ACADEMIC LESSON PLAN OF WINTER 2024

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

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

Anita das

Signature of the Faculty

ACADEMIC LESSON PLAN OF WINTER 2024

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
1ST	1ST	1.1	Introduction of thermodynamic.	
	2nd	1.1	Unit of heat and work and pdv work.	
	3rd	1.1	1st law of thermodynamics.	
	4th	1.2	State law of perfect gas.	
2nd	1st	1.3	Determine relationship Cp and Cv.	
	2nd	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	1ST	3.1	Important terms if boiler.	
	2nd	3.1	Classification of steam boiler.	
	3rd	3.2	Describe Cochran boiler.	
	4th	3.2	Babcock Wilcox boiler.	
5th	1ST	3.2	Comparison between water tube boiler and firetube boiler.	
	2nd	3.3	Describe the mountings.	
	3rd	3.3	Describe the accessories (a)super heater.	
	4th	3.3	Describe the accessories (b)economizer.	
6th	1ST	3.3	Describe the accessories (c)air pre heater.	
	2nd	4.1	Explain the principle of simple steam turbine.	
	3rd	4.1	Classification of steam engine.	
	4th	4.1	Important parts of steam engine.	
7th	1ST	4.1	Working of single cylinder double acting horizontal steam engine.	
	2nd	4.2	Draw indicator diagram of a simple steam engine.	
	3rd	4.2	Theoretical or hypothetical indicator diagram.	
	4th	4.2	Theoretical or hypothetical mean effective pressure.	
8th	1ST	4.2	Actual indicator diagram.	
	2nd	4.3	Calculate mean effective pressure IHP and BHP.	
	3rd	4.4	Solve simple problem.	
	4th	5.1	State type of turbine.	
9th	1ST	5.2	Describe impulse turbine.	
	2nd	5.2	Pressure and velocity of steam in an impulse turbine	
	3rd	5.2	Describe reaction turbine.	
	4th	5.2	Advantage and disadvantage of steam turbine.	
10th	1ST	5.2	Difference between impulse and reaction turbine.	
	2nd	6.1	Explain the function of condenser.	
	3rd	6.2	State type of condenser.	

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

G.swain

Signature of the Faculty

ACADEMIC LESSON PLAN OF WINTER 2024

Discipline: ELECTRICAL	Semester: 3rd Sem	Name of the Teaching Faculty: PRADOSH MOHAPATRA
Subject: Electrical Engineering Material	No. of days/per week class allotted: 4p/week	Semester From: 1st Aug 2024 to 30th Nov 2024 No. of Weeks: 17 weeks
1st	1st	**Unit-1: CONDUCTING MATERIALS** 1.1 Introduction, Resistivity, factors affecting resistivity, Classification of conducting materials into low-resistivity and high resistivity materials.
	2nd	1.2Low Resistivity Materials and their Applications. (Copper, Silver, Gold, Aluminium, Steel)
	3rd	1.3 Stranded Conductors
	4th	1.4 Bundle Conductors
2nd	1st	1.5Low resistivity copper alloys
	2nd	1.6 High Resistivity Materials and their Applications(Tungsten, Carbon, Platinum, Mercury)
	3rd	1.7Super conductivity, Superconducting Materials
	4th	1.8 Application of Super Conductor materials
3rd	1st	**UNIT-2:SEMICONDUCTING MATERIALS** 2.1 Introduction, Semiconductors
	2nd	2.2 Electron Energy and Energy band theory
	3rd	2.3 Excitation of atoms
	4th	2.4 Insulators, semiconductors and conductors
4th	1st	2.4 Insulators, semiconductors and conductors
	2nd	2.5 Semiconductor Materials
	3rd	2.6Co-valent bonds
	4th	2.7 Intrinsic semiconductors, Extrinsic semiconductors
5th	1st	2.8 N-Type materials, P-Type materials
	2nd	2.9 Minority and Majority carriers
	3rd	2.10 Semiconductor materials, Application of semiconductor materials
	4th	Application of Semiconducting materials
6th	1st	**UNIT-3:INSULATING MATERIALS** 3.1Introduction, General properties of insulating materials(contd.)
	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
7th	1st	3.3 Classification of insulating materials based on physical and chemical properties
	2nd	3.4 Insulating Gases
	3rd	3.4 Commonly used insulating gases
	4th	**UNIT-4: DIELECTRIC MATERIAL** 4.1 Introduction
8th	1st	4.2Dielectric constant of permittivity
	2nd	4.3 Polarization
	3rd	4.3 Polarization
	4th	4.4 Dielectric loss
9th	1st	4.5Electric Conductivity of Dielectrics and their breakdown
	2nd	4.5 Electric Conductivity of Dielectrics and their breakdown
	3rd	4.6properties of Dielectrics
	4th	4.7 Application of Dielectrics
10th	1st	**UNIT-5:MAGNETIC MATERIALS** 5.1 Introduction
	2nd	5.2 Classification
	3rd	5.2 Diamagnetism
	4th	5.2 Paramagnetism

