

Discipline- Electrical Engg.	Semester-3 rd	Name of the teaching faculty- Swarnaprabha Panigrahi
Subject- EEM	No of days/week class allotted- 4	No of weeks-15 From 15/9/22
Week	Class day	Theory topic
1	1 st	Conducting Materials: Introduction
	2 nd	Resistivity, factors affecting resistivity
	3 rd	Classification of conducting materials into low-resistivity and highresistivity materials
	4 th	Low Resistivity Materials and their Applications. (Copper, Silver)
2	1 st	Low Resistivity Materials and their Applications. (Gold, Aluminum, Steel)
	2 nd	Stranded conductors and its application
	3 rd	Bundled conductors
	4 th	Low resistivity copper alloys
3	1 st	Low resistivity copper alloys different properties
	2 nd	High Resistivity Materials and their Applications(Tungsten, Carbon,)
	3 rd	High Resistivity Materials and their Applications(Platinum, Mercury)
	4 th	Superconductivity
4	1 st	How Super conductivity can be achieved
	2 nd	Different factor effecting Superconductivity
	3 rd	Superconducting materials
	4 th	Applications of superconductivity materials
5	1 st	Semiconducting Materials - Introduction
	2 nd	Atomic Structure and Band gap theory
	3 rd	Forbidden Energy gap of insulator, semiconductor and conductor
	4 th	Excitation and Semiconductor materials
6	1 st	Different Types of bonds (Covalent Bond)
	2 nd	Intrinsic and Extrinsic Semiconductor
	3 rd	Doping concentration
	4 th	P – type and N- type semiconductor
7	1 st	Applications of semiconductor materials
	2 nd	Semiconductor devices (Diode rectifier, Varistor)

	3 rd	Transistor, hall effect generator and PV
	4 th	Insulating Materials - Introduction
8	1 st	General Properties of insulating materials(Electrical and Visual)
	2 nd	Mechanical and Thermal Property
	3 rd	Ageing and Chemical properties of insulating materials
	4 th	Insulating material Classifications
9	1 st	Properties and applications
	2 nd	Classification according to physical and insulating
	3 rd	Insulating Gases and application
	4 th	Doubt Clearing
10	1 st	Dielectric Materials: Introduction.
	2 nd	Dielectric Constant of Permittivity
	3 rd	Polarization
	4 th	Polarization
11	1 st	Application of dielectrics materials
	2 nd	Dielectric Loss
	3 rd	Electrical Conductivity and dielectrics break down
	4 th	Properties of dielectric breakdown
12	1 st	Magnetic materials : Introduction
	2 nd	Diamagnetic materials – properties and examples
	3 rd	Paramagnetic materials - properties and examples
	4 th	Ferromagnetic materials
13	1 st	Magnetic curve
	2 nd	Hysteresis curve
	3 rd	Curie point and magneto striction
	4 th	Properties and examples of hard and soft magnets
14	1 st	Materials for Special Purposes : introduction
	2 nd	Structural and protective materials
	3 rd	Lead, Steel taps, wire and Strips

	4 th	Thermocouple materials, Bimetals
15	1 st	Soldering materials and Fuse materials
	2 nd	Dehydrating material
	3 rd	Doubt clearing
	4 th	Class test

Discipline- Electrical Engg.	Semester- 3 rd	Name of the teaching faculty- Amit Kumar Swain
Subject- Environmental Studies	No of days/week class allotted-4	No of weeks-15 From 15/9/22
Week	Class day	Theory topic
1	1 st	The Multidisciplinary nature of environmental studies
	2 nd	Definition, scope and importance
	3 rd	Need for public awareness
	4 th	Different case Study related of Environment
2	1 st	Renewable and non renewable resources
	2 nd	Forest resources: Use and over-exploitation, deforestation, case studies, Timber extraction mining, dams and their effects on forests and tribal people
	3 rd	Forest resources: Use and over-exploitation, deforestation, case studies, Timber extraction mining, dams and their effects on forests and tribal people
	4 th	Water resources: Use and over-utilization of surface and ground water, floods
3	1 st	Water resources: drought, conflicts over water, dam's benefits and problems
	2 nd	Mineral Resources: Use and exploitation
	3 rd	Mineral Resources: environmental effects of extracting and using mineral resources.
	4 th	Food Resources: World food problems, changes caused by agriculture and over grazing, effects of modern agriculture.
4	1 st	Food Resources: fertilizers- pesticides problems, water logging, salinity
	2 nd	Energy Resources: Growing energy need, renewable
	3 rd	non-renewable energy sources, use of alternate energy sources, case studies
	4 th	Land Resources: Land resource, land degradation, man induces landslides, soil erosion, and desertification
5	1 st	Role of individual in conservation of natural resources and Equitable use of resources for sustainable life styles
	2 nd	Double Clearing
	3 rd	Class Test
	4 th	Concept of an eco system
6	1 st	Structure and function of an eco system
	2 nd	Producers, consumers, decomposers
	3 rd	Energy flow in the eco systems
	4 th	Ecological succession

