Discipline: ELECTRICAL	Semester: 3 <sup>rd</sup> Sem)	Name of the Teaching Faculty: SANGRAM KESARI NAYAK
Subject: TH-2	No. of days/per week	Semester From: 1st Aug 2023 to 30th Nov 2023
(CIRCUIT &	class allotted: 4p/week	No. of Weeks: 17 weeks
NETWORK	No. Tutorial period	
THEORY)	1p/week	
	1 <sup>st</sup>	1. MAGNETIC CIRCUITS 1.1 Introduction
	2 <sup>nd</sup>	1.2 Magnetizing force, Intensity, MMF, flux and their relations
1 <sup>st</sup>	3 <sup>rd</sup>	1 . 3 Permeability, reluctance and permeance.
	4 <sup>th</sup>	1 . 4 Analogy between electric and Magnetic Circuits
	5 <sup>th</sup>	Tutorial
	1 <sup>st</sup>	1.5 B-H Curve
	2 <sup>nd</sup>	1 . 6 Series & parallel magnetic circuit.
n d	3 <sup>rd</sup>	1.7 Hysteresis loop
2 <sup>nd</sup>	4 <sup>th</sup>	2.COUPLED CIRCUITS:
	· ·	2 . 1 Self Inductance and Mutual Inductance
	5 <sup>th</sup>	Tutorial
	1 <sup>st</sup>	2 . 2 Conductively coupled circuit and mutual impedance 2 . 3 Dot convention
		2 . 4 Coefficient of coupling
rd	2 <sup>nd</sup>	2 . 5 Series and parallel connection of coupled inductors.
3 <sup>rd</sup>	3 <sup>rd</sup>	2 . 6 Solve numerical problems (Contd.)
	4 <sup>th</sup>	2 . 6 Solve numerical problems
	5 <sup>th</sup>	Tutorial
	1 <sup>st</sup>	3. CIRCUIT ELEMENTS AND ANALYSIS:
		3 . 1 Active, Passive, Unilateral & bilateral, Linear & Non linear elements
	2 <sup>nd</sup>	3 . 2 Mesh Analysis, Mesh Equations by inspection
4 <sup>th</sup>	3 <sup>rd</sup>	3 . 3 Super mesh Analysis
	4 <sup>th</sup>	3 . 4 Nodal Analysis, Nodal Equations by inspection
	5 <sup>th</sup>	Tutorial
	1 <sup>st</sup>	3 . 5 Super node Analysis. 3 . 6 Source Transformation Technique
	2 <sup>nd</sup>	3 . 7 Solve numerical problems (With Independent Sources Only)
_th	3 <sup>rd</sup>	4. NETWORK THEOREMS:
5 <sup>th</sup>		4.1 Star to delta and delta to star transformation
	4 <sup>th</sup>	4.2 Super position Theorem
	5 <sup>th</sup>	Tutorial
	1 <sup>st</sup>	4.3 Thevenin's Theorem
	2 <sup>nd</sup>	4.4 Norton's Theorem
6 <sup>th</sup>	3 <sup>rd</sup>	4.5 Maximum power Transfer Theorem.
	4 <sup>th</sup>	4.6 Solve numerical problems (With Independent Sources Only)(Contd.)
	5 <sup>th</sup>	Tutorial
	1st	4.6 Solve numerical problems (With Independent Sources Only)(Contd.)
7 <sup>th</sup>	2 <sup>nd</sup>	4.6 Solve numerical problems (With Independent Sources Only)
	3 <sup>rd</sup>	5. AC CIRCUIT AND RESONANCE:
		5.1 A.C. through R-L, R-C & R-L-C Circuit
	4 <sup>th</sup>	5.2 Solution of problems of A.C. through R-L, R-C & R-L-C series Circuit by complex algebra
	5 <sup>th</sup>	method.  Tutorial
	1 <sup>st</sup>	
	2 <sup>nd</sup>	5.3 Solution of problems of A.C. through R-L, R-C & R-L-C parallel & Composite Circuits
8 <sup>th</sup>	3 <sup>rd</sup>	5.4 Power factor & power triangle.
8	4 <sup>th</sup>	5.5 Deduce expression for active, reactive, apparent power.
	5 <sup>th</sup>	5.6 Derive the resonant frequency of series resonance and parallel resonance circuit
	5	Tutorial

