P.C.I.E.T., CHHENDIPADA, DIST- ANGUL				
THEORY LESSON PLAN FOR THE SESSION 2021-22				
BRANCH:-MECHANICAL ENGINEERING SEMESTER: 3RD SECTION: MA & MB			NAME OF THE FACULTY : (1) ER. SUBHASMITA JENA (LECT. IN MECH. ENGG.)	
SEMESTER FROM : 01.10.2021 to 31.01.2022			THEORY SUBJECT: PRODUCTION TECHNOLOGY (TH-1)	
CLASS ALLOTTED /WEEK : 04 PERIODS				
Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	METAL FORMING PROCESSES	7		
	Extrusion: Definition & Classification	1	OCTOBER	Dt. 01.10.2021
	Explain direct, indirect and impact extrusion process	2		Dt. 04.10.2021 , 05.10.21, 07.10.21
	Define rolling. Classify it.	1		Dt. 08.10.21 , 09.10.21
	Differentiate between cold rolling and hot rolling process.	2		Dt. 18.1021 , 19.10.21 , 20.10.21 21.10.21
	types of rolling mills used in Rolling process.	1		Dt. 22.10.21
2	WELDING	16		
	Define welding and classify various welding processes.	1	OCTOBER	Dt. 23.10.21, 25.10.21.
	Explain fluxes used in welding.	1		Dt. 26.10.21 ,
	Explain Oxy-acetylene welding process.	2	NOVEMBER	Dt. 01.11.21 , 02.11.21
	Explain various types of flames used in Oxy-acetylene welding process.	1		Dt. 03.11.21 , 05.11.21
	Explain Arc welding process.	2		Dt. 06.11.21 , 08.11.21, 09.11.21
	Specify arc welding electrodes.	2		Dt. 10.11.21, 11.11.21 , 12.11.21
	Define resistance welding and classify it.	2		Dt. 13.11.21 , 15.11.21 , 16.11.21
	Describe various resistance welding processes such as butt welding, spot welding, flash welding, projection welding and seam welding.	2		Dt. 17.11.21, 18.11.21, 20.11.21
	Explain TIG and MIG welding process	2		Dt. 22.11.21, 23.11.21
	State different welding defects with causes and remedies	1		Dt. 24.11.21, 25.11.21

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
3	**CASTING**	15		
	Define Casting and Classify the various Casting processes	1	NOVEMBER	Dt. 26.11.21, 27.11.21
	Explain the procedure of Sand mould casting	2		Dt. 29.11.21, 30.11.21
	Explain different types of molding sands with their composition and properties.	2	DECEMBER	Dt. 01.12.21, 02.12.21, 03.12.21
	Classify different pattern and state various pattern allowances	2		Dt. 04.12.21, 06.12.21, 07.12.21
	Classify core	1		Dt. 08.12.21, 09.12.21
	Describe construction and working of cupola and crucible furnace.	2		Dt. 10.12.21, 11.12.21, 13.12.21
	Explain die casting method.	2		Dt. 14.12.21, 15.12.21, 16.12.21
	Explain centrifugal casting such as true centrifugal casting, centrifuging with advantages, limitation and area of application.	2		Dt. 17.12.21, 18.12.21, 20.12.21
	Explain various casting defects with their causes and remedies.	2		Dt. 21.12.21, 22.12.21
4	**POWDER METALLURGY**	5		
	Define powder metallurgy process	1	DECEMBER	Dt. 23.12.21, 24.12.21.
	State advantages of powder metallurgy technology technique	1		Dt. 25.12.21, 27.12.21
	Describe the methods of producing components by powder metallurgy technique	1		Dt. 28.12.21.
	Explain sintering	1		Dt. 29.12.21
	Economics of powder metallurgy	1		Dt. 30.12.21
5	**PRESS WORK**	7		
	Describe Press Works: blanking, piercing and trimming	2	DECEMBER	Dt. 31.12.21, 03.01.22
	List various types of die and punch	2	JANUARY	Dt. 04.01.22, 05.01.22
	Explain simple, Compound & Progressive dies	2		Dt. 06.01.22, 07.01.22
	Describe the various advantages & disadvantages of above dies	1		Dt. 08.01.22, 10.01.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
6	JIGS AND FIXTURES	7		
	Define jigs and fixtures	1	JANUARY	Dt. 11.01.22, 12.01.22
	State advantages of using jigs and fixtures	1		Dt. 13.01.22 -, 15.01.22
	State the principle of locations	2		Dt. 17.01.22, 18.01.22, 19.01.22
	Describe the methods of location with respect to 3-2-1 point location of rectangular jig	2		Dt. 20.01.22, 21.01.22, 22.01.22 24.01.22, 25.01.22
	List various types of jig and fixtures	1		Dt. 27.01.22, 28.01.22 Rev- 29.01.22, 31.01.22

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THEORY LESSON PLAN FOR THE SESSION 2021-22

BRANCH:- MECHANICAL ENGINEERING SEMESTER: 3RD SECTION:- MA & MB

NAME OF THE FACULTY : (1) ER. DEWAN KUMAR SAHU, (2) ER. RASABIHARI SAHOO (LECT. IN MECH. ENGG.)

SEMESTER FROM : 01.10.2021 to 31.01.2022

THEORY SUBJECT: STRENGTH OF MATERIAL (TH-2)

CLASS ALLOTTED /WEEK : 04 PERIODS

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	**SIMPLE STRESS & STRAIN**	**10**		
	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	4	OCTOBER	Dt. 01.10.21 , 04.10.21 , 05.10.21 07.10.21 , 08.10.21
	Principle of super position, stresses in composite section	2		Dt. 09.10.21 , 18.10.21 , 19.10.21
	Temperature stress, determine the temperature stress in composite bar (single core)	1		Dt. 20.10.21 , 21.10.21
	Strain energy and resilience, Stress due to gradually applied, suddenly applied and impact load	2		Dt. 22.10.21 , 23.10.21 , 25.10.21
	Simple problems on above	1		Dt. 26.10.21 , 01.11.21
2	**THIN CYLINDER AND SPHERICAL SHELL UNDER INTERNAL PRESSURE**	**8**		
	Definition of hoop and longitudinal stress, strain	1	NOVEMBER	Dt. 02.11.21
	Derivation of hoop stress, longitudinal stress, hoop strain, longitudinal strain and volumetric strain	3		Dt. 03.11.21 , 05.11.21 , 06.11.21 08.11.21
	Computation of the change in length, diameter and volume	2		Dt. 09.11.21 , 10.11.21 , 11.11.21
	Simple problems on above	2		Dt. 12.11.21 , 13.11.21 , 15.11.21

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
3	**TWO DIMENSIONAL STRESS SYSTEMS**	**10**		
	Determination of normal stress, shear stress and resultant stress on oblique plane	2		Dt. 16.11.21 , 17.11.21 , 18.11.21
	Location of principal plane and computation of principal stress	4		Dt. 20.11.21 , 22.11.21 , 23.11.21 24.11.21 , 25.11.21
	Location of principal plane and computation of principal stress andMaximum shear stress using Mohr's circle	4		Dt. 26.11.21 ; 27.11.21 , 29.11.21 30.11.21
4	**BENDING MOMENT & SHEAR FORCE**	**10**		
	Types of beam and load	2	DECEMBER	Dt. 01.12.21 , 02.12.21
	Concepts of Shear force and bending moment	3		Dt. 03.12.21 , 04.12.21 , 06.12.21 07.12.21
	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	5		Dt. 08.12.21 , 09.12.21 , 10.12.21 11.12.21 , 13.12.21 , 14.12.21 15.12.21
5	**THEORY OF SIMPLE BENDING**	**10**		
	Assumptions in the theory of bending,	3		Dt. 16.12.21 , 17.12.21 , 18.12.21
	Bending equation, Moment of resistance, Section modulus& neutral axis.	5		Dt. 20.12.21 , 21.12.21 , 22.12.21 23.12.21 , 24.12.21
	Solve simple problems	2		Dt. 25.12.21 , 27.12.21 , 28.12.21 29.12.21 , 30.12.21 , 31.12.21
6	**COMBINED DIRECT & BENDING STRESSES**	**6**		
	Define column	2	JANUARY	Dt. 03.01.22 , 04.01.22 , 05.01.22
	Axial load, Eccentric load on column	4		Dt. 06.01.22 , 07.01.22 , 08.01.22 , 10.01.22 11.01.22 , 12.01.22 , 13.01.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
7	TORSION	6		
	Assumption of pure torsion	2	JANUARY	Dt. 15.01.22 , 17.01.22 , 18.01.22 , 19.01.22
	The torsion equation for solid and hollow circular shaft	2		Dt. 20.01.22 , 21.01.22 , 22.01.22 24.01.22
	Comparison between solid and hollow shaft subjected to pure torsion	2		Dt. 25.01.22 , 27.01.22 , 28.01.22 Rev - 29.01.22 , 31.01.22

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THEORY LESSON PLAN FOR THE SESSION 2021-22

BRANCH:-MECHANICAL ENGINEERING SEMESTER: 3RD
SECTION: MA & MB

NAME OF THE FACULTY : (1) ER. SUBHASMITA JENA,
(2) ER. MANAS RANJAN BEHERA (LECT. IN MECH. ENGG.)

