

UTKAL GOURAV MADHUSUDAN INSTITUTE OF TECHNOLOGY, RAYAGADA
DEPARTMENT OF ELECTRICAL ENGINEERING

Academic Lesson Plan for 3rd Semester - 2022 (Winter)

Subject: Electrical Engineering materials (TH 4)

Name of the teaching faculty- Sri Kishore Chandra Prusty (PTGF)

SEMESTER FROM DATE:15/09/2022 TO DATE:22/12/2022	No. of periods per week: 4 NO.OF WEEKS:15 Total periods: 60	Internal Exam. : 20 Marks End Semester Exam.: 80 Marks Total Marks: 100 Marks
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WEEK	CLASS DAY	UNIT	THEORY/PRACTICAL TOPICS	REMARK
1ST	1ST	Conducting Materials	Introduction , Resistivity, factors affecting resistivity	
	2ND	Conducting Materials	Classification of conducting materials into low-resistivity and high resistivity materials	
	3RD	Conducting Materials	Low Resistivity Materials and their Applications. (Copper, Silver,)	
	4TH	Conducting Materials	Low Resistivity Materials and their Applications. Gold	
2ND	1ST	Conducting Materials	Low Resistivity Materials and their Applications , Aluminum	
	2ND	Conducting Materials	Low Resistivity Materials and their Applications Steel	
	3RD	Conducting Materials	Stranded conductors	
	4TH	Conducting Materials	Bundled conductors	
3RD	1ST	Conducting Materials	Low resistivity copper alloys	
	2ND	Conducting Materials	High Resistivity Materials and their Applications (Tungsten)	
	3RD	Conducting Materials	High Resistivity Materials and their Applications (Carbon)	
	4TH	Conducting Materials	High Resistivity Materials and their Applications (Platinum,)	
4TH	1ST	Conducting Materials	High Resistivity Materials and their Applications Mercury	
	2ND	Conducting Materials	Superconductivity	
	3RD	Conducting Materials	Superconducting materials	
	4TH	Conducting Materials	Application of superconductor materials	
5TH	1ST	Semiconducting Materials	Introduction, Semiconductors,	
	2ND	Semiconducting Materials	Electron Energy and Energy Band Theory .Excitation of Atoms	
	3RD	Semiconducting Materials	Insulators, Semiconductors and Conductors, Semiconductor Materials	

	4TH	Semiconducting Materials	Covalent Bonds, Intrinsic Semiconductors, Extrinsic Semiconductors	
6TH	1ST	Semiconducting Materials	N-Type Materials ,P-Type Materials	
	2ND	Semiconducting Materials	Minority and Majority Carriers, Semi-Conductor Materials	
	3RD	Semiconducting Materials	Applications of Semiconductor materials - Rectifiers	
	4TH	Semiconducting Materials	Applications of Semiconductor materials - Temperature sensitive resistors or thermistors ,Photoconductive cells.	
7TH	1ST	Semiconducting Materials	Applications of Semiconductor materials – Varistors, Transistors.	
	2ND	Semiconducting Materials	Applications of Semiconductor materials (Hall effect generators, Solar power)	
	3RD	Insulating Materials	Introduction, General properties of Insulating Materials.	
	4TH	Insulating Materials	Electrical properties,	
8TH	1ST	Insulating Materials	Visual properties properties	
	2ND	Insulating Materials	, Mechanical properties, Thermal properties,	
	3RD	Insulating Materials	Chemical properties, Ageing,	
	4TH	Insulating Materials	Insulating Materials – Classification, properties , applications .introduction	
9TH	1ST	Insulating Materials	Classification of insulating materials on the basis physical and chemical structure	
	2ND	Insulating Materials	Insulating Gases introduction	
	3RD	Insulating Materials	Commonly used insulating gases	
	4TH	Die- Electric Material	Introduction	
10TH	1ST	Die- Electric Material	Dielectric Constant of Permittivity	
	2ND	Die- Electric Material	Polarisation	
	3RD	Die- Electric Material	Dielectric Loss	
	4TH	Die- Electric Material	Electric Conductivity of Dielectrics	
11TH	1ST	Die- Electric Material	Dielectrics Break Down	
	2ND	Die- Electric Material	Properties of Dielectrics ,	
	3RD	Die- Electric Material	Applications of Dielectrics	
	4TH	Magnetic Materials	Introduction,	
12TH	1ST	Magnetic Materials	Classification (Diamagnetism, Para magnetism & Ferromagnetism)	
	2ND	Magnetic Materials	Magnetization Curve	
	3RD	Magnetic Materials	Hysteresis	
	4TH	Magnetic Materials	Eddy Currents	

13TH	1ST	Magnetic Materials	Curie Point , Magneto-striction	
	2ND	Magnetic Materials	Soft magnetic Materials	
	3RD	Magnetic Materials	Hard magnetic Materials	
	4TH	Materials for Special Purposes	Introduction,	
14TH	1ST	Materials for Special Purposes	Structural Materials	
	2ND	Materials for Special Purposes	Protective Materials Lead,Steel wires and strips ,	
	3RD	Materials for Special Purposes	Other Materials Thermo-couple materials	
	4TH	Materials for Special Purposes	Bimetals ,	
15 TH	1 ST	Materials for Special Purposes	Soldering Materials	
	2 ND	Materials for Special Purposes	Fuse	
	3 RD	Materials for Special Purposes	Fuse materials	
	4 TH	Materials for Special Purposes	Dehydrating material	