	1 <sup>st</sup>	5.7 Define Bandwidth, Selectivity & Q-factor in series circuit.
	2 <sup>nd</sup>	5.8 Solve numerical problems
-th	3 <sup>rd</sup>	6. POLYPHASE CIRCUIT
9 <sup>th</sup>		6.1 Concept of poly-phase system and phase sequence
	4 <sup>th</sup>	6.2 Relation between phase and line quantities in star & delta connection
	5 <sup>th</sup>	Tutorial
	1 <sup>st</sup>	6.3 Power equation in 3-phase balanced circuit
	2 <sup>nd</sup>	6.4 Solve numerical problems
10 <sup>th</sup>	3 <sup>rd</sup>	6.5 Measurement of 3-phase power by two wattmeter method.
	4 <sup>th</sup>	6.6 Solve numerical problems.
	5 <sup>th</sup>	Tutorial
	1 <sup>st</sup>	7. TRANSIENTS
	_	7.1 Steady state & transient state response. (Contd.)
	2 <sup>nd</sup>	7.1 Steady state & transient state response
11 <sup>th</sup>	3 <sup>rd</sup>	7.2 Response to R-L, R-C & RLC circuit under DC condition. (Contd.)
	4 <sup>th</sup>	7.2 Response to R-L, R-C & RLC circuit under DC condition.
	5 <sup>th</sup>	Tutorial
	1 <sup>st</sup>	7.3 Solve numerical problems(Contd.)
	2 <sup>nd</sup>	7.3 Solve numerical problems
	3 <sup>rd</sup>	8. TWO-PORT NETWORK
12 <sup>th</sup>	3	8.1 Open circuit impedance (z) parameters
	4 <sup>th</sup>	8.2 Short circuit admittance (y) parameters
	 5 <sup>th</sup>	Tutorial
	1 <sup>st</sup>	8.3 Transmission (ABCD) parameters
	2 <sup>nd</sup>	8.4 Hybrid (h) parameters.
13 <sup>th</sup>	3 <sup>rd</sup>	8.5 Inter relationships of different parameters.
15	4 <sup>th</sup>	
	5 <sup>th</sup>	8.6 T and π representation.  Tutorial
	1 <sup>st</sup>	
	2 <sup>nd</sup>	8.7 Solve numerical problems
	3 <sup>rd</sup>	8.7 Solve numerical problems
	3	9. FILTERS:
14 <sup>th</sup>		<ul><li>9.1 Define filter</li><li>9.2 Classification of pass Band, stop Band and cut-off frequency</li></ul>
	4 <sup>th</sup>	9.3 Classification of plass band, stop band and cut-on frequency
	·	9.4 Constant – K low pass filter.
		9.5 Constant – K high pass filter.
	5 <sup>th</sup>	Tutorial
	1 <sup>st</sup>	9.6 Constant – K Band pass filter.
	2 <sup>nd</sup>	9.7 Constant – K Band elimination filter.
15 <sup>th</sup>	3 <sup>rd</sup>	9.8 Solve Numerical problems
	4 <sup>th</sup>	9.8 Solve Numerical problems
	5 <sup>th</sup>	Tutorial
	1 <sup>st</sup>	Revision Class
	2 <sup>nd</sup>	Revision Class
16 <sup>th</sup>	3 <sup>rd</sup>	Revision Class
-		Revision Class
<del> </del>	5 <sup>th</sup>	Revision Class
	1 <sup>st</sup>	Revision Class  Revision Class
	2 <sup>nd</sup>	
17 <sup>th</sup>	3 <sup>rd</sup>	Revision Class
1/	4 <sup>th</sup>	Revision Class
	5 <sup>th</sup>	Revision Class
	5	Revision Class

sangram kesari nayak

Name of the teaching faculty: G.SWAIN

**Department: Electrical Engg.** 

Semester:3rd Subject: Element of Mechanical Engineering

No.of periodsperweek: 4 Total Periods:60 End semester exam:80 Class test:20

Total Marks:100

WEEK	CLASS DAY	MODULE	TOPIC	DATE
1 <sup>ST</sup>	1 <sup>ST</sup>	1.1	Introduction of thermodynamic.	
_	2 <sup>nd</sup>	1.1	Unit of heat and work and pdv work.	
	3 <sup>rd</sup>	1.1	1 <sup>st</sup> law of thermodynamics.	
	4 <sup>th</sup>	1.2	State law of perfect gas.	
2 <sup>nd</sup>	1st	1.3	Determine relationship Cp and Cv.	
	2 <sup>nd</sup>	1.3	Derivation on Cp- Cv = R.	
	3rd	2.1	Use of steam table for solution of simple problem.	
	4th	2.2	Formation of steam at a constant pressure from	
			water.	
3rd	1st	2.2	Important term for steam (wet,dry,super heated steam).	
	2nd	2.2	Phase change phenomenon of a pure substance.	
	3rd	2.2	Total heat graph during steam formation.	
	4th	3.1	State types of boiler.	
4th	1 <sup>ST</sup>	3.1	Important terms if boiler.	
	2 <sup>nd</sup>	3.1	Classification of steam boiler.	
	3 <sup>rd</sup>	3.2	Describe Cochran boiler.	
	4 <sup>th</sup>	3.2	Babcock Wilcox boiler.	
5th	1 <sup>ST</sup>	3.2	Comparison between water tube boiler and firetube	
			boiler.	
	2 <sup>nd</sup>	3.3	Describe the mountings.	
	3 <sup>rd</sup>	3.3	Describe the accessories (a) super heater.	
	4 <sup>th</sup>	3.3	Describe the accessories (b)economizer.	
6th	1 <sup>ST</sup>	3.3	Describe the accessories (c)air pre heater.	
	2 <sup>nd</sup>	4.1	Explain the principle of simple steam turbine.	
	3 <sup>rd</sup>	4.1	Classification of steam engine.	
	4 <sup>th</sup>	4.1	Important parts of steam engine.	
7th	1 <sup>ST</sup>	4.1	Working of single cylinder double acting horizontal	
	2 <sup>nd</sup>	4.2	steam engine.	
		4.2	Draw indicator diagram of a simple steam engine.	
	3 <sup>rd</sup>	4.2	Theoretical or hypothetical indicator diagram.	
0+6	1 <sup>ST</sup>	4.2	Theoretical or hypothetical mean effective pressure.	
8th	2 <sup>nd</sup>	4.2	Actual indicator diagram.	
		4.3	Calculate mean effective pressure IHP and BHP.	
	3 <sup>rd</sup> 4 <sup>th</sup>	4.4	Solve simple problem.	
9th	1 <sup>ST</sup>	5.1	State type of turbine.  Describe impulse turbine.	
JUI	2 <sup>nd</sup>		•	
	3 <sup>rd</sup>	5.2	Pressure and velocity of steam in an impulse turbine	
	4 <sup>th</sup>	5.2	Describe reaction turbine.	
401	1 <sup>ST</sup>	5.2	Advantage and disadvantage of steam turbine.	
10th		5.2	Difference between impulse and reaction turbine.	
	2 <sup>nd</sup>	6.1	Explain the function of condenser.	