SEMESTER FROM : 01.10.2021 to 31.01.2022

THEORY SUBJECT: ENGINEERING MATERIAL (TH-3)

CLASS ALLOTTED /WEEK : 04 PERIODS

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	**ENGINEERING MATERIALS AND THEIR PROPERTIES**	5		
	Material classification into ferrous and non ferrous category and alloys	1	OCTOBER	Dt. 01.10.21 , 04.10.21 Rev- 20.01.22, 21.01.22
	Properties of Materials: Physical , Chemical	1		Dt. 05.10.21 ,
	Properties of Mechanical	1		Dt. 07.10.21
	Performance requirements	1		Dt. 08.10.21
	Material reliability and safety	1		Dt. 09.10.21 , 18.10.21
2	**FERROUS MATERIALS AND ALLOYS**	4		
	Characteristics and application of ferrous materials	1		Dt. 19.10.21 Rev- 22.01.22 , 24.01.22.
	Classification, composition and application of low carbon steel, medium carbon steel and High carbon steel	1		Dt. 20.10.21 , 21.10.21
	Alloy steel: Low alloy steel, high alloy steel, tool steel and stainless steel	1		Dt. 22.10.21 , 23.10.21
	Tool steel: Effect of various alloying elements such as Cr, Mn, Ni, V, Mo,	1		Dt. 25.10.21
3	**IRON - CARBON SYSTEM**	8		
	Concept of phase diagram and cooling curves	3		Dt. 26.10.21 , 01.11.21 , 02.11.21
	Features of Iron-Carbon diagram with salient micro-constituents of Iron and Steel	5	NOVEMBER	Dt. 03.11.21 , 05.11.21 , 06.11.21 , 08.11.21 09.11.21 , Rev- 27.01.22, 28.01.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
4	**CRYSTAL IMPERFECTIONS**	**10**		
	Crystal defines, classification of crystals, ideal crystal and crystal imperfections	1		Dt. 10.11.21 Rev- 29.01.22.
	Classification of imperfection: Point defects, line defects, surface defects and volume defects	1		Dt. 11.11.21 , 12.11.21 Rev-31.01.22
	Types and causes of point defects: Vacancies, Interstitials and impurities	1		Dt. 13.11.21 , 15.11.21
	Types and causes of line defects: Edge dislocation and screw dislocation	2		Dt. 16.11.21 , 17.11.21 , 18.11.21
	Effect of imperfection on material properties	2		Dt. 20.11.21 , 22.11.21
	Deformation by slip and twinning	2		Dt. 23.11.21 , 24.11.21
	Effect of deformation on material properties	1		Dt. 25.11.21 , 26.11.21
5	**HEAT TREATMENT**	**10**		
	Purpose of Heat treatment	1		Dt. 27.11.21
	Process of heat treatment: Annealing, normalizing, hardening, tampering, stress relieving measures	4		Dt. 29.11.21 , 30.11.21 , 01.12.21 02.12.21 , 03.12.21
	Surface hardening: Carburizing and Nitriding	2		Dt. 04.12.21 , 06.12.21
	Effect of heat treatment on properties of steel	2		Dt. 07.12.21 , 08.12.21
	Hardenability of steel	1		Dt. 9.12.21
6	**NON-FERROUS ALLOYS**	**10**		
	Aluminum alloys: Composition, property and usage of Duralmin, y- alloy.	3		Dt. 10.12.21 , 11.12.21 , 13.12.21
	Copper alloys: Composition, property and usage of Copper- Aluminum, Copper-Tin, Babbit , Phosperous bronze, brass, Copper- Nickel	3		Dt. 14.12.21 , 15.12.21 , 16.12.21
	Predominating elements of lead alloys, Zinc alloys and Nickel alloys	3		Dt. 17.12.21 , 18.12.21 , 20.12.21

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
	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.	1		Dt. 21.12.21
7	**BEARING MATERIAL**	3		
	Classification, composition, properties and uses of Copper base, Tin Base, Lead base, Cadmium base bearing materials	3		Dt. 22.12.21 , 23.12.21 , 24.12.21 25.12.21
8	**SPRING MATERIALS**	3		
	Classification, composition, properties and uses of Iron-base and Copper base spring material	3		Dt. 27.12.21, 28.12.21 , 29.12.21 30.12.21
9	**POLYMERS**	3		
	Properties and application of thermosetting and thermoplastic polymers	2		Dt. 31.12.21 , 03.09.22 , 04.01.22 05.01.22
	Properties of elastomers	1	JANUARY	Dt. 06.01.22 , 07.01.22 , 08.01.22
10	**COMPOSITES AND CERAMICS**	3		
	Classification, composition, properties and uses of particulate based and fiber reinforced composites	2		Dt. 10.01.22 , 11.01.22 , 12.01.22 13.01.22 , 15.01.22
	Classification and uses of ceramics	1		Dt. 17.01.22 , 18.01.22 , 19.01.22

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THEORY LESSON PLAN FOR THE SESSION 2021-22

BRANCH:-MECHANICAL ENGINEERING SEMESTER: 3RD
SECTION: MA & MB

NAME OF THE FACULTY : (1) ER. TARANISEN MOHANTY,
(2) ER. BIKASH RANJAN SAHU (LECT. IN MECH ENGG.)

SEMESTER FROM : 01.10.2021 to 31.01.2022

THEORY SUBJECT: THERMAL ENGINEERING - I (TH-4)

CLASS ALLOTTED /WEEK : 04 PERIODS

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	THERMODYNAMIC CONCEPT & TERMINOLOGY	12		
	Thermodynamic Systems (closed, open, isolated)	1	OCTOBER	Dt. 01.10.2021, 04.10.2021
	Thermodynamic properties of a system	2		Dt. 05.10.2021, 07.10.2021, 8.10.2021
	Intensive and extensive properties	1		Dt. 09.10.2021, 18.10.2021, 19.10.2021
	Define thermodynamic processes, path, cycle , state, path function, point function	3		Dt. 20.10.2021, 21.10.21, 22.10.21 23.10.21
	Thermodynamic Equilibrium	2		Dt. 25.10.21, 26.10.21
	Quasi-static Process	1	NOVEMBER	Dt. 01.11.21, 02.11.21
	Conceptual explanation of energy and its sources	1		Dt. 03.11.21, 05.11.21
	Work , heat and comparison between the two	1		Dt. 06.11.21, 08.11.21
	Mechanical Equivalent of Heat	1		Dt. 09.11.21, 10.11.21
	Work transfer, Displacement work	2		Dt. 11.11.21, 12.11.21

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
2	LAWS OF THERMODYNAMICS	12		Dt.
	State & explain Zeroth law of thermodynamics	2		Dt. 13.11.21, 15.11.21
	State & explain First law of thermodynamics	1		Dt. 16.11.21 , 17.11.21
	Limitations of First law of thermodynamics	2		Dt. 18.11.21 ; 20.11.21
	Application of First law of Thermodynamics	2		Dt. 22.11.21 , 23.11.21
	Second law of thermodynamics	2		Dt. 24.11.21 , 25.11.21 ; 26.11.21
	Application of second law in heat engine,	2		Dt. 27.11.21 , 29.11.21
3	PROPERTIES PROCESSES OF PERFECT GAS	10		D
	Laws of perfect gas:	2		Dt. 30.11.21 , 01.12.21 , 02.12.21
	Explain specific heat of gas (Cp and Cv)	1	DECEMBER	Dt. 03.12.21 , 04.12.21
	Relation between Cp & Cv.	1		Dt. 06.12.21
	Enthalpy of a gas	1		Dt. 07.12.21
	Work done during a non- flow process	1		Dt. 08.12.21 , 09.12.21
	Application of first law of thermodynamics to various non flow process (Isothermal, Isobaric, Isentropic and polytrophic process	2		Dt. 10.12.21 , 11.12.21
	Solve simple problems on above.	1		Dt. 13.12.21 ,
	Free expansion & throttling process	1		Dt. 14.12.21 , 15.12.21

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
4	INTERNAL COMBUSTION ENGINE	8		
	Explain & classify I.C engine.	2		Dt. 16.12.21 , 17.12.21 , 18.12.21
	Terminology of I.C Engine such as bore, dead centers, stroke volume, piston speed &RPM.	2		Dt. 20.12.21 , 21.12.21
	Explain the working principle of 2-stroke & 4- stroke engine C.I & S.I engine.	2		Dt. 22.12.21 , 23.12.21 , 24.12.21
	Differentiate between 2-stroke & 4- stroke engine C.I & S.I engine.	2		Dt. 25.12.21 , 27.12.21 , 28.12.21
5	GAS POWER CYCLE	10		
	Carnot cycle	2		Dt. 29.12.21 , 30.12.21 , 03.01.22
	Otto cycle	3	JANUARY	Dt. 04.01.22 , 05.01.22 , 06.01.22
	Diesel cycle.			Dt. 07.01.22 , 08.01.22 , 10.01.22
	Dual cycle.	2		Dt. 11.01.22 , 12.01.22 , 13.01.22
	Solve simple numerical.	3		Dt. 15.01.22 , 17.01.22 , 18.01.22
6	FUELS AND COMBUSTION	8		
	Define Fuel.	1		Dt. 19.01.22 , 20.01.22
	Types of fuel.	2		Dt. 21.01.22 , 22.01.22
	Application of different types of fuel.	1		Dt. 24.01.22 , 25.01.22
	Heating values of fuel	2		Dt. 27.01.22 , 28.01.22
	Quality of I.C engine fuels Octane number, Cetane number.	2		Dt. 29.01.22 , 31.01.22

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THEORY LESSON PLAN FOR THE SESSION 2021-22

BRANCH:-MECHANICAL ENGINEERING SEMESTER: 3RD
SECTION: MA & MB

NAME OF THE FACULTY : (1) ER. BIKASH RANJAN SAHU,
(2) ER. DEJILINE SAHOO (LECT. IN MECH. ENGG.)

