NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE& affiliated to SCTE&VT, Odisha)

NIST POLYTECHNIC

LESSON PLAN

SUBJECT: Th-3 (ELECTRICAL ENGINEERING MATERIAL)

Name Of The Faculty :- Er.Ranjan Kumar Padhi
Branch :- Electrical & Electronics Engineering
Semester :- 3rd
Session :- 2024-25
Examination :- 2024 (w)

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per the Syllabus	No. of periods actually needed
1	CONDUCTING MATERIAL	16	16
2	SEMICONDUCTING MATERIAL	10	12
3	INSULATING MATERIAL	9	10
4	DIELECTRIC MATERIAL	8	9
5	MAGNETIC MATERIAL	8	10
6	MATERIAL FOR SPECIAL PURPOSES	9	10
TOTAL		60	67

Sign of Faculty

Sign of H.O.D.

Discipline: EEE	Semester: 3rd	Name of the Teaching Faculty: Er.Ranjan Kumar Padhi
		SESSION : 2024-25 EXAMINATION : 2024 (W)
Week	Class Day	Theory / Practical Topics
1st	1st	1. Conducting Materials: 1 .1 Introduction
	2nd	1 .2 Resistivity, factors affecting resistivity
	3rd	1 .3 Classification of conducting materials into low-resistivity and high resistivity materials
	4th	1 .4 Low Resistivity Materials and their Applications 1 .4.1 Copper
2nd	1st	1 .4.2 Silver 1 .4.3 Gold
	2nd	1 .4.4 Aluminium 1 .4.5 Steel
	3rd	1 .5 Stranded conductors
	4th	1 .6 Bundled conductors
3rd	1st	1.8.1. Tungsten
	2nd	1.8.2 Carbon
	3rd	1.8.3 Platinum
	4th	1.8.4 Mercury
4th	1st	1 .9 Superconductivity
	3rd	1 .10 Superconducting materials
	2nd	1 .10 Superconducting materials
	4th	1 .11 Application of superconductor materials
5th	1st	2.Semiconducting material 2. 1 Introduction 2.2 Semiconductor 2.3 Electron energy and energy band theory 2.4 Excitation of atoms
	3rd	2 .5 Insulators, Semiconductors and Conductors
	2nd	2 .6 Semiconductor Materials 2 .7 Covalent Bonds
	4th	2 .8 Intrinsic Semiconductors 2 .9 Extrinsic Semiconductors

Week	Class Day	Theory / Practical Topics
6th	1st	2 .10 N-Type Materials
	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
7th	1st	2.14.3 Photoconductive cells 2.14.4 Photovoltaic cells
	2nd	2.14.5 Varisters
	3rd	2.14.7 Hall effect generators
	4th	2.14.8 Solar power
8th	1st	3. Insulating material 3 .1 Introduction
	2nd	3 .2 General properties of Insulating Materials 3.2.1 Electrical properties
	3rd	3.2.2 Visual properties
	4th	3.2.4 Thermal properties
9th	1st	3.2.5 Chemical properties
	2nd	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
10th	1st	3.4 Insulating Gases
	2nd	3.4.2 Commonly used insulating gases
	3rd	4.Dielectric material
	4th	4.2 Dielectric Constant of Permittivity
11th	1st	4.3 Polarisation
	2nd	4.4 Dielectric Loss
	3rd	4.5 Electric Conductivity of Dielectrics and their Break Down
	4th	4.5 Electric Conductivity of Dielectrics and their Break Down
12th	1st	4.5 Electric Conductivity of Dielectrics and their Break Down
	2nd	4.6 Properties of Dielectrics
	3rd	4.7 Applications of Dielectrics
	4th	5. Magnetic material 5.1 Introduction

Week	Class Day	Theory / Practical Topics
13th	1st	5.2 classification 5.2.1 Diamagnetism
	2nd	5.2.2 Para magnetism
	3rd	5.3 Magnetization Curve
	4th	5.4 Hysteresis
14th	1st	5.5 Eddy Currents
	2nd	5.6 Curie Point
	3rd	5.7 Magneto-striction
	4th	5.8 Soft and Hard magnetic Materials
15th	1st	5.8.2 Hard magnetic materials
	2nd	6.Materials for special purpose 6.1 Introduction
	3rd	6.2 Structural Materials
	4th	6.4 Lead
16th	1st	6.3.2 Steel tapes, wires and strips
	2nd	6.4 Other Materials
	3rd	6.4.1 Thermocouple materials
	4th	6.4.2 Bimetals
17th	1st	6.4.3 Soldering Materials
	2nd	6.4.4 Fuse and Fuse materials
	3rd	6.4.5 Dehydrating material

Sign of Faculty

Sign of H.O.D.