	3 <sup>rd</sup>	6.2	State type of condenser.	
	4 <sup>th</sup>	6.2	Jet condenser.	
11th	1 <sup>ST</sup>	6.2	Surface condenser.	
	2 <sup>nd</sup>	7.1	Explain the working of two stroke petrol and diesel	
			engine.	
	3 <sup>rd</sup>	7.1	Explain the working of four stroke petrol and diesel	
			engine.	
	4 <sup>th</sup>	7.2	Difference between two stroke and four stroke	
			engine.	
12th	1 <sup>ST</sup>	7.2	Difference between petrol and diesel engine.	
	2 <sup>nd</sup>	8.1	Describe the property of fluid.	
	3 <sup>rd</sup>	8.1	Newtons law of fluid.	
	4 <sup>th</sup>	8.2	Determine pressure at a point pressure measuring	
			instrument.	
13th	1 <sup>ST</sup>	8.2	U-tube manometer.	
	2 <sup>nd</sup>	8.2	Numerical on U-tube manometer.	
	3 <sup>rd</sup>	9.1	Type of fluid flow.	
	4 <sup>th</sup>	9.1	Deduce equation of continuity of flow.	
14th	1 <sup>ST</sup>	9.2	Explain energy of flowing liquid.	
	2 <sup>nd</sup>	9.3	State and explain Bernoulli's	
	3 <sup>rd</sup>	9.3	Numerical on Bernoulli's theorem and continuity	
			flow.	
	4 <sup>th</sup>	10.1	Intensifier.	
15th	1 <sup>ST</sup>	10.2	Direct acting hydraulic lift.	
	2 <sup>nd</sup>	10.2	Suspended hydraulic lift.	
	3 <sup>rd</sup>	10.3	Accumulator.	
	4 <sup>th</sup>	10.4	Hydraulic ram.	