SEMESTER FROM : 01.10.2021 to 31.01.2022

THEORY SUBJECT: ENVIRONMENTAL STUDIES (TH-5)

CLASS ALLOTTED /WEEK : 04 PERIODS

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	UNIT 1 : THE MULTIDISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES	4		
	Definition, scope and importance, Need for public awareness.	4	OCTOBER	Dt. 01.10.21 , 04.10.21 , 05.10.21 , 07.10.21
2	UNIT 2 : NATURAL RESOURCES	10		
	Natural resources and associated problems: Forest resources, Water resources, Mineral Resources, Food Resources, Energy Resources, Land Resources.	5		Dt. 08.10.21 , 09.10.21 , 18.10.21 , 19.10.21 , 20.10.21 , 21.10.21
	Role of individual in conservation of natural resources.	2		Dt. 22.10.21 , 23.10.21 , 25.10.21
	Equitable use of resources for sustainable lifestyles.	3		Dt. 26.10.21 , 01.11.21 , 02.11.21 03.11.21
3	UNIT 3 : SYSTEMS	8		
	Concept of an ecosystem.Structure and function of an ecosystem.	1	NOVEMBER	Dt. 05.11.21 , 06.11.21
	Producers, consumers, decomposers.	1		Dt. 08.11.21
	Energy flow in the ecosystems.	1		Dt. 09.11.21 , 10.11.21
	Ecological succession.	1		Dt. 11.11.21 , 12.11.21
	Food chains, food web sand ecological pyramids.	1		Dt. 13.11.21 , 15.11.21
	Introduction, types, characteristic features, structure and function of the following ecosystem.	1		Dt. 16.11.21 , 17.11.21
	Forest ecosystem.	1		Dt. 18.11.21 ,
	Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries).	1		Dt. 20.11.21

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
4	**UNIT 4 : BIODIVERSITY AND ITS'S CONSERVATION**	8		
	Introduction-Definition: genetics, species and ecosystem diversity.	2		D1. 22.11.21 , 23.11.21 , 25.11.21
	Biogeographically classification of India.	1		D1. 25.11.21 , 26.11.21 ,
	Value of biodiversity: consumptive use, productive use, social ethical, aesthetic and opt in values.	2		D1. 27.11.21 , 29.11.21 , 30.11.21 01.12.21
	Biodiversity at global, national and local level.	2	DECEMBER	D1. 02.12.21 , 03.12.21 , 04.12.21
	Threats to biodiversity: Habitats loss, poaching of wild life, man wildlife conflicts.	1		D1. 06.12.21 , 07.12.21 , 08.12.21
5	**UNIT 5 : ENVIRIONMENTAL POLLUTION**	12		
	Definition Causes, effects and control measures of:Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear hazards.	4		D1. 09.12.21 , 10.12.21 , 11.12.21 13.12.21 , 14.12.21
	Solid waste Management: Causes, effects and control measures of urban and industrial wastes.	4		D1. 15.12.21 , 16.12.21 , 17.12.21 18.12.21 , 20.12.21.
	Role of an individual in prevention of pollution	2		D1. 21.12.21 , 22.12.21 , 23.12.21
	Disaster management: Floods, earth quake, cyclone and landslides.	2		D1. 24.12.21 , 25.12.21 , 27.12.21
6	**UNIT 6 : SOCIAL ISSUES AND THE ENVIRONMENT**	10		
	Urban problems related to energy, Water conservation, rain water harvesting, water shed management.Resettlement and rehabilitation of people; its problems and concern.	3		D1. 28.12.21 , 29.12.21 , 30.12.21 , 31.12.21 , 03.01.21
	Environmental ethics: issue and possible solutions.	2	JANUARY	D1. 04.01.22 , 05.01.22
	Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, case studies.	2		D1. 06.01.22 , 07.01.22 08.01.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
	Air (prevention and control of pollution) Act, Water (prevention and control of pollution) Act.	2		Dt. 10.01.22. , 11.01.22 , 12.01.22
	Public awareness	1		Dt. 13.01.22 , 15.01.22
7	**UNIT 7 : HUMAN POPULATION AND THE ENVIRONMENT**	8		
	Population growth and variation among nations, Population explosion-family welfare program.	3		Dt. 17.01.22 , 18.01.22 , 19.01.22 20.01.22
	Environment and human health.	1		Dt. 21.01.22 .
	Human rights.	1		Dt. 22.01.22 , 24.01.22 , 25.01.22
	Value education.	1		Dt. 27.01.22 , 28.01.22
	Role of information technology in environment and human health.	2		Dt. 29.01.22 , 31.01.22

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THEORY LESSON PLAN FOR THE SESSION 2021-22				
BRANCH:-MECHANICAL ENGINEERING SEMESTER: 4TH SECTION: MA			NAME OF THE FACULTY : (1) ER. TARANISEN MOHANTY (2) ER. HIMANSU SEKHAR SAMAL (LECT. IN MECH. ENGG.)	
SEMESTER FROM : 14.03.2022 to 30.06.2022			THEORY SUBJECT: THEORY OF MACHINES (TH-1)	
CLASS ALLOTTED /WEEK : 04 PERIODS				
Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	Simple Mechanism	8		
	1.1 Link ,kinematic chain, mechanism, machine	2	MARCH	14.03.22, 15.03.2022 REVISION:- 29.06.22, 30.06.22
	1.2 Inversion, four bar link mechanism and its inversion	2	MARCH	16.03.22, 17.03.22 REVISION:- 27.06.22, 28.06.22
	1.3 Lower pair and higher pair	2	MARCH	21.03.22, 22.03.22
	1.4 Cam and followers	2	MARCH	23.03.22, 24.03.22
2	Friction	12		
	2.1 Friction between nut and screw for square thread, screw jack	2	MARCH	28.03.22, 29.03.22
	2.2 Bearing and its classification, Description of roller, needle roller& ball bearings.	2	MARCH	30.03.22, 31.03.22
	2.3 Torque transmission in flat pivot& conical pivot bearings.	2	APRIL	4.04.22, 5.04.22
	2.4 Flat collar bearing of single and multiple types.	2	APRIL	6.04.22, 7.04.22
	2.5 Torque transmission for single and multiple clutches	2	APRIL	11.04.22, 12,04.22
	2.6 Working of simple frictional brakes.	2	APRIL	13.04.22, 18.04.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
3	**Power Transmission**	**12**		
	3.1 Concept of power transmission	1	APRIL	19.04.22
	3.2 Type of drives, belt, gear and chain drive.	1	APRIL	20.04.22
	3.3 Computation of velocity ratio, length of belts (open and cross)with and without slip.	2	APRIL	21.04.22, 25.04.22
	3.4 Ratio of belt tensions, centrifugal tension and initial tension.	1	APRIL	26.04.22
	3.5 Power transmitted by the belt.	1	APRIL	27.04.22
	3.6 Determine belt thickness and width for given permissible stress for open and crossed belt considering centrifugal tension.	2	APRIL	28.04.22, 4.05.22
	3.7 V-belts and V-belts pulleys.	1	MAY	5.05.22
	3.8 Concept of crowning of pulleys.	1	MAY	9.05.22
	3.9 Gear drives and its terminology.	1	MAY	10.05.22
	3.10 Gear trains, working principle of simple, compound, reverted and epicyclic gear trains.	1	MAY	11.05.22
4	**Governors and Flywheel**	**8**		
	4.1 Function of governor	1	MAY	12.05.22
	4.2 Classification of governor	1	MAY	17.05.22
	4.3 Working of Watt, Porter, Proel and Hartnell governors.	2	MAY	18.05.22, 19.05.22
	4.4 Conceptual explanation of sensitivity, stability and isochronisms.	1	MAY	23.05.22
	4.5 Function of flywheel.	1	MAY	24.05.22
	4.6 Comparison between flywheel &governor.	1	MAY	25.05.22
	4.7 Fluctuation of energy and coefficient of fluctuation of speed.	1	MAY	26.05.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
5	**Balancing of Machine**	8		
	5.1 Concept of static and dynamic balancing.	1	MAY	31.05.22
	5.2 Static balancing of rotating parts.	1	June	1.06.22
	5.3 Principles of balancing of reciprocating parts.	2	JUNE	2.06.22, 6.06.22
	5.4 Causes and effect of unbalance.	2	JUNE	7.06.22, 8.06.22
	5.5 Difference between static and dynamic balancing	2	JUNE	9.06.22, 10.06.22
6	**Vibration of Machine Parts**	8		
	6.1 Introduction to Vibration and related terms (Amplitude, time period and frequency, cycle)	2	JUNE	11.06.22, 12.06.22
	6.2 Classification of vibration.	1	JUNE	13.06.22
	6.3 Basic concept of natural, forced & damped vibration	2	JUNE	16.06.22, 20.06.22
	6.4 Torsional and Longitudinal vibration.	2	JUNE	21.06.22, 22.06.22
	6.5 Causes & remedies of vibration.	1	JUNE	23.06.22

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THEORY LESSON PLAN FOR THE SESSION 2021-22

BRANCH:-MECHANICAL ENGINEERING SEMESTER: 4TH
SECTION:- MA

NAME OF THE FACULTY : (1) ER. SUBHASMITA JENA (2) ER. LAKIN KU. SAHOO, (3) ER. KEDAR PRADHAN (LECT. IN MECH. ENGG.)

