



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



LESSON PLAN

SUBJECT: Th-4 (ELECTRICAL ENGINEERING MATERIAL)

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 materials	16	16
2	Semiconducting materials	10	10
3	Insulating materials	9	9
4	Dielectric materials	8	8
5	Magnetic materials	8	8
6	Material for special purposes	9	9
	Total Period:	60	60

Discipline: EE	Semester: 3rd	Name of the Teaching Faculty: Er.Biswajit Parida
Week	Class Day	Theory / Practical Topics
1 st	1 st	Conducting Materials : 1. 1 Introduction 1 . 2 Resistivity, factors affecting resistivity
	2 nd	1 . 3 Classification of conducting materials into low-resistivity and high resistivity materials
	3 rd	1 . 4 Low Resistivity Materials and their Applications. (Copper, Silver, Gold, Aluminum, Steel)
	4 th	1 . 4 Low Resistivity Materials and their Applications. (Copper, Silver, Gold, Aluminum, Steel)
2 nd	1 st	1 . 4 Low Resistivity Materials and their Applications. (Copper, Silver, Gold, Aluminum, Steel)
	2 nd	1 . 5 Stranded conductors 1 . 6 Bundled conductors
	3 rd	1 . 5 Stranded conductors 1 . 6 Bundled conductors
	4 th	1 . 7 Low resistivity copper alloys
3 rd	1 st	1 . 7 Low resistivity copper alloys
	2 nd	1 . 8 High Resistivity Materials and their Applications(Tungsten, Carbon, Platinum, Mercury)
	3 rd	1 . 8 High Resistivity Materials and their Applications(Tungsten, Carbon, Platinum, Mercury)
	4 th	1 . 8 High Resistivity Materials and their Applications(Tungsten, Carbon, Platinum, Mercury)
	1 st	1 . 8 High Resistivity Materials and their Applications(Tungsten, Carbon, Platinum, Mercury)

4 th	2 nd	1 . 9 Superconductivity
	3 rd	1 . 10 Superconducting materials
	4 th	1 . 11 Application of superconductor materials
5 th	1 st	Semiconducting Materials: 2 . 1 Introduction 2 . 2 Semiconductors
	2 nd	2 . 3 Electron Energy and Energy Band Theory 2 . 4 Excitation of Atoms
	3 rd	2 . 5 Insulators, Semiconductors and Conductors 2 . 6 Semiconductor Materials
	4 th	2 . 7 Covalent Bonds 2 . 8 Intrinsic Semiconductors
6 th	1 st	2 . 9 Extrinsic Semiconductors 2 . 10 N-Type Materials
	2 nd	2 . 11 P-Type Materials 2 . 12 Minority and Majority Carriers 2 . 13 Semi-Conductor Materials
	3 rd	2 . 14 Applications of Semiconductor materials 2.14.1 Rectifiers 2.14.2 Temperature-sensitive resistors or thermistors
	4 th	2.14.3 Photoconductive cells 2.14.4 Photovoltaic cells
7 th	1 st	2.14.5 Varistors 2.14.6 Transistors
	2 nd	2.14.7 Hall effect generators 2.14.8 Solar power
	3 rd	3. Insulating Materials: 3 . 1 Introduction 3 . 2 General properties of Insulating Materials

	4 th	3.2.1 Electrical properties 3.2.2 Visual properties
8 th	1 st	3.2.3 Mechanical properties
	2 nd	3.2.4 Thermal properties 3.2.5 Chemical properties
	3 rd	3.2.6 Ageing 3.3 Insulating Materials – Classification, properties, applications 3.3.1 Introduction
	4 th	3.3.2 Classification of insulating materials on the basis physical and chemical structure
9 th	1 st	3.3.2 Classification of insulating materials on the basis physical and chemical structure
	2 nd	3.4 Insulating Gases 3.4.1 Introduction. 3.4.2 Commonly used insulating gases
	3 rd	3.4 Insulating Gases 3.4.1 Introduction. 3.4.2 Commonly used insulating gases
	4 th	3.4 Insulating Gases 3.4.1 Introduction. 3.4.2 Commonly used insulating gases
10 th	1 st	4. Dielectric Materials: 4.1 Introduction
	2 nd	4.2 Dielectric Constant of Permittivity
	3 rd	4.3 Polarization
	4 th	4.4 Dielectric Loss
	1 st	4.5 Electric Conductivity of Dielectrics and their Break Down

11 th	2 nd	4.5 Electric Conductivity of Dielectrics and their Break Down
	3 rd	4.6 Properties of Dielectrics.
	4 th	4.7 Applications of Dielectrics
12 th	1 st	Magnetic Materials: 5.1 Introduction
	2 nd	5.2 Classification 5.2.1 Diamagnetism 5.2.2 Para magnetism
	3 rd	5.2 Classification 5.2.1 Diamagnetism 5.2.2 Para magnetism
	4 th	5.3 Magnetization Curve 5.4 Hysteresis
13 th	1 st	5.5 Eddy Currents 5.6 Curie Point
	2 nd	5.7 Magneto-striction
	3 rd	5.8 Soft and Hard magnetic Materials 5.8.1 Soft magnetic materials 5.8.2 Hard magnetic materials
	4 th	5.8 Soft and Hard magnetic Materials 5.8.1 Soft magnetic materials 5.8.2 Hard magnetic materials
14 th	1 st	6 Materials for Special Purposes 6.1 Introduction
	2 nd	6.2 Structural Materials
	3 rd	6.3 Protective Materials 6.3.1 Lead 6.3.2 Steel tapes, wires and strips

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

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