LESSON PLAN

Discipline : Mechanical Engg.	Semester : 3rd	Name of the Teachnig Faculty : Miss. Tapati Panigrahy		
Subject: Thermal -I	No.of days/Per weeks Class Alloted Weeks :4	Semester from date : 15.09.2022 To Date :22.12.2022 No.of Weeks : 15		

Weeks	Class day	Theory
3rd (Sept-2022)	1st	Thermodynamic Systems (closed, open, isolated)
	2nd	Thermodynamic properties of a system -pressure, volume, temperature
	3rd	entropy,enthalpy
	4th	Internal energy and units of measurement
4th (Sept-2022)	1st	Intensive and extensive properties
	2nd	Intensive and extensive properties
	3rd	Define thermodynamic processes, path, cycle , state, path function, point function.
	4th	Define thermodynamic processes, path, cycle , state, path function, point function.
5th (Sept-2022)	1st	Thermodynamic Equilibrium.
	2nd	Thermodynamic Equilibrium.
	3rd	Quasi-static Process.
	4th	Quasi-static Process.
2nd (Oct-2022)	1st	Conceptual explanation of energy and its sources
	2nd	Work , heat and comparison between the two.
	3rd	Mechanical Equivalent of Heat.
	4th	Work transfer, Displacement work
3rd (Oct-2022)	1st	State & explain Zeroth law of thermodynamics.
	2nd	State & explain Zeroth law of thermodynamics.
	3rd	State & explain First law of thermodynamics.
	4th	State & explain First law of thermodynamics.
4th (Oct-2022)	1st	Limitations of First law of thermodynamics
	2nd	Application of First law of Thermodynamics (steady flow energy equation and its application to turbine and compressor)
	3rd	Application of First law of Thermodynamics (steady flow energy equation and its application to turbine and compressor)
	4th	Second law of thermodynamics (Claucius & Kelvin Plank statements).
1st (Nov-2022)	1st	Second law of thermodynamics (Claucius & Kelvin Plank statements).
	2nd	Application of second law in heat engine, heat pump, refrigerator
	3rd	Application of second law in heat engine, heat pump, refrigerator
	4th	determination ofefficiencies & C.O.P (solve simple numerical)
2nd (Nov-2022)	1st	determination ofefficiencies & C.O.P (solve simple numerical)
	2nd	Boyle's law, Charle's law, Avogadro's law,
	3rd	Boyle's law, Charle's law, Avogadro's law,
	4th	Boyle's law, Charle's law, Avogadro's law,
3rd (Nov-2022)	1st	Dalton's law of partial pressure, Guy lussac law
	2nd	Dalton's law of partial pressure, Guy lussac law
	3rd	Dalton's law of partial pressure, Guy lussac law
	4th	General gas equation, characteristic gas constant, Universal gas constant.
4th (Nov-2022)	1st	General gas equation, characteristic gas constant, Universal gas constant.
	2nd	General gas equation, characteristic gas constant, Universal gas constant.

	3rd	Explain specific heat of gas (Cp and Cv)	
	4th	Explain specific heat of gas (Cp and Cv)	
5th (Nov-2022)	1st	Relation between Cp & Cv.	
	2nd	Relation between Cp & Cv.	
	3rd	Enthalpy of a gas.	
	4th	Enthalpy of a gas.	
1st (Dec-2022)	1st	Work done during a non- flow process.	
	2nd	Work done during a non- flow process.	
	3rd	Application of first law of thermodynamics to various non flow process (Isothermal, Isobaric, Isentropic and polytrophic process)	
	4th	Application of first law of thermodynamics to various non flow process (Isothermal, Isobaric, Isentropic and polytrophic process)	
2nd (Dec-2022)	1st	Isobaric, Isentropic and polytrophic process)	
	2nd	Solve simple problems on above.	
	3rd	Free expansion & throttling process.	
	4th	Explain & classify I.C engine.	
3rd (Dec-2022)	1st	Terminology of I.C Engine such as bore, dead centers, stroke volume, piston speed &RPM.	
	2nd	Explain the working principle of 2-stroke & 4- stroke engine C.I & S.I engine.	
	3rd	Differentiate between 2-stroke & 4- stroke engine C.I & S.I engine.	
	4th	Carnot cycle, Otto Cycle, Diesel Cycle, Dual Cycle	
4th (Dec-2022)	1st	Solve simple numerical.	
	2nd	Define Fuel, Types of fuel, Application of different fuels.	
	3rd	Heating values of fuel.	
	4th	Quality of I.C engine fuels Octane number, Cetane number.	