SEMESTER FROM : 14.03.2022 to 30.06.2022

THEORY SUBJECT: MANUFACTURING TECHNOLOGY (TH-2)

CLASS ALLOTTED /WEEK : 04 PERIODS

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	**Tool Materials**	4		
	Composition of various tool materials	2	MARCH	14.03.22, 15.03.22
	Physical properties& uses of such tool materials	2	MARCH	16.03.22, 17.03.22
2	**Cutting Tools**	6		
	Cutting action of various and tools such as Chisel, hacksaw blade, dies and reamer	2	MARCH	21.03.22, 22.03.22
	Turning tool geometry and purpose of tool angle	2	MARCH	23.03.22, 24.03.22
	Machining process parameters (Speed, feed and depth of cut)	1	MARCH	28.03.22,
	Coolants and lubricants in machining and purpose	1	MARCH	29.03.22
3	**Lathe Machine**	8		
	Construction and working of lathe and CNC lathe: Major components of a lathe and their function, Operations carried out in a lathe(Turning, thread cutting, taper turning, internal machining, parting off, facing, knurling), Safety measures during machining	3	MARCH	30.03.22, 31.03.22 4.04.22
	Capstan lathe: Difference with respect to engine lathe, Major components and their function, Define multiple tool holders	2	APRIL	5.04.22, 6.04.22
	Turret Lathe: Difference with respect to capstan lathe, Major components and their function	1	APRIL	7.04.22
	Draw the tooling layout for preparation of a hexagonal bolt & bush	2	APRIL	11.04.22, 12.04.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
4	**Shaper**	6		
	Potential application areas of a shaper machine	1	APRIL	13.04.22
	Major components and their function	1	APRIL	18.04.22
	Explain the automatic able feed mechanism	1	APRIL	19.04.22
	Explain the construction &working of tool head	1	APRIL	20.04.22
	Explain the quick return mechanism through sketch	1	APRIL	21.04.22
	State the specification of a shaping machine.	1	APRIL	25.04.22
5	**Planning Machine**	6		
	Application area of a planer and its difference with respect to shaper	1	APRIL	26.04.22
	Major components and their functions	1	APRIL	27.04.22
	The table drive mechanism	2	APRIL	28.04.22, 2.05.22
	Working of tool and tool support	1	MAY	4.05.22
	Clamping of work through sketch	1	MAY	5.05.22
6	**Milling Machine**	8		
	Types of milling machine and operations performed by them and also same for CNC milling machine	1	MAY	9.05.22
	Explain work holding attachment	2	MAY	10.05.22, 11.05.22
	Construction & working of simple dividing head, universal dividing head	2	MAY	12.05.22, 17.05.22
	Procedure of simple and compound indexing	2	MAY	18.05.22, 19.05.22
	Illustration of different indexing methods	1	MAY	23.05.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
7	**Slotter**	6		
	Major components and their function	2	MAY	25.05.22, 26.05.22
	Construction and working of slotter machine	2	MAY	31.05.22, 1.06.22
	Tools used in slotter	2	JUNE	2.06.22. 6.06.22
8	**Grinding**	6		
	Significance of grinding operations	1	JUNE	7.06.22
	Manufacturing of grinding wheels	1	JUNE	8.06.22
	Criteria for selecting of grinding wheels	2	JUNE	9.06.22, 13.06.22
	Specification of grinding wheels with example Working of: Cylindrical Grinder,Surface Grinder, Centreless Grinder	2	JUNE	16.06.22, 20.06.22
9	**Internal Machining operations**	6		
	Classification of drilling machines: Working of a)Bench drilling machine b) Pillar drilling machinec)Radial drilling machine	2	JUNE	21.06.22, 22.06.22
	BoringBasic: Principle of Boring, Different between Boring and drilling	2	JUNE	23.06.22, 27.06.22
	Broaching: Types of Broaching(pull type, push type)Advantages of Broaching and applications	2	JUNE	28.06.22, 29.06.22
10	**Surface Finish, Lapping**	4		
	Definition of Surface finish	2	JUNE	30.06.22
	Description of lapping& explain their specific cutting	2		

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THEORY LESSON PLAN FOR THE SESSION 2021-22				
BRANCH:-MECHANICAL ENGINEERING SEMESTER: 4TH SECTION: MA			NAME OF THE FACULTY : (1) ER, ABINASH SAHOO (2) ER. BIKASH RANJAN SAHU (LECT. IN MECH. ENGG.)	
BRANCH:-MECHANICAL ENGINEERING SEMESTER: 4TH SECTION:-			NAME OF THE FACULTY:-	
SEMESTER FROM : 14.03.2022 to 30.06.2022			THEORY SUBJECT : FLUID MECHANICS (TH-3)	
CLASS ALLOTTED /WEEK : 04 PERIODS				
Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	**Properties of Fluid**	8		
	1.1Define fluid	3	MARCH	14.03.22, 15.03.22, 16.03.22
	1.2 Description of fluid properties like Density, Specific weight, specific gravity, specific volume and solve simple problems.	3	MARCH	17.03.22, 21.03.22, 22.03.22
	1.3 Definitions and Units of Dynamic viscosity, kinematic viscosity, surface tension Capillary phenomenon	2	MARCH	23.03.22, 24.03.22
2	**Fluid Pressure and its Measurements**	8		
	2.1 Definitions and units of fluid pressure, pressure intensity and pressure head.	1	MARCH	28.03.22
	2.2 Statement of Pascal's Law.	1	MARCH	29.03.22
	2.3 Concept of atmospheric pressure, gauge pressure, vacuum pressure and absolute pressure	2	MARCH	30.03.22, 31.03.22
	2.4 Pressure measuring instruments	1	APRIL	4.04.22
	Manometers (Simple and Differential)			
	2.4.1 Bourdon tube pressure gauge(Simple Numerical)	2	APRIL	5.04.22, 6.04.22
	2.5 Solve simple problems on Manometer.	1	APRIL	7.04.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
3	**Hydrostatics**	8		
	3.1 Definition of hydrostatic pressure	1	APRIL	11.04.22
	3.2 Total pressure and centre of pressure on immersed bodies(Horizontal and Vertical Bodies)	2	APRIL	12.04.22, 13.04.22
	3.3 Solve Simple problems.	2	APRIL	18.04.22, 19.04.22
	3.4 Archimedes 'principle, concept of buoyancy, meta center and meta centric height (Definition only)	2	APRIL	20.04.22, 21.04.22
	3.5 Concept of floatation	1	APRIL	25.04.22
4	**Kinematics of Flow**	8		
	4.1 Types of fluid flow	2	APRIL	26.04.22, 27.04.22
	4.2 Continuity equation(Statement and proof for one dimensional flow)	2	APRIL	28.04.22, 2.05.22
	4.3 Bernoulli's theorem(Statement and proof)	2	MAY	4.05.22, 5.05.22
	Applications and limitations of Bernoulli's theorem (Venturimeter, pitot tube)			
	4.4 Solve simple problems	2	MAY	9.05.22, 10.05.22
5	**Orifices, Notches & Weirs**	8		
	5.1 Define orifice	1	MAY	11.05.22
	5.2 Flow through orifice	1	MAY	12.05.22
	5.3Orifices coefficient & the relation between the orifice coefficients	2	MAY	17.05.22, 18.05.22
	5.4 Classifications of notches & weirs	1	MAY	19.05.22
	5.5 Discharge over a rectangular notch or weir	1	MAY	23.05.22
	5.6 Discharge over a triangular notch or weir	1	MAY	24.05.22
	5.7 Simple problems on above	1	MAY	25.05.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
6	**Flow Through Pipe**	**10**		
	6.1 Definition of pipe.	1	MAY	26.05.22
	6.2 Loss of energy in pipes.	2	MAY	31.05.22, 1.06.22
	6.3 Head loss due to friction: Darcy's and Chezy's formula (Expression only)	2	JUNE	2.06.22, 6.06.22
	6.4 Solve Problems using Darcy's and Chezy's formula.	3	JUNE	7.06.22, 8.06.22, 9.06.22
	6.5 Hydraulic gradient and total gradient line	2	JUNE	13.06.22, 16.06.22
7	**7.0 Impact of Jets**	**10**		
	7.1 Impact of jet on fixed and moving vertical flat plates	4	JUNE	20.06.22, 21.06.22, 22.06.22 23.06.22.
	7.2 Derivation of work done on series of vanes and condition for maximum efficiency.	3	JUNE	27.06.22, 28.06.22, 29.06.22
	7.3 Impact of jet on moving curved vanes, illustration using velocity triangles, derivation of work done, efficiency.	3	JUNE	30.6.22