Subject: Electrical Electrical Engineering Materials   Semester From: 1st Aug. 2023 to 30th Nov 2023	Discipline: ELECTRICAL	Semester: 3 <sup>rd</sup> Sem	Name of the Teaching Faculty: PRADOSH MOHAPATRA
Electrical Engineering Material allotted:  ### Application of Super Conductors  ### 1.75 Unit -2:ERUNCONDUCTING MATERIALS  1.1 Introduction, Resistivity Materials and their Applications. (Copper, Silver, Gold, Aliuminium, Steel)  ### 1.3 Stranded Conductors  ### 1.4 Bundle Conductors  ### 1.5 Low resistivity Materials and their Applications. (Copper, Silver, Gold, Aliuminium, Steel)  ### 2.6 High Resistivity Materials and their Applications. (Copper, Silver, Gold, Aliuminium, Steel)  ### 1.5 Low resistivity Materials and their Applications. (Copper, Silver, Gold, Aliuminium, Steel)  ### 1.5 Low resistivity Materials and their Applications. (Copper, Silver, Gold, Aliuminium, Steel)  ### 2.6 High Resistivity Materials and their Applications. (Copper, Silver, Gold, Aliuminium, Steel)  ### 1.5 Low resistivity Materials and their Applications. (Copper, Silver, Gold, Aliuminium, Steel)  ### 1.5 Low resistivity Materials and their Applications. (Copper, Silver, Gold, Aliuminium, Steel)  ### 2.6 High Resistivity Materials and their Applications. (Copper, Silver, Gold, Aliuminium, Steel)  ### 2.7 Low resistivity Materials and their Applications. (Copper, Silver, Gold, Aliuminium, Steel)  ### 2.1 High Resistivity Materials and their Application of Materials  ### 2.2 Lintroduction, General productors and their Application of Semiconductors  ### 2.2 Lintroductor, Semiconductors, Extrinsic semiconductors  ### 2.2 Lintroductor, Semiconductors, Extrinsic semiconductor materials  ### 2.1 Lintroductor, General properties of insulating materials  ### 2.1 Lintroductor, General properties of insulating materials  ### 2.1 Lintroductor, Classification of insulating materials based on physical and chemical properties  ### 3.3 Lintroduction, General properties of insulating materials based on physical and chemical pr	Subject:	No. of	Semester From: 1st Aug 2023 to 30th Nov 2023
Engineering Material Ap/week    1	-		
Material  allotted: 4p/week  1x			
4p/week  1 <sup>st</sup> Unit-1: CONDUCTING MATERIALS 1.1 Introduction, Resistivity, factors affecting resistivity, Classification of conducting materials into low-resistivity and high resistivity materials.  2 <sup>std</sup> 1.2Low Resistivity Materials and their Applications. (Copper, Silver, Gold, Aluminium, Steel)  3 <sup>std</sup> 1.3 Stranded Conductors 4 <sup>th</sup> 1.4 Bundle Conductors 1.5Low resistivity copper alloys 2 <sup>std</sup> 1.6 High Resistivity Materials and their Applications(Tungsten, Carbon, Platinum, Mercury)  3 <sup>std</sup> 1.7Super conductivity, Superconducting Materials 4 <sup>th</sup> 1.8 Application of Super Conductor materials 2 <sup>std</sup> 2 <sup>std</sup> 2.1 Introduction, Semiconductors 2.1 Excitation of atoms 4 <sup>th</sup> 2.2 Excitation of atoms 4 <sup>th</sup> 2.3 Excitation of atoms 4 <sup>th</sup> 2.4 Insulators, semiconductors and conductors 1 <sup>std</sup> 2.4 Insulators, semiconductors and conductors 2.5 Semiconductor Materials 4 <sup>th</sup> 2.6 Co-valent bonds 4 <sup>th</sup> 2.7 Intrinsic semiconductors, Extrinsic semiconductors 2.8 N-Type materials, P-Type materials 2 <sup>std</sup> 2.9 Minority and Majority carriers 3 <sup>std</sup> 2.10 Semiconductor materials, Application of semiconductor materials 4 <sup>th</sup> Application of Semiconducting materials 3 <sup>std</sup> 3.1 Introduction, General properties of insulating materials 4 <sup>th</sup> 3 <sup>std</sup> 3.3 Insulsulating materials-1-classification, properties and application 4 <sup>th</sup> 3.3 Introduction, Classification of insulating materials based on physical and chemical properties 1 std 3.3 Classification of insulating materials based on physical and chemical properties 1 std 3.4 Commonly used insulating gases 4 <sup>th</sup> UNIT-3: Insulators 4 <sup>th</sup> 4.1 Introduction 4 <sup>th</sup> 4.2 Delielectric constant of permittivity 4 <sup>th</sup> 4.3 Polarization 3 <sup>std</sup> 4.3 Polarization 3 <sup>std</sup> 4.3 Polarization 3 <sup>std</sup> 4.3 Polarization 3 <sup>std</sup> 4.3 Polarization			
1 <sup>151</sup> Unit-1: CONDUCTING MATERIALS 1.1 Introduction, Resistivity, factors affecting resistivity, Classification of conducting materials into low-resistivity and high resistivity materials.  2 <sup>rd</sup> 1.2 Low Resistivity Materials and their Applications. (Copper, Silver, Gold, Aluminium, Steel)  3 <sup>rd</sup> 1.3 Stranded Conductors  1 <sup>rd</sup> 1.4 Bundle Conductors  1 <sup>rd</sup> 1.5 Low resistivity copper alloys  2 <sup>rd</sup> 1.6 High Resistivity Materials and their Applications(Tungsten, Carbon, Platinum, Mercury)  3 <sup>rd</sup> 1.7 Super conductivity, Superconducting Materials  4 <sup>rd</sup> 1.8 Application of Super Conductor materials  1 <sup>rd</sup> UNIT-2: SEMICONDUCTING MATERIALS 2.1 Introduction, Semiconductors  2 <sup>rd</sup> 2.1 Electron Energy and Energy band theory  3 <sup>rd</sup> 2.2 Excitation of atoms  4 <sup>rd</sup> 2.4 Insulators, semiconductors and conductors  4 <sup>rd</sup> 2.4. Insulators, semiconductors and conductors  2 <sup>rd</sup> 2.5 Semiconductor Materials  3 <sup>rd</sup> 2.6 Co-valent bonds  4 <sup>rd</sup> 2.7. Intrinsic semiconductors, Extrinsic semiconductors  2 <sup>rd</sup> 2.8 N-Type materials, P-Type materials  5 <sup>rd</sup> 2 <sup>rd</sup> 2.9 Minority and Majority carriers  3 <sup>rd</sup> 2.10 Semiconductor materials  4 <sup>rd</sup> Application of Semiconducting materials  4 <sup>rd</sup> Application of Semiconducting materials  1 <sup>rd</sup> UNIT-3:INSULATING MATERIALS 3.1 Introduction, General properties of insulating materials (contd.)  