TH4. ELECTRICAL ENGINEERING MATERIAL

TOTAL PERIOD - 60

THEORY PERIODS - 4P/WEEK

WEEK	DAY	TOPIC
		Conducting Materials:
1st	1st	1.1. Introduction
	2nd	1.2 Resistivity, factors affecting resistivity
	3rd	1.3. Classificat^{n} of conducting Materials into low resistivity and high resistivity materials
	4th	1.4. Low resistivity materials & their applications (Copper, Silver, Gold Aluminium, Steel)
2nd	1st	1.5. Stranded conductors
	1st	1.6. Bundled conductors
	2nd	1.7. Low resistivity copper alloys
	3rd	1.8. High resistivity materials & their applications (Tungsten, Carbon, Platinum Mercury)
	4th	1.9. Superconductivity
3rd	1st	1.10 Superconducting materials
	1st	1.11. Applications of Superconductor Materials
		2. Semiconducting Materials
	2nd	2.1. Introduction
	2nd	2.2. Semiconductors
	3rd	2.3. Electron Energy and Energy band Theory
	4th	2.4. Excitation of Atoms
4th	1st	2.5. Insulators, Semiconductors & Conductors
	2nd	2.6. Semiconductor Materials
	3rd	2.7. Covalent Bonds
	4th	2.8. Intrinsic Semiconductors
5th	1st	2.9. Extrinsic Semiconductors
	1st	2.10 N-type Materials
	2nd	2.11 P-type Materials
	2nd	2.12 Minority & Majority Carriers
	3rd	2.13 Semi-conductor Materials
	4th	2.14 Applications of Semiconductor Materials
6th	1st	2.14.1. Rectifiers

WEEK	DAY	TOPIC
	1st	2.14.2. Temp sensitive resistors / Thermistors
	2nd	2.14.3 Photoconductive cells
	3rd	2.14.4 Photovoltaic cells
	4th	2.14.5 Varistors
7th	1st	2.14.6 Transisters
	2nd	2.14.7 Hall effect generator
	3rd	2.14.8 Solar power
		3. Insulating Materials
	4th	3.1 Introduction
8th	1st	3.2. General properties of Insulating Materials
	2nd	3.2.1. Electrical properties
	2nd	3.2.2 - Visual properties
	3rd	3.2.3 Mechanical properties
	3rd	3.2.4. Thermal properties
	4th	3.2.5. Chemical properties
	4th	3.2.6. Ageing
9th	1st	3.2 Insulating Materials - Classification,
	2nd	properties, applications
	2nd	3.3.1 Introduction
	3rd	3.3.1 Classification of Insulating materials on the basis physical & chemical structure
10th	1st	3.4 Insulating Gases
	2nd	3.4.1 Introduction
	3rd	3.4.2 Commonly used insulating gases
		4. Dielectric Materials:
	4th	4.1 Introduction
11th	1st	4.2 Dielectric Constant & Permittivity
	2nd	4.3. Polarization
	2nd	4.4. Dielectric loss
	3rd	4.5. Electric conductivity of Dielectrics and their breakdown
	4th	4.6. Properties of Dielectrics
12th	1st	4.7. Application of Dielectrics

WEEK	DAY	TOPIC
		5. Magnetic Materials
	2nd	5.1. Introduction
	2nd	5.2. Classification
	3rd	5.2.1 Diamagnetism
	4th	5.2.2 Paramagnetism
13th	1st	5.2.3 Ferromagnetism
	2nd	5.3. Magnetization Curve
	3rd	5.4. Hysteresis
	4th	5.5. Eddy Currents
14th	1st	5.6. Curies Point
	1st	5.7. Magneto-Striction
	2nd	5.8. Soft and Hard magnetic Materials
	2nd	5.8.1 Soft mag materials
	3rd	5.8.2 Hard mag materials
		6. Materials for Special Purposes
	3rd	6.1. Introduction
	4th	6.2. Structural Materials
	4th	6.3 Protective Materials
15th	1st	6.3.1 Lead
	1st	6.3.2. Steel tapes, tires & strips
	2nd	6.4. Other Materials
	2nd	6.4.1 Thermocouples Materials
	3rd	6.4.2 Bimetals
	3rd	6.4.3. Soldering Materials
	4th	6.4.4. Fuse and Fuse materials
	4th	6.4.5 Dehydrating materials