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THEORY LESSON PLAN FOR THE SESSION 2021-22				
BRANCH:-MECHANICAL ENGINEERING SEMESTER: 4TH SECTION:- MA			(1) ER. DEWAN KU. SAHU, (2) ER. SAMIR SAHU, (3) ER. MANAS RANJAN BEHERA (LECT. IN MECH. ENGG.)	
SEMESTER FROM : 14.03.2022 to 30.06.2022			THEORY SUBJECT: THERMAL ENGINEERING - II (TH-4)	
CLASS ALLOTTED /WEEK : 04 PERIODS				
Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	**Performance of I.C Engine**	8		
	1.1 Define mechanical efficiency, Indicated thermal efficiency, Relative Efficiency, brake thermal efficiency overall efficiency, Mean effective pressure & specific fuel consumption.	3	MARCH	Dt. 14.03.22, 15.03.22 16.03.22
	1.2 Define air-fuel ratio & calorific value of fuel.	2	MARCH	Dt. 17.03.22, 21.03.22
	1.3 Work out problems to determine efficiencies & specific fuel consumption.	3	MARCH	Dt. 22.03.22, 23.03.22 24.03.22
2	**Air Compressor**	12		
	2.1 Explain functions of compressor & industrial use of compressor air	2	MARCH	28.03.22, 29.03.22
	2.2 Classify air compressor & principle of operation.	2	MARCH	30.03.22, 31.03.22
	2.3 Describe the parts and working principle of reciprocating Air compressor.	2	APRIL	4.04.22, 05.04.22
	2.4 Explain the terminology of reciprocating compressor such as bore, stroke, pressure ratio free air delivered &Volumetric efficiency.	2	APRIL	06.04.22, 07.04.22
	2.5 Derive the work done of single stage & two stage compressor with and without clearance.	2	APRIL	11.04.22, 12.04.22
	2.6 Solve simple problems (without clearance only)	2	APRIL	13.04.22, 18.04.22
3	**Properties of Steam**	12		
	3.1 Difference between gas & vapours.	1	APRIL	19.04.22
	3.2 Formation of steam.	2	APRIL	20.04.22, 21.04.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
	3.3 Representation on P-V, T-S, H-S, & T-H diagram.	2	APRIL	25.04.22, 26.04.22
	3.4 Definition & Properties of Steam.	1		27.04.22
	3.5 Use of steam table & mollier chart for finding unknown properties.	3	MAY	28.04.22, 02.05.22, 04.05.22
	3.6 Non flow & flow process of vapour.	1		05.05.22
	3.7 P-V, T-S & H-S, diagram.	1		09.05.22
	3.8 Determine the changes in properties & solve simple numerical.	1		10.05.22
4	**Steam Generator**	12		
	4.1 Classification & types of Boiler.	2		11.05.22, 12.05.22
	4.2 Important terms for Boiler.	2		17.05.22, 18.05.22
	4.3 Comparison between fire tube & Water tube Boiler.	2		19.05.22, 23.05.22
	4.4 Description & working of common boilers (Cochran, Lancashire, Babcock & Wilcox Boiler)	2		25.05.22, 26.05.22
	4.5 Boiler Draught (Forced, induced & balanced)	2	JUNE	31.05.22, 01.06.22
	4.6 Boiler mountings & accessories.	2		02.06.22, 06.06.22
5	**Steam Power Cycles**	8		
	5.1 Carnot cycle with vapour.	1		07.06.22, 08.06.22
	5.2 Derive work & efficiency of the cycle.	1		09.06.22
	5.3 Rankine cycle.	1		13.06.22
	5.3.1 Representation in P-V, T-S & h-s diagram.	1		16.06.22
	5.3.2 Derive Work & Efficiency.	1		20.06.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
	5.3.3 Effect of Various end conditions in Rankine cycle.	1	JUNE	21.06.22
	5.3.4 Reheat cycle & regenerative Cycle.	1		22.06.22
	5.4 Solve simple numerical on Carnot vapour Cycle & Rankine Cycle.	1		23.06.22
6	**Heat Transfer**	8		
	6.1 Modes of Heat Transfer (Conduction, Convection, Radiation).	2		27.06.22, 28.06.22
	6.2 Fourier law of heat conduction and thermal conductivity (k).	2		29.06.22
	6.3 Newton's laws of cooling.	1		30.06.22
	6.4 Radiation heat transfer (Stefan, Boltzmann & Kirchhoff's law) only statement, no derivation & no numerical problem.	1		
	6.5 Black body Radiation, Definition of Emissivity, absorptivity, & transmissibility.	2		

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THEORY LESSON PLAN FOR THE SESSION 2021-22				
BRANCH:-MECHANICAL ENGINEERING SEMESTER: 4TH SECTION: MB			NAME OF THE FACULTY : (1) ER. TARANISEN MOHANTY (2) ER. HIMANSU SEKHAR SAMAL (LECT. IN MECH. ENGG.)	
SEMESTER FROM : 14.03.2022 to 30.06.2022			THEORY SUBJECT: THEORY OF MACHINES (TH-1)	
CLASS ALLOTTED /WEEK : 04 PERIODS				
Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	**Simple Mechanism**	8		
	1.1 Link ,kinematic chain, mechanism, machine	2	MARCH	14.03.22, 15.03.22
	1.2 Inversion, four bar link mechanism and its inversion	2	MARCH	16.03.22, 17.03.22
	1.3 Lower pair and higher pair	2	MARCH	21.03.22, 22.03.22
	1.4 Cam and followers	2	MARCH	23.03.22, 24.03.22
2	**Friction**	12		
	2.1 Friction between nut and screw for square thread, screw jack	2	MARCH	28.03.22, 29.03.22
	2.2 Bearing and its classification, Description of roller, needle roller& ball bearings.	2	MARCH	30.03.22, 31.03.22
	2.3 Torque transmission in flat pivot& conical pivot bearings.	2	APRIL	4.04.22, 5.04.22
	2.4 Flat collar bearing of single and multiple types.	2	APRIL	06,04.22, 7.04.22
	2.5 Torque transmission for single and multiple clutches	2	APRIL	11.04.22, 12.04.22
	2.6 Working of simple frictional brakes.	2	APRIL	13.04.22, 18.04.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
3	**Power Transmission**	**12**		
	3.1 Concept of power transmission	1	APRIL	19.04.22
	3.2 Type of drives, belt, gear and chain drive.	1	APRIL	20.04.22
	3.3 Computation of velocity ratio, length of belts (open and cross)with and without slip.	2	APRIL	21.04.22, 25.04.22
	3.4 Ratio of belt tensions, centrifugal tension and initial tension.	1	APRIL	26.04.22
	3.5 Power transmitted by the belt.	1	APRIL	27.04.22
	3.6 Determine belt thickness and width for given permissible stress for open and crossed belt considering centrifugal tension.	2	APRIL	28.04.22, 2.05.22
	3.7 V-belts and V-belts pulleys.	1	MAY	4.05.22
	3.8 Concept of crowning of pulleys.	1	MAY	5.05.22
	3.9 Gear drives and its terminology.	1	MAY	9.05.22
	3.10 Gear trains, working principle of simple, compound, reverted and epicyclic gear trains.	1	MAY	10.05.22
4	**Governors and Flywheel**	**8**		
	4.1 Function of governor	1	MAY	11.05.22
	4.2 Classification of governor	1	MAY	12.05.22
	4.3 Working of Watt, Porter, Proel and Hartnell governors.	2	MAY	17.05.22, 18.05.22
	4.4 Conceptual explanation of sensitivity, stability and isochronisms.	1	MAY	19.05.22,
	4.5 Function of flywheel.	1	MAY	23.05.22
	4.6 Comparison between flywheel &governor.	1	MAY	24.05.22
	4.7 Fluctuation of energy and coefficient of fluctuation of speed.	1	MAY	25.05.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
5	**Balancing of Machine**	8		
	5.1 Concept of static and dynamic balancing.	1	MAY	26.05.22
	5.2 Static balancing of rotating parts.	1	MAY	31.05.22
	5.3 Principles of balancing of reciprocating parts.	2	JUNE	1.06.22, 2.06.22
	5.4 Causes and effect of unbalance.	2	JUNE	6.06.22, 7.06.22
	5.5 Difference between static and dynamic balancing	2	JUNE	8.06.22, 9.06.22
6	**Vibration of Machine Parts**	8		
	6.1 Introduction to Vibration and related terms (Amplitude, time period and frequency, cycle)	2	JUNE	10.06.22, 11.06.22
	6.2 Classification of vibration.	1	JUNE	12.06.22
	6.3 Basic concept of natural, forced & damped vibration	2	JUNE	13.06.22, 16.06.22
	6.4 Torsional and Longitudinal vibration.	2	JUNE	20,06.22, 21.06.22
	6.5 Causes & remedies of vibration.	1	JUNE	22.06.22