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		LESSON PLAN
Discipline : Mechanical Engg.	Semester : 3rd	Name of the Teachnig Faculty : Mr. Nilamadhaba Sabat
Subject:ENVIRONMEN TAL STUDIES	No.of days/Per weeks Class Alloted Weeks :4	Semester from date : 15.09.2022 To Date :22.12.2022 No.of Weeks : 15

Weeks	Class day	Theory Topics
3rd (Sept-2022)	1st	Multidisciplinary nature of environmental studies- Introduction,
	1st	Definition , Scope and importance
	2nd	Need for public awareness
	3rd	Doubt clearing
4th (Sept-2022)	4th	Unit-2- Natural resources- Introduction , definition, Associated problems
	1st	Forest Resources- Use & over exploitation, deforestation, Case sutdies
	2nd	Timber extraction, mining, dams and their effects on forests and tribal people
	3rd	Water resources- use & over utilization of surface & ground water, floods, drought
5th (Sept-2022)	4th	Conflicts over water, dams benefits and problems
	1st	Mineral resources- use & exploitation, environmental effects of extracting and using mineral resources
	2nd	Food resources- World food problem, Changes caused by agriculture & over grazing,
	3rd	Effects of modern agriculture, fertilizers & pesticide problems, water logging & salinity
2nd (Oct-2022)	4th	Energy resources- Growing energy need, Renewable & non- renewable energy source, use of alternate energy sources
	1st	Case studies, Land resources- land as a resource, land degradation, man induces landslides,
	2nd	Soil erosion, desertification
	3rd	Role of individual in conservation of natural resources, Equitable use of resources for sustainable life styles
3rd (Oct-2022)	4th	Unit-3- Ecosystem: concept of ecosystem, structure of ecosystem
	1st	Function of ecosystem, Producers, consumers,decomposers
	2nd	Energy flow in eco system ,ecological succession
	3rd	Food chain, food web, ecological pyramid
4th (Oct-2022)	4th	Forest ecosystem- definition, types, characteristics
	1st	Forest ecosystem- structure & function
	2nd	Pond ecosystem
	3rd	Stream ecosystem
1st (Nov-2022)	4th	Lake ecosystem
	1st	River ecosystem
	2nd	Ocean ecosystem
	3rd	Estuaries ecosystem
2nd (Nov-2022)	4th	Unit -4- Biodiversity & its conservation: introduction, definition, genetics, species, and ecosystem diversity
	1st	Biogeographically classification of India
	2nd	Value of biodiversity
	3rd	Biodiversity at global level
3rd (Nov-2022)	4th	Biodiversity at national level
	1st	Habitat loss, poaching of wild life
	2nd	Man wildlife conflicts
	3rd	Doubt clearing
4th (Nov-2022)	4th	Unit-5- Environmental pollution: introduction, definition

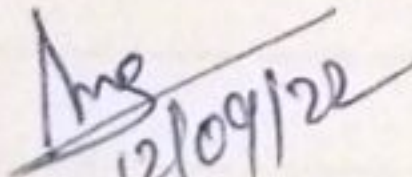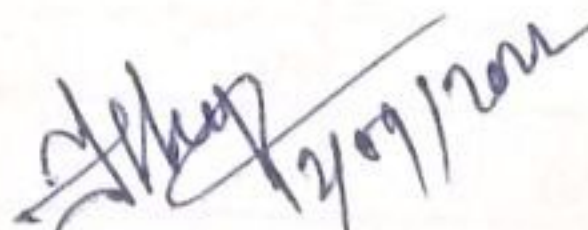|		
	1st	Air pollution, Control of air pollution
	2nd	Water pollution, Control of water pollution
	3rd	Soil pollution, Marine pollution
5th (Nov-2022)	4th	Noise pollution
	1st	Thermal pollution
	2nd	Nuclear pollution
	3rd	Solid waste management- causes, effect
1st (Dec-2022)	4th	Control measures
	1st	Waste management
	2nd	Role of individual in prevention of pollution
	3rd	Flood management, Earthquake management
2nd (Dec-2022)	4th	Cyclone management
	1st	Landslides management
	2nd	Social issues & the environment: From unsustainable to sustainable development, urban problems related to energy.
	3rd	Water conservation, rain water harvesting, Water shed management, resettlement and rehabilitation of people; its problem and concern
3rd (Dec-2022)	4th	Environmental ethics: issue and possible solutions. Climate change, global warming
	1st	Acid rain , ozone layer depletion, Nuclear accidents and holocaust
	2nd	Air (prevention and control of pollution) Act
	3rd	Water (prevention and control of pollution) Act
4th (Dec-2022)	4th	Public awareness
	1st	Doubt clearing
	2nd	Unit 7- Human population and the Environment: population growth and variation among nations (introduction)
	3rd	Population growth and variation among nations, Population explosion, family welfare programs
	4th	Environment and human health, Human Rights, Value Education, Role Of information technology in environment and human health.