7	1 st	Food chains, food webs and ecological pyramids
	2 nd	Introduction, types, characteristic features, structure and function of the following eco system
	3 rd	Forest ecosystem and functions of forest
	4 th	Aquatic eco systems (ponds, streams, lakes, rivers, oceans)
8	1 st	Biodiversity and it's Conservation , Introduction-Definition: genetics, species and ecosystem diversity
	2 nd	Biogeographically classification of India
	3 rd	Value of biodiversity: consumptive use, productive use, social ethical, aesthetic and optin values
	4 th	Biodiversity at global, national and local level
9	1 st	Threats to biodiversity: Habitats loss, poaching of wild life, man wildlife conflicts
	2 nd	Environmental Pollution :
	3 rd	Definition Causes, effects and control measures
	4 th	Air pollution and agents of air pollution
10	1 st	Water pollution
	2 nd	Soil pollution
	3 rd	Marine pollution
	4 th	Noise pollution and it effects on human health
11	1 st	Thermal pollution
	2 nd	Nuclear hazards
	3 rd	Doubt Clearance
	4 th	Different Case studied related to pollution
12	1 st	Solid waste Management: Causes, effects and control measures of urban and industrial waste
	2 nd	Role of an individual in prevention of pollution.
	3 rd	Disaster management: Floods, earth quake, cyclone and landslides
	4 th	Solid waste management and local level
13	1 st	Social issues and the Environment: Form unsustainable to sustainable development
	2 nd	Urban problems related to energy
	3 rd	Water conservation, rain water harvesting, water shed management
	4 th	Resettlement and rehabilitation of people; its problems and concern
14	1 st	Resettlement and rehabilitation of people; its problems and concern
	2 nd	Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies
	3 rd	Air (prevention and control of pollution) Act, Water (prevention and control of pollution) Act.
	4 th	Public awareness

15	1 st	Human population and the environment: Population growth and variation among nations
	2 nd	Population explosion- family welfare program
	3 rd	Environment and human health
	4 th	Human rights, Value education

Discipline- Electrical Engg.	Semester-3 rd	Name of the teaching faculty- Ashirbad Behera
Subject- Circuit and Network Theory	No of days/week class allotted-5	No of weeks-15 From 15/9/22
Week	Class day	Theory topic
1	1 st	Magnetic circuit introduction
	2 nd	Magnetizing force, Magnetic intensity
	3 rd	MMF, Flux and their relation
	4 th	Analogy between magnetic circuit and electric circuit
	5 th	Numerical on magnetic circuit
2	1 st	Series and parallel magnetic circuit and problem solve
	2 nd	Complete numerical on magnetic circuit
	3 rd	BH curve and hysteresis loop
	4 th	Coupled Circuit
	5 th	Self-Inductance and mutual Inductance
3	1 st	Coefficient of coupling
	2 nd	Series connection of coupled coils
	3 rd	Modeling of coupled circuit
	4 th	Dot convention
	5 th	Parallel connection of coupled circuit
4	1 st	Electrical equivalents of magnetic coupled circuit
	2 nd	Solve numerical
	3 rd	Circuit elements and Analysis
	4 th	Active passive Unilateral Bilateral linear and non linear
	5 th	Mesh analysis, Mesh equations
5	1 st	Solve numerical on Mesh analysis
	2 nd	Super mesh analysis and solve problems
	3 rd	Nodal analysis, Nodal Equations by inspection
	4 th	Super Nodal analysis
	5 th	Solve Numerical
6	1 st	Source Transformation techniques and solve numerical