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THEORY LESSON PLAN FOR THE SESSION 2021-22				
BRANCH:-MECHANICAL ENGINEERING SEMESTER: 4TH SECTION:- MB			NAME OF THE FACULTY : (1) ER. SUBHASMITA JENA (2) ER. LAKIN KU. SAHOO, (3) ER. KEDAR PRADHAN (LECT. IN MECH. ENGG.)	
SEMESTER FROM : 14.03.2022 to 30.06.2022			THEORY SUBJECT: MANUFACTURING TECHNOLOGY (TH-2)	
CLASS ALLOTTED /WEEK : 04 PERIODS				
Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	**Tool Materials**	4		
	Composition of various tool materials	2	MARCH	14.03.22; 15.03.22
	Physical properties& uses of such tool materials	2	MARCH	16.03.22, 17.03.22
2	**Cutting Tools**	6		
	Cutting action of various and tools such as Chisel, hacksaw blade, dies and reamer	2	MARCH	21.03.22, 22,03.22
	Turning tool geometry and purpose of tool angle	2	MARCH	23.03.22, 24.03.22
	Machining process parameters (Speed, feed and depth of cut)	1	MARCH	28.03.22
	Coolants and lubricants in machining and purpose	1	MARCH	29.03.22
3	**Lathe Machine**	8		
	Construction and working of lathe and CNC lathe: Major components of a lathe and their function, Operations carried out in a lathe(Turning, thread cutting, taper turning, internal machining, parting off, facing, knurling), Safety measures during machining	3	MARCH	30.03.22, 31.03.22 4.04.22
	Capstan lathe: Difference with respect to engine lathe, Major components and their function, Define multiple tool holders	2	APRIL	5.04.22; 6.04.22
	Turret Lathe: Difference with respect to capstan lathe, Major components and their function	1	APRIL	7.04.22
	Draw the tooling layout for preparation of a hexagonal bolt & bush	2	APRIL	11.04.22, 12.04.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
4	**Shaper**	6		
	Potential application areas of a shaper machine	1	APRIL	13.04.22
	Major components and their function	1	APRIL	18.04.22
	Explain the automatic able feed mechanism	1	APRIL	19.04.22
	Explain the construction &working of tool head	1	APRIL	20.04.22
	Explain the quick return mechanism through sketch	1	APRIL	21.04.22
	State the specification of a shaping machine.	1	APRIL	25.04.22
5	**Planning Machine**	6		
	Application area of a planer and its difference with respect to shaper	1	APRIL	26.04.22
	Major components and their functions	1	APRIL	27.04.22
	The table drive mechanism	2	APRIL	28.04.22, 2.05.22
	Working of tool and tool support	1	MAY	4.05.22
	Clamping of work through sketch	1	MAY	5.05.22
6	**Milling Machine**	8		
	Types of milling machine and operations performed by them and also same for CNC milling machine	1	MAY	9.05.22
	Explain work holding attachment	2	MAY	10.05.22, 11.05.22
	Construction & working of simple dividing head, universal dividing head	2	MAY	12.05.22, 17.05.22
	Procedure of simple and compound indexing	2	MAY	18.05.22, 19.05.22
	Illustration of different indexing methods	1	MAY	23.05.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
7	**Slotter**	6		
	Major components and their function	2	MAY	25.05.22, 26.05.22
	Construction and working of slotter machine	2	MAY	31.05.22, 1.06.22
	Tools used in slotter	2	JUNE	2.06.22, 6.06.22
8	**Grinding**	6		
	Significance of grinding operations	1	JUNE	7.06.22,
	Manufacturing of grinding wheels	1	JUNE	8.06.22
	Criteria for selecting of grinding wheels	2	JUNE	9.06.22, 13.06.22
	Specification of grinding wheels with example Working of: Cylindrical Grinder,Surface Grinder, Centreless Grinder	2	JUNE	16.06.22, 20.06.22
9	**Internal Machining operations**	6		
	Classification of drilling machines: Working of a)Bench drilling machine b) Pillar drilling machinec)Radial drilling machine	2	JUNE	21.06.22, 22.06.22
	BoringBasic: Principle of Boring, Different between Boring and drilling	2	JUNE	23.06.22, 27.06.22
	Broaching: Types of Broaching(pull type, push type)Advantages of Broaching and applications	2	JUNE	28.06.22, 29.06.22
10	**Surface Finish, Lapping**	4		
	Definition of Surface finish	2	JUNE	30.06.22
	Description of lapping& explain their specific cutting	2		

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THEORY LESSON PLAN FOR THE SESSION 2021-22

BRANCH:-MECHANICAL ENGINEERING SEMESTER: 4TH SECTION: MB

NAME OF THE FACULTY : (1) ER. ABINASH SAHOO (2) ER. BIKASH RANJAN SAHU (LECT. IN MECH. ENGG.)

BRANCH:-MECHANICAL ENGINEERING SEMESTER: 4TH SECTION:-

NAME OF THE FACULTY:-

SEMESTER FROM : 14.03.2022 to 30.06.2022

THEORY SUBJECT : FLUID MECHANICS (TH-3)

CLASS ALLOTTED /WEEK : 04 PERIODS

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	**Properties of Fluid**	8		
	1.1Define fluid	3	MARCH	14.03.22, 15.03.22, 16.03.22
	1.2 Description of fluid properties like Density, Specific weight, specific gravity, specific volume and solve simple problems.	3	MARCH	17.03.22, 21.03.22, 22.03.22
	1.3 Definitions and Units of Dynamic viscosity, kinematic viscosity, surface tension Capillary phenomenon	2	MARCH	23.03.22, 24.03.22
2	**Fluid Pressure and its Measurements**	8		
	2.1 Definitions and units of fluid pressure, pressure intensity and pressure head.	1	MARCH	28,03.22
	2.2 Statement of Pascal's Law.	1	MARCH	29.03.22
	2.3 Concept of atmospheric pressure, gauge pressure, vacuum pressure and absolute pressure	2	MARCH	30.03.22, 31.03.22
	2.4 Pressure measuring instruments	1	APRIL	4.04.22
	Manometers (Simple and Differential)			
	2.4.1 Bourdon tube pressure gauge(Simple Numerical)	2	APRIL	5.04.22, 6.04.22
	2.5 Solve simple problems on Manometer.	1	APRIL	7.04.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
3	**Hydrostatics**	8		
	3.1 Definition of hydrostatic pressure	1	APRIL	11.04.22
	3.2 Total pressure and centre of pressure on immersed bodies(Horizontal and Vertical Bodies)	2	APRIL	12.04.22, 13.04.22
	3.3 Solve Simple problems.	2	APRIL	18.04.22, 19.04.22
	3.4 Archimedes 'principle, concept of buoyancy, meta center and meta centric height (Definition only)	2	APRIL	20.04.22, 21.04.22
	3.5 Concept of floatation	1	APRIL	25.04.22
4	**Kinematics of Flow**	8		
	4.1 Types of fluid flow	2	APRIL	26.04.22, 27.04.22
	4.2 Continuity equation(Statement and proof for one dimensional flow)	2	APRIL	28.04.22, 2.05.22
	4.3 Bernoulli's theorem(Statement and proof)	2	MAY	4.05.22, 05.05.22
	Applications and limitations of Bernoulli's theorem (Venturimeter, pitot tube)			
	4.4 Solve simple problems	2	MAY	9.05.22, 10.05.22
5	**Orifices, Notches & Weirs**	8		
	5.1 Define orifice	1	MAY	11.05.22
	5.2 Flow through orifice	1	MAY	12.05.22
	5.3Orifices coefficient & the relation between the orifice coefficients	2	MAY	17.05.22, 18.05.22
	5.4 Classifications of notches & weirs	1	MAY	19.05.22
	5.5 Discharge over a rectangular notch or weir	1	MAY	23.05.22
	5.6 Discharge over a triangular notch or weir	1	MAY	24.05.22
	5.7 Simple problems on above	1	MAY	25.05.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
6	**Flow Through Pipe**	**10**		
	6.1 Definition of pipe.	1	MAY	26.05.22
	6.2 Loss of energy in pipes.	2	MAY	31.05.22, 1.06.22
	6.3 Head loss due to friction: Darcy's and Chezy's formula (Expression only)	2	JUNE	2.06.22, 06.06.22
	6.4 Solve Problems using Darcy's and Chezy's formula.	3	JUNE	7.06.22, 8.06.22, 9.06.22
	6.5 Hydraulic gradient and total gradient line	2	JUNE	13.06.22, 16.06.22
7	**7.0 Impact of Jets**	**10**		
	7.1 Impact of jet on fixed and moving vertical flat plates	4	JUNE	20.06.22, 21.06.22, 22.06.22 23.06.22
	7.2 Derivation of work done on series of vanes and condition for maximum efficiency.	3	JUNE	27.06.22, 28.06.22
	7.3 Impact of jet on moving curved vanes, illustration using velocity triangles, derivation of work done, efficiency.	3	JUNE	29.06.22, 30.06.22