4 <sup>rd</sup> 3.3 insulting materials -classification, properties and application  4 <sup>rd</sup> 3.3 introduction, Classification of insulating materials based on physical and chemical properties  1 <sup>rd</sup> 3.4 Commonly used insulating materials based on physical and chemical properties  2 <sup>rd</sup> 3.4 Commonly used insulating materials based on physical and chemical properties  4 <sup>rd</sup> 4.2 Delectric constant of permittivity  4.3 Polarization  3 <sup>rd</sup> 4.3 Polarization  4 <sup>rd</sup> 4.3 Polarization	Material		
1.1 Introduction, Resistivity, factors affecting resistivity, Classification of conducting materials into low-resistivity and high resistivity materials.  2 <sup>rod</sup> 1.2 Low Resistivity Materials and their Applications. (Copper, Silver, Gold, Aluminium, Steel)  3 <sup>rod</sup> 1.3 Stranded Conductors  4 <sup>rod</sup> 1.4 Bundle Conductors  1 <sup>rd</sup> 1.5 Low resistivity copper alloys  2 <sup>rod</sup> 1.6 High Resistivity, Materials and their Applications(Tungsten, Carbon, Platinum, Mercury)  1.7 Super conductivity, Superconducting Materials  4 <sup>rod</sup> 1.8 Application of Super Conductor materials  1 <sup>rd</sup> 1.8 Application of Super Conductor materials  2 <sup>rod</sup> 2.1 Introduction, Semiconductors  2.1 Introduction, Semiconductors  2.2 Excitation of atoms  4 <sup>rod</sup> 2.4 Insulators, semiconductors and conductors  1 <sup>rd</sup> 2.4 Insulators, semiconductors and conductors  2 <sup>rod</sup> 2.5 Semiconductor Materials  3 <sup>rod</sup> 2.6 Co-valent bonds  4 <sup>rod</sup> 2.7 Intrinsic semiconductors, Extrinsic semiconductors  2 <sup>rod</sup> 2.8 N-Type materials, P-Type materials  2 <sup>rod</sup> 2.9 Minority and Majority carriers  3 <sup>rod</sup> 2.10 Semiconductor materials, Application of semiconductor materials  4 <sup>rod</sup> Application of Semiconducting materials  1 <sup>rod</sup> UNIT-3:INSULATING MATERIALS  3.1 Introduction, Classification, properties and application  4 <sup>rod</sup> 3.3 Classification of insulating materials based on physical and chemical properties  1 st 3.3 Classification of insulating materials based on physical and chemical properties  2 <sup>rod</sup> 3.4 Insulating Gases  4 <sup>rod</sup> UNIT-4: DIELECTRIC MATERIAL  4.1 Introduction  3 <sup>rod</sup> 4.3 Polarization  3 <sup>rod</sup> 4.3 Polarization		4p/week	II ': 4 COMPLICTING MATERIALS
into low-resistivity and high resistivity materials.  2			
1 3 Stranded Conductors 4 1.4 Bundle Conductors 1 1.5 Low resistivity Copper alloys 2 1.6 High Resistivity Materials and their Applications. (Copper, Silver, Gold, Aluminium, Steel)  2 1 1.5 Low resistivity copper alloys 2 1.6 High Resistivity Materials and their Applications(Tungsten, Carbon, Platinum, Mercury)  3 1.7 Super conductivity, Superconducting Materials 4 1.8 Application of Super Conductor materials 4 1.8 Application of Super Conductor materials 2.1 Introduction, Semiconductors 2.1 Introduction, Semiconductors 2.1 Introduction, Semiconductors 3 1 2.3 Excitation of atoms 4 1 2.4 Insulators, semiconductors and conductors 2.4 Insulators, semiconductors and conductors 2 2 3 Excitation of atoms 4 1 2.4 Insulators, semiconductors and conductors 2 2 3 Excitation of atoms 4 1 2.5 Semiconductor Materials 3 2 2.6 Co-valent bonds 4 2 2.7 Intrinsic semiconductors, Extrinsic semiconductors 2 3 Excitation of Semiconductor semiconductors 3 2 2.8 N-Type materials, P-Type materials 4 2 2.9 Minority and Majority carriers 3 2 2 3 Semiconductor materials, P-Type materials 4 Application of Semiconducting materials 4 Application of Semiconducting materials 3 2 1.0 Semiconductor materials, P-Type materials 3 3 Insultance for Semiconductor materials 4 3 3 Insultance for Semiconductor materials 3 3 Insultance for Semiconductor materials 4 3 3 Insultance for Semiconduct			
1.2 Low Resistivity Materials and their Applications. (Copper, Sliver, Gold, Aluminium, Steel)  3° 1.3 Stranded Conductors  4° 1.4 Bundle Conductors  1° 1.5 Low resistivity copper alloys  2° 1.6 High Resistivity Materials and their Applications(Tungsten, Carbon, Platinum, Mercury)  3° 1.7Super conductivity, Superconducting Materials  4° 1.8 Application of Super Conductor materials  1° 1.8 Application of Super Conductor materials  2.1 Introduction, Semiconductors  2.1 Introduction, Semiconductors  2.2 Electron Energy and Energy band theory  3° 2.3 Excitation of atoms  4° 2.4 Insulators, semiconductors and conductors  2° 2.5 Semiconductor Materials  2° 2.6 Co-valent bonds  4° 2.7 Intrinsic semiconductors, Extrinsic semiconductors  1° 2.8 N-Type materials, P-Type materials  2° 2.9 Minority and Majority carriers  3° 2.10 Semiconductor materials, Application of semiconductor materials  4° Application of Semiconducting materials  1° UNIT-3:INSULATING MATERIALS  3.1 Introduction, General properties of insulating materials (contd.)  2° 3.2 General properties of insulating materials based on physical and chemical properties  3° 3.4 Insulating Gases  4° 3.4 Introduction  1° 4.2 Delectric constant of permittivity  2° 4.3 Polarization  3° 4.3 Polarization			into low-resistivity and night resistivity materials.