11th	1st	5.2 Ferromagnetism
	2nd	5.3 Magnetization Curve
	3rd	5.4Hysteresis
	4th	5.4 Hysteresis(contd.)
12th	1st	5.5 Eddy currents
	2nd	5.6 Curie point, Magneto-striction
	3rd	5.7 Soft magnetic materials
	4th	5.7 Soft magnetic materials
13th	1st	5.8 Hard magnetic materials
	2nd	5.8 Hard magnetic materials
	3rd	**UNIT-6:MATERIALS FOR SPECIAL PURPOSES** 6.1Introduction
	4th	6.2 structural materials
14th	1st	6.3 protective materials: lead
	2nd	6.3 steel tapes
	3rd	6.3 wires and strips
	4th	6.4 Other Materials: Thermocouple materials
15th	1st	6.4 Bimetals
	2nd	6.4soldering materials
	3rd	6.4 Fuse and fuse materials
	4th	6.4 Dehydrating materials
16th	1st	REVISION
	2nd	REVISION
	3rd	REVISION
	4th	REVISION
17th	1st	REVISION
	2nd	REVISION
	3rd	REVISION
	4th	REVISION

pradosh mohapatra

Signature of Teaching Faculty

ACADEMIC LESSON PLAN OF WINTER 2024

Discipline: ELECTRICAL	Semester: 3rd sem (Sec-A)	Name of the Teaching Faculty: JAYANTA KUMAR PANDA
Subject: Environmental Studies	No. of days/per week class allotted:4p/week Tutorial:1p/week	Semester From: 1st Aug 2024 to 30th Nov 2024 No. of Weeks: 17 weeks
Week	Class Day	Theory Topics
1st	1st	1.1 Definition, scope and importance.
	2nd	1.2 Need for public awareness.
	3rd	2.1 Natural resources and associated problems.
	4th	2.1.1. Forest resources: Use and over-exploitation, deforestation, case studies, Timber extraction mining, dams and their effects on forests and tribal people.
2nd	1st	2.1.2. Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dam's benefits and problems.
	2nd	2.1.3. Mineral Resources: Use and exploitation, environmental effects of extracting and using mineral resources.
	3rd	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.
	4th	2.1.5. Energy Resources: Growing energy need, renewable and non-renewable energy sources, use of alternate energy sources, case studies.
3rd	1st	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 of natural resources.
	2nd	2.2 Role of individual in conservation of natural resources.
	3rd	2.3 Equitable use of resources for sustainable life styles.
	4th	3.1. Concept of an eco system.
4th	1st	3.2. Structure and function of an eco system. 3.3. Producers, consumers, decomposers.
	2nd	3.4. Energy flow in the eco systems.
	3rd	3.5. Ecological succession. 3.6. Food chains, food webs and ecological pyramids.
	4th	3.7. Introduction, types, characteristic features, structure and function of the following eco system
5th	1st	3.8. Forest ecosystem.
	2nd	3.9. Aquatic eco systems (ponds, streams, lakes, rivers, oceans)
	3rd	4.1. Introduction-Definition: genetics, species and ecosystem diversity.
	4th	4.2. Biogeographically classification of India.
6th	1st	4.3. Value of biodiversity: consumptive use, productive use, social ethical, aesthetic and optin values.
	2nd	4.4. Biodiversity at global, national and local level. (Conti…)

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

Jayanta kumar panda

Signature of Teaching Faculty