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LESSON PLAN

Discipline : Mechanical Engg.	Semester : 3rd	Name of the Teachnig Faculty : Mr. Nilamadhaba Sabat		
Subject:Engineering Material	No.of days/Per weeks Class Alloted Weeks :4	Semester from date : 15.09.2022 To Date :22.12.2022 No.of Weeks : 15		

Weeks	Class day	Theory
3rd (Sept-2022)	1st	Material classification into ferrous and non ferrous category and alloys
	2nd	Properties of Materials: Physical , Chemical and Mechanical
	3rd	Performance requirements
	4th	Material reliability and safety
4th (Sept-2022)	1st	Characteristics and application of ferrous materials
	2nd	
	3rd	Classification, composition and application of low carbon steel, medium carbon steel and High carbon steel
	4th	Alloy steel: Low alloy steel, high alloy steel, tool steel and stainless steel
5th (Sept-2022)	1st	Concept of phase diagram and cooling curves
	2nd	
	3rd	Features of Iron-Carbon diagram with salient micro-constituents of Iron and Steel
	4th	
2nd (Oct-2022)	1st	
	2nd	Crystal defines, classification of crystals, ideal crystal and crystal imperfections
	3rd	
	4th	Classification of imperfection: Point defects, line defects, surface defects and volume defects
3rd (Oct-2022)	1st	
	2nd	
	3rd	Types and causes of point defects: Vacancies, Interstitials and impurities
	4th	Types and causes of line defects: Edge dislocation and screw dislocation
4th (Oct-2022)	1st	
	2nd	Effect of imperfection on material properties
	3rd	Deformation by slip and twinning
	4th	
1st (Nov-2022)	1st	Effect of deformation on material properties
	2nd	Purpose of Heat treatment
	3rd	
	4th	Process of heat treatment: Annealing, normalizing, hardening, tampering, stress relieving measures
2nd (Nov-2022)	1st	
	2nd	
	3rd	Surface hardening: Carburizing and Nitriding
	4th	
3rd (Nov-2022)	1st	Effect of heat treatment on properties of steel
	2nd	Hardenability of steel
	3rd	
	4th	Aluminum alloys: Composition, property and usage of Duralmin, y- alloy.

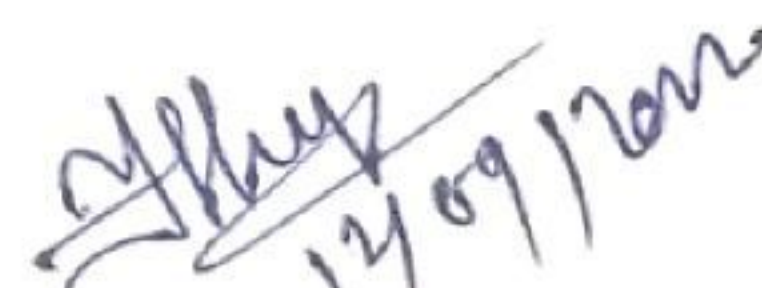|		
4th (Nov-2022)	1st	Copper alloys: Composition, property and usage of Copper- Aluminum, Copper-Tin, Babbit , Phosperous bronze, brass, Copper- Nickel
	2nd	
	3rd	Predominating elements of lead alloys, Zinc alloys and Nickel alloys
5th (Nov-2022)	4th	Low alloy materials like P-91, P-22 for power plants and other high temperature services. High alloy materials like stainless steel grades of duplex, super duplex materials etc.
	1st	
	2nd	
	3rd	
1st (Dec-2022)	4th	Classification, composition, properties and uses of Copper base, Tin Base, Lead base, Cadmium base bearing materials
	1st	Classification, composition, properties and uses of Iron-base and Copper base spring material
	2nd	
	3rd	
2nd (Dec-2022)	4th	Properties and application of thermosetting and thermoplastic polymers
	1st	
	2nd	
	3rd	Properties of elastomers
3rd (Dec-2022)	4th	Classification, composition, properties and uses of particulate based and fiber reinforced composites
	1st	
	2nd	
	3rd	Classification and uses of ceramics
	4th	Doubt Clear Class
4th (Dec-2022)	1st	Revision on Fe-C equillibrium diagram
	2nd	
	3rd	Revison
	4th	Previous Year Question Paper Discussion