4th 1.4 Bundle Conductors  1st 1.5 Low resistivity copper alloys  2rd 1.5 High Resistivity Materials and their Applications(Tungsten, Carbon, Platinum, Mercury)  3rd 1.7 Super conductivity, Superconducting Materials  4th 1.8 Application of Super Conductor materials  1st 1vint-2:seMICONDUCTING MATERIALS 2.1 Introduction, Semiconductors  2rd 2.2 Electron Energy and Energy band theory  3rd 2.3 Excitation of atoms  4th 2.4 Insulators, semiconductors and conductors  1st 2.4 Insulators, semiconductors and conductors  2rd 2.5 Semiconductor Materials  3rd 2.6 Co-valent bonds  4th 2.7 Intrinsic semiconductors, Extrinsic semiconductors  1st 2.8 N-Type materials, P-Type materials  2rd 2.9 Minority and Majority carriers  3rd 2.10 Semiconductor materials, Application of semiconductor materials  4th Application of Semiconducting materials  1st 3.3 General properties of insulating materials  3rd 3.3 Introduction, General properties of insulating materials based on physical and chemical properties  1st 3.3 Classification of insulating materials based on physical and chemical properties  2rd 3.4 Insulating Gases  3rd 4.4 Commonly used insulating materials based on physical and chemical properties  4th UNIT-4: DIELECTRIC MATERIAL  4.1 Introduction  3rd 4.3 Polarization	1 <sup>st</sup>	2 <sup>nd</sup>	1.2Low Resistivity Materials and their Applications. (Copper, Silver, Gold, Aluminium, Steel)
2 <sup>nd</sup> 1.5Low resistivity copper alloys 2 1.6 High Resistivity Materials and their Applications(Tungsten, Carbon, Platinum, Mercury)  3 1.7Super conductivity, Superconducting Materials 4 1.8 Application of Super Conductor materials 1 UNIT-2:SEMICONDUCTING MATERIALS 2.1 Introduction, Semiconductors 2 1.1 Introduction, Semiconductors 3 1.2 Lelectron Energy and Energy band theory 3 1.2 Lelectron Energy and Energy band theory 3 1.2 Lelectron Energy and Energy band theory 3 1.3 Lelectron Energy and Energy band theory 3 1.4 Lelectron Energy and Energy band theory 3 1.5 Lelectron Energy band Energy band theory 3 1.5 Lelectron Energy band Energy band theory 3 1.5 Lel		3 <sup>rd</sup>	1.3 Stranded Conductors
2nd 1.6 High Resistivity Materials and their Applications(Tungsten, Carbon, Platinum, Mercury)  3nd 1.7 Super conductivity, Superconducting Materials 4nd 1.8 Application of Super Conductor materials  1nd 1nd 2per 2nd		4 <sup>th</sup>	1.4 Bundle Conductors
2nd 1.7Super conductivity, Superconducting Materials  4th 1.8 Application of Super Conductor materials  1x UNIT-2:SEMICONDUCTING MATERIALS 2.1 Introduction, Semiconductors  2.2 Electron Energy and Energy band theory  3rd 2.3 Excitation of atoms  4th 2.4 Insulators, semiconductors and conductors  2.5 Semiconductor Materials  2.5 Semiconductor Materials  2.6 Loco-valent bonds  4th 2.7 Intrinsic semiconductors, Extrinsic semiconductors  2.8 N-Type materials, P-Type materials  2.9 Minority and Majority carriers  2.10 Semiconductor materials  4th Application of Semiconductor materials  1x UNIT-3:INSULATING MATERIALS 3.1Introduction, General properties of insulating materials (contd.)  2rd 3.3 Insulting materials —classification, properties and application  4th 3.3 introduction, Classification of insulating materials based on physical and chemical properties  1st 3.3 Classification of insulating materials based on physical and chemical properties  3rd 3.4 Commonly used insulating gases  4th UNIT-4: DIELECTRIC MATERIAL 4.1 Introduction  4.2 Polarization  4.3 Polarization  4.3 Polarization  4.4 Polarization			1.5Low resistivity copper alloys
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4th 2.4 Insulators, semiconductors and conductors  1st 2.4 Insulators, semiconductors and conductors  2nd 2.5 Semiconductor Materials  3rd 2.6Co-valent bonds  4th 2.7 Intrinsic semiconductors, Extrinsic semiconductors  1st 2.8 N-Type materials, P-Type materials  2nd 2.9 Minority and Majority carriers  2nd 2.10 Semiconductor materials, Application of semiconductor materials  4th Application of Semiconducting materials  4th Application of Semiconducting materials  3rd 3.1 Introduction, General properties of insulating materials(contd.)  5th 2nd 3.2 General properties of insulating materials  3rd 3.3 Insulting materials – classification, properties and application  4th 3.3 introduction, Classification of insulating materials based on physical and chemical properties  1st 3.3 Classification of insulating materials based on physical and chemical properties  1st 3.4 Insulating Gases  7th 3rd 3.4 Commonly used insulating gases  4th UNIT-4: DIELECTRIC MATERIAL  4.1 Introduction  1st 4.2 Dielectric constant of permittivity  2nd 4.3 Polarization  3rd 4.3 Polarization	3 <sup>rd</sup>		
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7 <sup>th</sup> 3 <sup>rd</sup> 3.4 Commonly used insulating gases  4 <sup>th</sup> UNIT-4: DIELECTRIC MATERIAL 4.1 Introduction  1 <sup>st</sup> 4.2Dielectric constant of permittivity 2 <sup>nd</sup> 4.3 Polarization  3 <sup>rd</sup> 4.3 Polarization	7 <sup>th</sup>		3.3 Classification of insulating materials based on physical and chemical properties
4 <sup>th</sup> UNIT-4: DIELECTRIC MATERIAL 4.1 Introduction  1 <sup>st</sup> 4.2 Dielectric constant of permittivity  2 <sup>nd</sup> 4.3 Polarization  3 <sup>rd</sup> 4.3 Polarization			3.4 Insulating Gases
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8 <sup>th</sup> 2 <sup>nd</sup> 4.3 Polarization 3 <sup>rd</sup> 4.3 Polarization		1 <sup>st</sup>	
3 <sup>rd</sup> 4.3 Polarization	+h		
	8 <sup>th</sup>		
		4 <sup>th</sup>	4.4 Dielectric loss