	2 nd	Network Theorems Definition of bilateral network
	3 rd	Star to delta and delta to star conversion
	4 th	Super position Theorem
	5 th	Solve numerical on super position theorem
7	1 st	Thevenin's Theorem
	2 nd	Solve numerical
	3 rd	Norton's Theorem and solve numerical
	4 th	Maximum Power transfer theorem
	5 th	AC Circuit and Resonance – AC through RL, RC, RLC circuit
8	1 st	Solution of problems of AC through RL, RC, RLC series circuit
	2 nd	Solution of problems of AC through RL, RC, RLC parallel and composite circuit
	3 rd	Power factor and power triangle
	4 th	Expression for active, reactive and apparent power
	5 th	Derive the expression for series and parallel resonance
9	1 st	Bandwidth, Selectivity and Q factor in series resonance
	2 nd	Solve numerical
	3 rd	Polyphase Circuit- Concept of polyphase system and phase sequence
	4 th	Relation between phase and line in star and delta conversion
	5 th	Power equation in three phase circuit
10	1 st	Solve numerical on three phase power, star delta
	2 nd	Measurement of three phase power – Two wattmeter method
	3 rd	Solve numerical
	4 th	Transient – Steady state and transient response
	5 th	Transient response of series RL circuit having DC excitation
11	1 st	Transient response of series RC circuit having DC excitation
	2 nd	Transient response of series RLC circuit having DC excitation
	3 rd	Transient response of series RLC circuit having AC excitation
	4 th	Additional Examples
	5 th	
12	1 st	Two Port Network – Network Elements (Linear, Non linear, Active, Passive, Bilateral)
	2 nd	Network Configuration

	3 rd	Z parameters (Equation, Matrix form)
	4 th	Y Parameters
	5 th	Transmission Parameters (ABCD parameters)
13	1 st	Hybrid Parameters and solve numerical
	2 nd	Condition for Reciprocal and symmetry
	3 rd	Inter Relationships between parameters (Z in terms of ABCD, Y, h)
	4 th	Inter Relationships between parameters (Y in terms of ABCD, Z, h)
	5 th	Inter Relationships between parameters (ABCD in terms of Z, Y, h)
14	1 st	Solve Numerical
	2 nd	Solve Numerical and Doubt Clear
	3 rd	Filters – Define filter
	4 th	Classification of Filters – BPF, BSF, LPF, HPF
	5 th	Difference between active and passive filter
15	1 st	Cut off frequency
	2 nd	Constant K – LPF and HPF
	3 rd	Constant K – BPF and BSF
	4 th	Solve numerical
	5 th	Solve numerical and Doubt Clear

Discipline- Electrical Engg.	Semester-5 th	Name of the teaching faculty- Sidharth Sankar Sahu, Amit Kumar Swain,Ashirbad Behera
Subject- Circuit & Simulation Lab	No of days/week class allotted-2	No of weeks-15 From 15/9/22
Week	Class day	Practical topic
1	1 st	Measurement of equivalent resistance in series and parallel circuit
	2 nd	Practical observation, conclusion ,record correction
2	1 st	Measurement of power and power factor using series R-L-C Load
	2 nd	Practical observation, conclusion ,record correction
3	1 st	Verification of KCL and KVL.
	2 nd	Practical observation, conclusion ,record correction
4	1 st	Verification of Super position theorem
	2 nd	Practical observation, conclusion ,record correction
5	1 st	Verification of Thevenin's Theorem
	2 nd	Practical observation, conclusion ,record correction
6	1 st	Verification of Norton's Theorem
	2 nd	Practical observation, conclusion ,record correction
7	1 st	Verification of Maximum power transfer Theorem
	2 nd	Practical observation, conclusion ,record correction
8	1 st	Determine resonant frequency of series R-L-C circuit.
	2 nd	Practical observation, conclusion ,record correction
9	1 st	Study of Low pass filter & determination of cut-off frequency
	2 nd	Practical observation, conclusion ,record correction
10	1 st	Study of High pass filter & determination of cut-off frequency
	2 nd	Practical observation, conclusion ,record correction

11	1 st	Analyze the charging and discharging of an R-C & R-L circuit with oscilloscope and Compute the time constant from the tabulated data and determine the rise time graphically.
	2 nd	Practical observation, conclusion ,record correction
12	1 st	Construct the following circuits using P-Spice/MATLAB software and compare the measurements and waveforms. Superposition theorem
	2 nd	Practical observation, conclusion ,record correction
13	1 st	Construct the following circuits using P-Spice/MATLAB software and compare the measurements and waveforms Series Resonant Circuit
	2 nd	Practical observation, conclusion ,record correction
14	1 st	Construct the following circuits using P-Spice/MATLAB software and compare the measurements and waveforms Transient Response in R-L-C series circuit
	2 nd	Practical observation, conclusion ,record correction
15	1 st	End-sessional evaluation
	2 nd	Doubt Clearance