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LESSON PLAN

Discipline : Mechanical Engg.	Semester : 3rd	Name of the Teachnig Faculty : Mr. Piyush Bhusan Dash
Subject:Strength Of Material	No.of days/Per weeks Class Alloted Weeks :4	Semester from date : 15.09.2022 To Date :22.12.2022 No.of Weeks : 15

Weeks	Class day	Theory
3rd (Sept-2022)	1st	Types of load, stresses & strains,(Axial and tangential) Hooke's law, Young's modulus, bulk modulus, modulus of rigidity, Poisson's ratio, derive the relation between three elastic constants,
	2nd	
	3rd	
	4th	
4th (Sept-2022)	1st	Principle of super position, stresses in composite section
	2nd	
	3rd	Temperature stress, determine the temperature stress in composite bar (single core)
	4th	
5th (Sept-2022)	1st	
	2nd	Strain energy and resilience, Stress due to gradually applied, suddenly applied and impact load
	3rd	
	4th	
2nd (Oct-2022)	1st	
	2nd	Problem solved
	3rd	
	4th	Definition of hoop and longitudinal stress, strain
3rd (Oct-2022)	1st	Derivation of hoop stress, longitudinal stress, hoop strain, longitudinal strain and volumetric strain
	2nd	
	3rd	Derivation of hoop stress, longitudinal stress, hoop strain, longitudinal strain and volumetric strain
	4th	Computation of the change in length, diameter and volume
4th (Oct-2022)	1st	Problem solved
	2nd	Problem solved
	3rd	Determination of normal stress, shear stress and resultant stress on oblique plane
	4th	
1st (Nov-2022)	1st	
	2nd	Location of principal plane and computation of principal stress
	3rd	
	4th	Location of principal plane and computation of principal stress and Maximum shear stress using Mohr's circle
2nd (Nov-2022)	1st	
	2nd	Types of beam and load
	3rd	Concepts of Shear force and bending moment
	4th	Shear Force and Bending moment diagram and its salient features illustration in cantilever beam, simply supported beam and over hanging beam under point load and uniformly distributed load
3rd (Nov-2022)	1st	
	2nd	
	3rd	Assumptions in the theory of bending,
	4th	

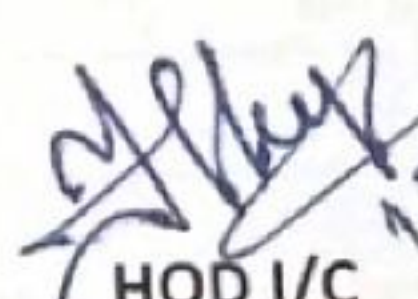|		
4th (Nov-2022)	1st	Bending equation, Moment of resistance, Section modulus& neutral axis.
	2nd	
	3rd	
	4th	Problem solved
5th (Nov-2022)	1st	Define column
	2nd	Axial load, Eccentric load on column
	3rd	
	4th	Direct stresses, Bending stresses, Maximum& Minimum stresses. Numerical problems on above solved
1st (Dec-2022)	1st	
	2nd	
	3rd	Buckling load computation using Euler's formula in Columns with various end conditions
	4th	
2nd (Dec-2022)	1st	Assumption of pure torsion
	2nd	
	3rd	The torsion equation for solid and hollow circular shaft
	4th	
3rd (Dec-2022)	1st	Comparison between solid and hollow shaft subjected to pure torsion
	2nd	
	3rd	
	4th	Full Torsion Chapter revision with problem practice
4th (Dec-2022)	1st	
	2nd	Problem solved on Simple Stress and strain
	3rd	Revision
	4th	Doubt Clear Class