9 <sup>th</sup>	1 <sup>st</sup>	4.5Electric Conductivity of Dielectrics and their breakdown
	2 <sup>nd</sup>	4.5 Electric Conductivity of Dielectrics and their breakdown
	3 <sup>rd</sup>	4.6properties of Dielectrics
	4 <sup>th</sup>	4.7 Application of Dielectrics
	1 <sup>st</sup>	UNIT-5:MAGNETIC MATERIALS
		5.1 Introduction
10 <sup>th</sup>	2 <sup>nd</sup>	5.2 Classification
	3 <sup>rd</sup>	5.2 Diamagnetism
	4 <sup>th</sup>	5.2 Paramagnetism
	1 <sup>st</sup>	5.2 Ferromagnetism
11 <sup>th</sup>	2 <sup>nd</sup>	5.3 Magnetization Curve
11.	3 <sup>rd</sup>	5.4Hysteresis
	4 <sup>th</sup>	5.4 Hysteresis(contd.)
	1 <sup>st</sup>	5.5 Eddy currents
12 <sup>th</sup>	2 <sup>nd</sup>	5.6 Curie point, Magneto-striction
12	3 <sup>rd</sup>	5.7 Soft magnetic materials
	4 <sup>th</sup>	5.7 Soft magnetic materials
	1 <sup>st</sup>	5.8 Hard magnetic materials
	2 <sup>nd</sup>	5.8 Hard magnetic materials
13 <sup>th</sup>	3 <sup>rd</sup>	UNIT-6:MATERIALS FOR SPECIAL PURPOSES
		6.1Introduction
	4 <sup>th</sup>	6.2 structural materials
	1 <sup>st</sup>	6.3 protective materials: lead
a ath	2 <sup>nd</sup>	6.3 steel tapes
14 <sup>th</sup>	3 <sup>rd</sup>	6.3 wires and strips
	4 <sup>th</sup>	6.4 Other Materials: Thermocouple materials
	1 <sup>st</sup>	6.4 Bimetals
a Eth	2 <sup>nd</sup>	6.4soldering materials
15 <sup>th</sup>	3 <sup>rd</sup>	6.4 Fuse and fuse materials
	4 <sup>th</sup>	6.4 Dehydrating materials
16 <sup>th</sup>	1 <sup>st</sup>	REVISION
	2 <sup>nd</sup>	REVISION
	3 <sup>rd</sup>	REVISION
	4 <sup>th</sup>	REVISION
	1 <sup>st</sup>	REVISION
17 <sup>th</sup>	2 <sup>nd</sup>	REVISION
	3 <sup>rd</sup>	REVISION
	4 <sup>th</sup>	REVISION