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THEORY LESSON PLAN FOR THE SESSION 2021-22				
BRANCH:-MECHANICAL ENGINEERING SEMESTER: 4TH SECTION:- MB			(1) ER. DEWAN KU. SAHU, (2) ER. SAMIR SAHU, (3) ER. MANAS RANJAN BEHERA (LECT. IN MECH. ENGG.)	
SEMESTER FROM : 14.03.2022 to 30.06.2022			THEORY SUBJECT: THERMAL ENGINEERING - II (TH-4)	
CLASS ALLOTTED /WEEK : 04 PERIODS				
Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	**Performance of I.C Engine**	8		
	1.1 Define mechanical efficiency, Indicated thermal efficiency, Relative Efficiency, brake thermal efficiency overall efficiency, Mean effective pressure & specific fuel consumption.	3	MARCH	14.03.22, 15.03.22 16.03.22
	1.2 Define air-fuel ratio & calorific value of fuel.	2		17.03.22, 21.03.22
	1.3 Work out problems to determine efficiencies & specific fuel consumption.	3		22.03.22, 23.03.22, 24.03.22
2	**Air Compressor**	12		
	2.1 Explain functions of compressor & industrial use of compressor air	2		28.03.22, 29.03.22
	2.2 Classify air compressor & principle of operation.	2		30.03.22, 31.03.22
	2.3 Describe the parts and working principle of reciprocating Air compressor.	2	APRIL	04.04.22, 05.04.22
	2.4 Explain the terminology of reciprocating compressor such as bore, stroke, pressure ratio free air delivered &Volumetric efficiency.	2		06.04.22, 07.04.22
	2.5 Derive the work done of single stage & two stage compressor with and without clearance.	2		11.04.22, 12.04.22
	2.6 Solve simple problems (without clearance only)	2		13.04.22, 18.04.22
3	**Properties of Steam**	12		
	3.1 Difference between gas & vapours.	1		19.04.22
	3.2 Formation of steam.	2		20.04.22, 21.04.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
	3.3 Representation on P-V, T-S, H-S, & T-H diagram.	2	APRIL	25.04.22, 26.04.22
	3.4 Definition & Properties of Steam.	1		27.04.22
	3.5 Use of steam table & mollier chart for finding unknown properties.	3	MAY	28.04.22, 02.05.22, 04.05.22
	3.6 Non flow & flow process of vapour.	1		05.05.22
	3.7 P-V, T-S & H-S, diagram.	1		09.05.22
	3.8 Determine the changes in properties & solve simple numerical.	1		10.05.22
4	**Steam Generator**	12		
	4.1 Classification & types of Boiler.	2		11.05.22, 12.05.22
	4.2 Important terms for Boiler.	2		17.05.22, 18.05.22
	4.3 Comparison between fire tube & Water tube Boiler.	2		19.05.22, 23.05.22
	4.4 Description & working of common boilers (Cochran, Lancashire, Babcock & Wilcox Boiler)	2		25.05.22, 26.05.22
	4.5 Boiler Draught (Forced, induced & balanced)	2	JUNE	31.05.22, 01.06.22
	4.6 Boiler mountings & accessories.	2		02.06.22, 06.06.22
5	**Steam Power Cycles**	8		
	5.1 Carnot cycle with vapour.	1		07.06.22, 08.06.22
	5.2 Derive work & efficiency of the cycle.	1		09.06.22
	5.3 Rankine cycle.	1		13.06.22
	5.3.1 Representation in P-V, T-S & h-s diagram.	1		16.06.22
	5.3.2 Derive Work & Efficiency.	1		20.06.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
	5.3.3 Effect of Various end conditions in Rankine cycle.	1	JUNE	21.06.22
	5.3.4 Reheat cycle & regenerative Cycle.	1		22.06.22
	5.4 Solve simple numerical on Carnot vapour Cycle & Rankine Cycle.	1		23.06.22
6	**Heat Transfer**	8		
	6.1 Modes of Heat Transfer (Conduction, Convection, Radiation).	2		27.06.22, 28.06.22
	6.2 Fourier law of heat conduction and thermal conductivity (k).	2		29.06.22
	6.3 Newton's laws of cooling.	1		30.06.22
	6.4 Radiation heat transfer (Stefan, Boltzmann & Kirchhoff's law) only statement, no derivation & no numerical problem.	1		
	6.5 Black body Radiation, Definition of Emissivity, absorptivity, & transmissibility.	2		

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THEORY LESSON PLAN FOR THE SESSION 2021-22

BRANCH:-MECHANICAL ENGINEERING SEMESTER: 5TH SECTION:- MA & MB

NAME OF THE FACULTY : (1) ANUPAMA BEHERA (LECT. IN MGMT.), (2) ER. BABULAL MOHAPATRA, (LECT. IN ELECT. ENGG.)

SEMESTER FROM : 01.10.2021 to 31.01.2022 THEORY SUBJECT: ENTERPRENEURSHIP AND MANAGEMENT & SMART TECHNOLOGY (TH-1)

CLASS ALLOTTED /WEEK : 04 PERIODS

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	**Entrepreneurship**	10	OCTOBER	
	Concept /Meaning of Entrepreneurship and Need of Entrepreneurship	1		Dt·01·10·21, 04·10·21
	Characteristics, Qualities and Types of entrepreneur, Functions	1		Dt·05·10·21, 07·10·21
	Barriers in entrepreneurship	1		Dt·08·10·21, 09·10·21
	Entrepreneurs vrs. Manager	1		Dt·18·10·21, 19·10·21
	Forms of Business Ownership: Sole proprietorship, partnership forms and others	1		Dt·20·10·21, 21·10·21
	Types of Industries, Concept of Start-ups	1		Dt·22·10·21, 23·10·21
	Entrepreneurial support agencies at National, State, District Level(Sources): DIC, NSIC,OSIC, SIDBI, NABARD, Commercial Banks, KVIC etc.	2		Dt·25·10·21, 26·10·21, 01·11·21
	Technology Business Incubators (TBI) and Science and Technology Entrepreneur Parks	2	NOVEMBER	Dt·02·11·21, 03·11·21, 05·11·21
2	**Market Survey and Opportunity Identification (Business Planning)**	8		
	Business Planning	2		Dt·06·11·21, 08·11·21, 09·11·21
	SSI, Ancillary Units, Tiny Units, Service sector Units	1		Dt·10·11·21, 11·11·21

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
	Time schedule Plan, Agencies to be contacted for Project Implementation	1	NOVEMBER	Dt-12-11-21, 13-11-21
	Assessment of Demand and supply and Potential areas of Growth	1		Dt-15-11-21, 16-11-21
	Assessment of Demand and supply and Potential areas of Growth	1		Dt-17-11-21, 18-11-21
	Identifying Business Opportunity	1		Dt-20-11-21, 22-11-21
	Final Product selection	1		Dt-23-11-21, 24-11-21
3	**Project Report Preparation**	4		
	Preliminary project report	1		Dt-25-11-21, 26-11-21
	Detailed project report, Techno economic Feasibility	2		Dt-27-11-21, 29-11-21, 30-11-21
	Project Viability	1	DECEMBER	Dt-01-12-21, 02-12-21,
4	**Management Principles**	5		
	Definitions of management and Principles of management	1		Dt-03-12-21, 04-12-21, 06-12-21
	Functions of management (planning, organising, staffing, directing and controlling etc.)	2		Dt-07-12-21, 08-12-21, 09-12-21
	Level of Management in an Organisation	2		Dt-10-12-21, 11-12-21, 13-12-21

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
5	**Functional Areas of Management**	**10**		
	a) Production management: Functions, Activities, Productivity, Quality control, Production Planning and control	2	DECEMBER	Dt-14·12·21, 15·12·21, 16·12·21
	b) Inventory Management: Need for Inventory management, Models/Techniques of Inventory management	1		Dt·17·12·21, 18·12·21, 20·12·21
	c) Financial Management: Functions of Financial management, Management of Working capital, Costing (only concept), Break even Analysis, Brief idea about Accounting Terminologies: Book Keeping, Journal entry, Petty Cash book, P&L Accounts, Balance Sheets(only Concepts)	3		Dt·22·12·21, 22·12·21, 23·12·21 29·12·21,
	d)Marketing Management: Concept of Marketing and Marketing Management, Marketing Techniques (only concepts), Concept of 4P s (Price, Place, Product, Promotion)	2		Dt·25·12·21, 27·12·21,
	e) Human Resource Management: Functions of Personnel Management,Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of Testing, Methods of Training & Development, Payment of Wages	2		Dt·28·12·21, 29·12·21
6	**Leadership and Motivation**	**6**		
	a) Leadership: Definition and Need/Importance, Qualities and functions of a leader, Manager Vs Leader, Style of Leadership (Autocratic, Democratic, Participative)	2	DECEMBER	Dt·30·12·21, 31·12·21