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LESSON PLAN

Discipline : Mechanical Engg.	Semester : 3rd	Name of the Teachnig Faculty : Mr. Pradeep Kumar Padhy
Subject : Production Technology	No.of days/Per weeks Class Alloted Weeks :4	Semester from date : 15.09.2022 To Date :22.12.2022 No.of Weeks : 15

Weeks	Class day	Theory
3rd (Sept-2022)	1st	Extrusion: Definition & Classification
	2nd	Direct, indirect and impact extrusion process
	3rd	Rolling Process and Classification
	4th	Differentiate between cold rolling and hot rolling process
4th (Sept-2022)	1st	Different types of rolling mills used in Rolling process
	2nd	Welding Process and Classification
	3rd	Welding Process and Classification
	4th	fluxes used in welding
5th (Sept-2022)	1st	Oxy-acetylene welding process
	2nd	Various types of flames used in Oxy-acetylene welding process.
	3rd	Arc welding process
	4th	Classification of Arc Welding Electrodes
2nd (Oct-2022)	1st	Resistance Welding and Classification
	2nd	Various resistance welding processes such as butt welding, spot welding, flash welding, projection welding and seam welding.
	3rd	Various resistance welding processes such as butt welding, spot welding, flash welding, projection welding and seam welding.
	4th	Detailed Explanation of TIG and MIG welding process
3rd (Oct-2022)	1st	Detailed Explanation of TIG and MIG welding process
	2nd	Different welding defects with causes and remedies
	3rd	Different welding defects with causes and remedies
	4th	Casting and Classify the various Casting processes
4th (Oct-2022)	1st	Procedure of Sand mould casting
	2nd	Different types of molding sands with their composition and properties.
	3rd	Different pattern and state various pattern allowances.
	4th	Different pattern and state various pattern allowances.
1st (Nov-2022)	1st	Different pattern and state various pattern allowances.
	2nd	Core and detailed classification of cores.
	3rd	Construction and working of cupola and crucible furnace.
	4th	Construction and working of cupola and crucible furnace.
2nd (Nov-2022)	1st	Construction and working of cupola and crucible furnace.
	2nd	Different die casting methods
	3rd	Centrifugal casting ,true centrifugal casting, centrifuging with advantages, limitation and area of application
	4th	Centrifugal casting ,true centrifugal casting, centrifuging with advantages, limitation and area of application
3rd (Nov-2022)	1st	Centrifugal casting ,true centrifugal casting, centrifuging with advantages, limitation and area of application
	2nd	Various casting defects with their causes and remedies
	3rd	Powder metallurgy process
	4th	Advantages of powder metallurgy technology technique
4th (Nov-2022)	1st	Methods of producing components by powder metallurgy technique

	2nd	Methods of producing components by powder metallurgy technique
	3rd	Methods of producing components by powder metallurgy technique
	4th	Explanation of Sintering Process
5th (Nov-2022)	1st	Explanation of Sintering Process
	2nd	Economics of powder metallurgy
	3rd	Different types of presswork process such as Blanking ,Piercing & Trimming
	4th	Different types of presswork process such as Blanking ,Piercing & Trimming
1st (Dec-2022)	1st	Different types of presswork process such as Blanking ,Piercing & Trimming
	2nd	Different types of presswork process such as Blanking ,Piercing & Trimming
	3rd	Various types of die and punch
	4th	Various types of die and punch
2nd (Dec-2022)	1st	Various types of die and punch
	2nd	Simple, Compound & Progressive dies and their various advantages & disadvantages
	3rd	Jigs and fixtures and their advantages
	4th	Jigs and fixtures and their advantages
3rd (Dec-2022)	1st	Principle of 3-2-1 Point location of Rectangular jig
	2nd	Principle of 3-2-1 Point location of Rectangular jig
	3rd	Principle of 3-2-1 Point location of Rectangular jig
	4th	Various types of jig and fixtures.
4th (Dec-2022)	1st	Various types of jig and fixtures.
	2nd	Various types of jig and fixtures.
	3rd	Various types of jig and fixtures.
	4th	Revision and Previous Year Question Paper Discussion

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