pradosh mohapatra

Signature of Teaching Faculty

5	Ι	ACADEMIC LESSON PLAN OF WINTER 2025
Discipline:	Semester:	Name of the Teaching Faculty: JAYANTA KUMAR PANDA
ELECTRICA L	3 <sup>rd</sup> sem (Sec-	
Subject:	A) No. of	Semester From: 1st Aug 2023 to 30th Nov 2023
Environme	days/per week	No. of Weeks: 17 weeks
ntal	class	
Studies	allotted:4p/w	
	eek	
	Tutorial:1p/w	
	eek	
Week	Class Day	Theory Topics
	1 <sup>st</sup>	1.1 Definition, scope and importance.
a st	2 <sup>nd</sup>	1.2 Need for public awareness.
1 <sup>st</sup>	and	
	3 <sup>rd</sup>	2.1 Natural resources and associated problems.
	4 <sup>th</sup>	2.1.1. Forest resources: Use and over-exploitation, deforestation, case studies,
		Timber extraction mining, dams and their effects on forests and tribal people.
	1 <sup>st</sup>	2.1.2. Water resources: Use and over-utilization of surface and ground water,
		floods, drought, conflicts over water, dam's benefits and problems.
	2 <sup>nd</sup>	2.1.3. Mineral Resources: Use and exploitation, environmental effects of
2 <sup>nd</sup>		extracting and using mineral resources.
2	3 <sup>rd</sup>	2.1.4. Food Resources: World food problems, changes caused by agriculture and
		over grazing, effects of modern agriculture, fertilizers- pesticides problems, water
		logging, salinity.
	4 <sup>th</sup>	2.1.5. Energy Resources: Growing energy need, renewable and non-renewable
		energy sources, use of alternate energy sources, case studies.
	1 <sup>st</sup>	2.1.6. Land Resources: Land as a resource, land degradation, man induces
		landslides, soil erosion, and desertification. 2.2 Role of individual in conservation
3 <sup>rd</sup>		of natural resources.
	2 <sup>nd</sup>	2.2 Role of individual in conservation of natural resources.
	3 <sup>rd</sup>	2.3 Equitable use of resources for sustainable life styles.
	4 <sup>th</sup>	3.1. Concept of an eco system.
	1 <sup>st</sup>	3.2. Structure and function of an eco system.
		3.3. Producers, consumers, decomposers.
g th	2 <sup>nd</sup>	3.4. Energy flow in the eco systems.
4 <sup>th</sup>	3 <sup>rd</sup>	3.5. Ecological succession.
		3.6. Food chains, food webs and ecological pyramids.
	4 <sup>th</sup>	3.7. Introduction, types, characteristic features, structure and function of the
		following eco system
	1 <sup>st</sup>	3.8. Forest ecosystem.
5 <sup>th</sup>	2 <sup>nd</sup>	3.9. Aquatic eco systems (ponds, streams, lakes, rivers, oceans)
	3 <sup>rd</sup>	4.1. Introduction-Definition: genetics, species and ecosystem diversity.
	4 <sup>th</sup>	4.2. Biogeographically classification of India.
	1 <sup>st</sup>	4.3. Value of biodiversity: consumptive use, productive use, social ethical,

6 <sup>th</sup>		aesthetic and optin values.
-	2 <sup>nd</sup>	4.4. Biodiversity at global, national and local level. (Conti)
	3 <sup>rd</sup>	4.4. Biodiversity at global, national and local level.
	4 <sup>th</sup>	4.5. Threats to biodiversity: Habitats loss, poaching of wild life, man wildlife
		conflicts.
	1 <sup>st</sup>	5.1. Definition Causes, effects and control measures.
<b>7</b> th	2 <sup>nd</sup>	5.1.1 Air pollution.
, L	3 <sup>rd</sup>	5.1.2 Water pollution.
	4 <sup>th</sup>	5.1.3 Soil pollution
	1 <sup>st</sup>	5.1.4 Marine pollution.
8 <sup>th</sup>	2 <sup>nd</sup>	5.1.5 Noise pollution.
_	3 <sup>rd</sup>	5.1.6 Thermal pollution.
	4 <sup>th</sup>	5.1.7 Nuclear hazards.
	1 <sup>st</sup>	5.2. Solid waste Management: Causes, effects and control measures of urban and
		industrial wastes. (Conti)
9 <sup>th</sup>	2 <sup>nd</sup>	5.2. Solid waste Management: Causes, effects and control measures of urban and
		industrial wastes.
	3 <sup>rd</sup>	5.3. Role of an individual in prevention of pollution.
	4 <sup>th</sup>	5.4. Disaster management: Floods, earth quake, cyclone and landslides.
	1 <sup>st</sup>	6.1. Form unsustainable to sustainable development.
10 <sup>th</sup>	2 <sup>nd</sup>	6.2. Urban problems related to energy.
	3 <sup>rd</sup>	6.3. Water conservation, rain water harvesting, water shed management.
	4 <sup>th</sup>	6.4. Resettlement and rehabilitation of people; its problems and concern.
	1 <sup>st</sup>	6.5. Environmental ethics: issue and possible solutions.
	2 <sup>nd</sup>	6.6. Climate change, global warming, acid rain, ozone layer depletion, nuclear
11 <sup>th</sup>		accidents and holocaust, case studies. (Conti)
	3 <sup>rd</sup>	6.6. Climate change, global warming, acid rain, ozone layer depletion, nuclear
		accidents and holocaust, case studies.
	4 <sup>th</sup>	6.7. Air (prevention and control of pollution) Act.
	1 <sup>st</sup>	6.8. Water (prevention and control of pollution) Act.
12 <sup>th</sup>	2 <sup>nd</sup>	6.9. Public awareness.
	3 <sup>rd</sup>	7.1. Population growth and variation among nations. (Conti)
	4 <sup>th</sup>	7.1. Population growth and variation among nations.
	1 <sup>st</sup>	7.2. Population explosion- family welfare program.
13 <sup>th</sup>	2 <sup>nd</sup>	7.3. Environment and human health. (Conti)
	3 <sup>rd</sup>	7.3. Environment and human health.
	4 <sup>th</sup>	7.4. Human rights.
	1 <sup>st</sup>	7.5. Value education
14 <sup>th</sup>	2 <sup>nd</sup>	7.6. Role of information technology in environment and human health. (Conti)
	3 <sup>rd</sup>	7.6. Role of information technology in environment and human health.
	4 <sup>th</sup>	Discussion about population explosion effects on environment

Jayanta kumar panda

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