (Tungsten, Carbon, Platinum, Mercury)
	3 rd	1.7 Super conductivity, Superconducting Materials
	4 th	1.8 Application of Super Conductor materials
3 rd	1 st	UNIT-2: SEMICONDUCTING MATERIALS 2.1 Introduction, Semiconductors
	2 nd	2.2 Electron Energy and Energy band theory
	3 rd	2.3 Excitation of atoms
	4 th	2.4 Insulators, semiconductors and conductors
4 th	1 st	2.4 Insulators, semiconductors and conductors
	2 nd	2.5 Semiconductor Materials
	3 rd	2.6 Co-valent bonds
	4 th	2.7 Intrinsic semiconductors, Extrinsic semiconductors
5 th	1 st	2.8 N-Type materials, P-Type materials
	2 nd	2.9 Minority and Majority carriers
	3 rd	2.10 Semiconductor materials, Application of semiconductor materials
	4 th	Application of Semiconducting materials
6 th	1 st	UNIT-3: INSULATING MATERIALS 3.1 Introduction, General properties of insulating materials (contd.)
	2 nd	3.2 General properties of insulating materials
	3 rd	3.3 Insulating materials – classification, properties and application
	4 th	3.3 introduction, Classification of insulating materials based on physical and chemical properties
7 th	1 st	3.3 Classification of insulating materials based on physical and chemical properties
	2 nd	3.4 Insulating Gases
	3 rd	3.4 Commonly used insulating gases
	4 th	UNIT-4: DIELECTRIC MATERIAL 4.1 Introduction
8 th	1 st	4.2 Dielectric constant of permittivity
	2 nd	4.3 Polarization
	3 rd	4.3 Polarization
	4 th	4.4 Dielectric loss
9 th	1 st	4.5 Electric Conductivity of Dielectrics and their breakdown
	2 nd	4.5 Electric Conductivity of Dielectrics and their breakdown
	3 rd	4.6 properties of Dielectrics
	4 th	4.7 Application of Dielectrics
10 th	1 st	UNIT-5: MAGNETIC MATERIALS 5.1 Introduction
	2 nd	5.2 Classification
	3 rd	5.2 Diamagnetism
	4 th	5.2 Paramagnetism

11 th	1 st	5.2 Ferromagnetism
	2 nd	5.3 Magnetization Curve
	3 rd	5.4 Hysteresis
	4 th	5.4 Hysteresis(contd.)
12 th	1 st	5.5 Eddy currents
	2 nd	5.6 Curie point, Magneto-striction
	3 rd	5.7 Soft magnetic materials
	4 th	5.7 Soft magnetic materials
13 th	1 st	5.8 Hard magnetic materials
	2 nd	5.8 Hard magnetic materials
	3 rd	UNIT-6:MATERIALS FOR SPECIAL PURPOSES 6.1 Introduction
	4 th	6.2 structural materials
14 th	1 st	6.3 protective materials: lead
	2 nd	6.3 steel tapes
	3 rd	6.3 wires and strips
	4 th	6.4 Other Materials: Thermocouple materials
15 th	1 st	6.4 Bimetals
	2 nd	6.4 soldering materials
	3 rd	6.4 Fuse and fuse materials
	4 th	6.4 Dehydrating materials
16 th	1 st	REVISION CLASS
	2 nd	REVISION CLASS
	3 rd	REVISION CLASS
	4 th	REVISION CLASS
17 th	1 st	REVISION CLASS
	2 nd	REVISION CLASS
	3 rd	REVISION CLASS
	4 th	REVISION CLASS



Signature of Teaching Faculty