Gandhi Polytechnic, Golanthara
Dept. of Electrical Engineering
LESSON PLAN

Subject :	**ELECTRICAL ENGINEERING MATERIAL**		
Discipline: Electrical Engineering		**Name of the Faculty**: Er. Mahesh Kumar Mishra	
Course Code:	TH-4	**Semester:**	3rd
Total Periods:	60	**Examination:**	2022(Winter)
Theory Periods:	4P/W	**Class Test:**	20
Maximum Marks:	100	**End Semester Examination:**	80

No's of Week	Periods in week	Theory Topics
1st	1st	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. (Copper, Silver, Gold, Aluminum, Steel)
2nd	1st	1 . 5 Stranded conductors
	2nd	1 . 6 Bundled conductors
	3rd	1 . 7 Low resistivity copper alloys
	4th	1 . 8 High Resistivity Materials and their Applications(Tungsten, Carbon, Platinum, Mercury)
3rd	1st	1 . 9 Superconductivity 1 . 10 Superconducting materials
	2nd	1 . 11 Application of superconductor materials
	3rd	1 . 2 Resistivity, factors affecting resistivity
	4th	1 . 3 Classification of conducting materials into low-resistivity and high resistivity materials
4th	1st	1 . 4 Low Resistivity Materials and their Applications. (Copper, Silver, Gold, Aluminum, Steel)
	2nd	1 . 5 Stranded conductors
	3rd	2 . 1 Introduction
	4th	2 . 2 Semiconductors
5th	1st	2 . 3 Electron Energy and Energy Band Theory
	2nd	2 . 4 Excitation of Atoms
	3rd	2. 5 Insulators, Semiconductors and Conductors
	4th	2. 6 Semiconductor Materials
6th	1st	2.7 Covalent Bonds 2.8 Intrinsic Semiconductors 2.9 Extrinsic Semiconductors
	2nd	2 . 10 N-Type Materials
	3rd	2 . 11 P-Type Materials
	4th	2 . 12 Minority and Majority Carriers
7th	1st	2 . 13 Semi-Conductor Materials
	2nd	2 . 14 Applications of Semiconductor materials
	3rd	2.14.1 Rectifiers 2.14.2 Temperature-sensitive resisters or thermistors
	4th	2.14.3 Photovoltaic cells
8th	1st	2.14.4 Varisters
	2nd	2.14.5 Transistors 2.14.6 Hall effect generators 2.14.7 Solar power
	3rd	3 . 1 Introduction
	4th	3 . 2 General properties of Insulating Materials
9th	1st	3.2.1 Electrical properties 3.2.2 Visual properties
	2nd	3.2.3 Mechanical properties
	3rd	3.2.4 Thermal properties 3.2.5 Chemical properties
	4th	3.2.6 Ageing 3.3 Insulating Materials – Classification, properties,Applications

10th	**1st**	3.3.1 Introduction
	2nd	3.3.2 Classification of insulating materials on the basis physical and chemical structure
	3rd	3.4 Insulating Gases
	4th	3.4.1 Commonly used insulating gases
11th	**1st**	4.1 Introduction.
	2nd	4.2 Dielectric Constant of Permittivity
	3rd	4.3 Polarization
	4th	4.4 Dielectric Loss 4.5 Electric Conductivity of Dielectrics and their Break Down 4.6 Properties of Dielectrics. 4.7 Applications of Dielectrics
12th	**1st**	5.1 Introduction
	2nd	5.2 Classification 5.2.1 Diamagnetism 5.2.2 Para magnetism 5.2.3Ferromagnetism
	3rd	5.3 Magnetization Curve
	4th	5.4 Hysteresis 5.5 Eddy Currents
13th	**1st**	5.6 Curie Point
	2nd	5.7 Magneto-striction
	3rd	5.8 Soft and Hard magnetic Materials
	4th	5.8.1 Soft magnetic materials 5.8.2 Hard magnetic materials
14th	**1st**	6.1 Introduction
	2nd	6.2 Structural Materials.
	3rd	6.3 Protective Materials 6.3.1 Lead 6.3.2 Steel tapes, wires and strips
	4th	6.4 Other Materials 6.4.1 Thermocouple materials 6.4.2 Bimetals 6.4.3 Soldering Materials
15th	**1st**	6.4.4 Fuse and Fuse materials. 6.4.5 Dehydrating material
	2nd	REVISION
	3rd	REVISION
	4th	REVISION