

## ACADEMIC LESSION PLAN FOR SESSION - 2021-22.

DEPT. OF ELECTRICAL ENGG., GOVT. POLYTECHNIC, BALASORE.

NAME OF THE FACULTY:- ANITA SHIAL(Lect. in EE)

## **ELECTRICAL ENGINEERING MATERIAL**

Course Code: Th-4
Theory: 4 P/W
Total Period s: 60P/ Sem
Examination: 3 Hours
Sem: 3<sup>RD</sup> EE

Class Test : 20 Marks
End Semester Exam : 80marks
TOTAL MARKS : 100 Marks
Start :- 1st October 2021

WEEK	PERIOD	TOPIC
1st	1 <sup>st</sup>	Introduction conducting materials.
	2 <sup>nd</sup>	Resistivity, factors affecting resistivity
	3 <sup>rd</sup>	Classification of conducting materials into low-resistivity
		and high resistivity materials
	4 <sup>th</sup>	Low Resistivity Materials and their Applications
2 <sup>nd</sup>	1 <sup>st</sup>	Copper
		Silver
	2 <sup>nd</sup>	Gold
		Aluminum
		Steel
	3 <sup>rd</sup>	Stranded conductors
	4 <sup>th</sup>	Bundled conductors
3 <sup>rd</sup>	1 <sup>st</sup>	Low resistivity copper alloys
	2 <sup>nd</sup>	High Resistivity Materials and their Applications
	3 <sup>rd</sup>	Tungsten
		Carbon
	4 <sup>th</sup>	Platinum
		Mercury
4 <sup>th</sup>	1 <sup>st</sup>	Superconductivity
	2 <sup>nd</sup>	Superconducting materials
	3 <sup>rd</sup>	Application of superconductor materials
	4 <sup>th</sup>	Introduction
		Semiconductors
5 <sup>th</sup>	1 <sup>st</sup>	Electron Energy and Energy Band Theory
	2 <sup>nd</sup>	Excitation of Atoms
		Insulators, Semiconductors and Conductors
	3 <sup>rd</sup>	Semiconductor Materials
	4 <sup>th</sup>	Covalent Bonds

Extrinsic Semiconductors  2nd N-Type Materials & P-Type Materials  3rd Minority and Majority Carriers Semi-Conductor Materials  4rd Applications of Semiconductor materials Rectifiers Temperature-sensitive resisters or thermistors  Photoconductive cells Photovoltaic cells Varisters  2nd Transistors Hall effect generators Solar power  3rd Introduction of Insulating Materials Electrical properties of Insulating Materials Electrical properties  4rd Visual properties  2rd Thermal properties  2rd Thermal properties  4rd Visual properties  2rd Thermal properties  4rd Chemical properties  4rd Insulating Materials – Classification, properties, applications  4rd Insulating Materials on the basis physical and chemical structure Insulating Gases  3rd Introduction & Commonly used insulating gases  4rd Introduction & Commonly used insulating gases  4rd Introduction & Commonly used insulating gases  4rd Dielectric Constant of Permittivity  2rd Polarisation  3rd Dielectric Conductivity of Dielectrics and their Break Down  11th 1rd Properties of Dielectrics  3rd Applications of Dielectrics  3rd Applications  4rd Classification I Diamagnetism 2 Para magnetism 2 Para magnetism 3 Ferromagnetism 3 Ferromagnetism 3 Ferromagnetism 3 Ferromagnetism 3 Ferromagnetism 3 Ferromagnetism	6 <sup>th</sup>	1 <sup>st</sup>	Intrinsic Semiconductors
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	12 <sup>th</sup>	1 <sup>st</sup>	Magnetization Curve
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	3 <sup>rd</sup>	Eddy Currents
	4 <sup>th</sup>	Curie Point
13 <sup>th</sup>	1 <sup>st</sup>	Magneto-striction
	2 <sup>nd</sup>	Soft and Hard magnetic Materials
		1 Soft magnetic materials
		2 Hard magnetic materials
	3 <sup>rd</sup>	Materials for Special Purposes
		Introduction
	4 <sup>th</sup>	Structural Materials
14 <sup>th</sup>	1 <sup>st</sup>	Protective Materials Lead
	2 <sup>nd</sup>	Steel tapes, wires and strips
	3 <sup>rd</sup>	Thermocouple materials
	4 <sup>th</sup>	Bimetals
15 <sup>th</sup>	1 <sup>st</sup>	Soldering Materials
	2 <sup>nd</sup>	Fuse and Fuse materials
	3 <sup>rd</sup>	Dehydrating material
	4 <sup>th</sup>	Tutorial