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
	b) Motivation: Definition and characteristics, Importance of motivation, Factors affecting motivation, Theories of motivation (Maslow), Methods of Improving Motivation, Importance of Communication in Business,Types and Barriers of Communication	4	JANUARY	Dt. 03.01.22, 04.01.22, 05.01.22, 06.01.22
7	**Work Culture, TQM & Safety**	5		
	Human relationship and Performance in Organization	1		Dt. 07.01.22
	Relations with Peers, Superiors and Subordinates	1		Dt. 08.01.22
	TQM concepts: Quality Policy, Quality Management, Quality system	2		Dt. 10.01.22, 11.01.2022
	Accidents and Safety, Cause, preventive measures, General Safety Rules , Personal Protection Equipment(PPE)	1		Dt. 12.01.22, 13.01.2022
8	**Legislation**	6		
	Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights	2		Dt. 15.01.22, 17.01.22
	Features of Factories Act 1948 with Amendment (only salient points)	2		Dt. 18.01.22, 19.01.22
	Features of Payment of Wages Act 1936 (only salient points)	2		Dt. 20.01.22, 21.01.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
9	**Smart Technology**	**6**		
	Concept of IOT, How IOT works	1		01·22·03·22 , 29·01·22
	Components of IOT, Characteristics of IOT, Categories of IOT	2		01·25·01·22 , 27·01·22
	Applications of IOT- Smart Cities, Smart Transportation, Smart Home, Smart Healthcare, Smart Industry, Smart Agriculture, Smart Energy Management etc.	3		01·28·01·22 , 29·01·22 , 31·01·22

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THEORY LESSON PLAN FOR THE SESSION 2021-22

BRANCH:-MECHANICAL ENGINEERING SEMESTER: 5TH
SECTION: MA & MB

NAME OF THE FACULTY : (1) ER. TARANISEN MOHANTY
(2) ER. MADHUMITA SAHU (LECT. IN MECH. ENGG.)

SEMESTER FROM : 01.10.2021 to 31.01.2022

THEORY SUBJECT: DESIGN OF MACHINE ELEMENTS (TH-2)

CLASS ALLOTTED /WEEK : 04 PERIODS

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	INTRODUCTION	12	OCTOBER	
	Introduction to Machine Design and Classify it.	1		Dt-01.10.21, 04.10.21,
	Different mechanical engineering materials used in design with their uses and their mechanical and physical properties.	2		REVISION :- 29.01.22, 31.01.22 Dt-05.10.21, 07.10.21, 08.10.21
	Define working stress, yield stress, ultimate stress & factor of safety and stress –strain curve for M.S & C.I.	3		Dt-09.10.21, 18.10.21, 19.10.21, 20.10.21
	Modes of Failure (By elastic deflection, general yielding & fracture)	2		Dt-21.10.21, 22.10.21, 23.10.21
	State the factors governing the design of machine elements.	2		Dt-25.10.21, 26.10.21
	Describe design procedure.	2	NOVEMBER	
2	DESIGN OF FASTENING ELEMENTS	12		
	Joints and their classification.	2		Dt-01.11.21, 02.11.21, 03.11.21
	State types of welded joints and State advantages of welded joints over other joints.	2		Dt-05.11.21, 06.11.21, 08.11.21
	State types of riveted joints and types of rivets, Describe failure of riveted joints.	2		Dt-09.11.21, 10.11.21, 11.11.21
	Determine strength & efficiency of riveted joints.	2		Dt-12.11.21, 13.11.21, 15.11.21

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
	Design riveted joints for pressure vessel.	2		Dt·16·11·21, 17·11·21, 18·11·21
	Solve numerical on Welded Joint and Riveted Joints.	2		Dt· 20·11·21, 22·11·21, 23·11·21
3	**DESIGN OF SHAFTS AND KEYS**	**12**	NOVEMBER	
	State function of shafts, State materials for shafts	2		Dt· 24·11·21, 25·11·21, 26·11·21
	Design solid & hollow shafts to transmit a given power at given rpm based on a) Strength: (i) Shear stress, (ii) Combined bending tension; b) Rigidity: (i) Angle of twist, (ii) Deflection, (iii) Modulus of rigidity	2		Dt·27·11·21, 29·11·21, 30·11·21
	State standard size of shaft as per I.S.	1	DECEMBER	Dt· 01·12·21, 02·12·21
	State function of keys, types of keys & material of keys, Describe failure of key, effect of key way.	1		Dt·03·12·21
	Design rectangular sunk key considering its failure against shear & crushing	2		Dt·04·12·21, 06·12·21, 07·12·21
	Design rectangular sunk key by using empirical relation for given diameter of shaft.	2		Dt·07·12·21, 08·12·21, 09·12·21
	State specification of parallel key, gib-head key, taper key as per I.S.	2		Dt· 10·12·21, 11·12·21, 13·12·21
4	**DESIGN OF COUPLING**	**12**		
	Design of Shaft Coupling, Requirements of a good shaft coupling	3		Dt·14·12·21, 15·12·21, 16·12·21, 17·12·21
	Types of Coupling	1		Dt·18·12·21, 20·12·21
	Design of Sleeve or Muff-Coupling.	3		Dt. 21·12·21, 22·12·21, 23·12·21, 24·12·21

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
	Design of Clamp or Compression Coupling.	3	DECEMBER	Dt·25·12·21, 27·12·21, 28·12·21, 28·12·21
	Solve simple numerical on above	2		Dt·29·12·21, 30·12·21, 31·12·21
5	**DESIGN A CLOSED COIL HELICAL SPRING**	**12**		
	Materials used for helical spring.	1	JANUARY	Dt·03·01·22, 04·01·22
	Standard size spring wire. (SWG).	2		Dt·05·01·22, 06·01·22, 07·01·22
	Terms used in compression spring.	1		Dt·08·01·22, 10·01·22
	Stress in helical spring of a circular wire.	2		Dt·11·01·22, 12·01·22, 13·01·22
	Deflection of helical spring of circular wire.	2		Dt·15·01·22, 17·01·22, 18·01·22, 19·01·22
	Surge in spring	2		Dt·20·01·22, 21·01·22, 22·01·22, 24·01·22
	Solve numerical on design of closed coil helical compression spring.	2		Dt·25·01·22, 27·01·22, 28·01·22

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THEORY LESSON PLAN FOR THE SESSION 2021-22				
BRANCH:-MECHANICAL ENGINEERING SEMESTER: 5TH SECTION: MA & MB			NAME OF THE FACULTY : (1) ER. ABINASH SAHU, (2) ER. SUBHAM PRADHAN (LECT. IN MECH. ENGG.)	
SEMESTER FROM : 01.10.2021 to 31.01.2022 THEORY SUBJECT: HYDRAULIC MACHINES & INDUSTRIAL FLUID POWER (TH-3)				
CLASS ALLOTTED /WEEK : 04 PERIODS				
Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	**HYDRAULIC TURBINES**	10	OCTOBER	
	Definition and classification of hydraulic turbines	1		Dt· 01·10·21, 04·10·21
	Construction and working principle of impulse turbine.	1		Dt·05·10·21
	Velocity diagram of moving blades, work done and derivation of various efficiencies of impulse turbine.	1		Dt·07·10·21, 08·10·21
	Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine.	2		Dt·09·10·21, 18·10·21, 19·10·21
	Velocity diagram of moving blades, work done and derivation of various efficiencies of Francis turbine.	2		Dt·20·10·21, 21·10·21, 22·10·21
	Numerical on above	2		Dt·23·10·21, 25·10·21, 26·10·21
	Distinguish between impulse turbine and reaction turbine.	1	NOVEMBER	Dt·01·11·21, 02·11·21
2	**CENTRIFUGAL PUMPS**	5		
	Construction and working principle of centrifugal pumps	1		Dt·03·11·21, 05·11·21
	work done and derivation of various efficiencies of centrifugal pumps.	2		Dt·06·11·21, 08·11·21, 09·11·21
	Numerical on above	2		Dt·10·11·21, 11·11·21, 12·11·21

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
3	**RECIPROCATING PUMPS**	**10**	NOVEMBER	
	Describe construction & working of single acting reciprocating pump.	2		Dt·13·11·21, 15·11·21, 16·11·21
	Describe construction & working of double acting reciprocating pump.	2		Dt·17·11·21, 18·11·21, 20·11·21
	Derive the formula foe power required to drive the pump (Single acting & double acting)	3		Dt·22·11·21, 23·11·21, 24·11·21, 25·11·21
	Define slip, State positive & negative slip & establish relation between slip & coefficient of discharge.	1		Dt·26·11·21, 27·11·21, 29·11·21
	Solve numerical on above	2		Dt·30·11·21, 01·12·21, 02·12·21
4	**PNEUMATIC CONTROL SYSTEM**	**15**	DECEMBER	
	Elements –filter-regulator-lubrication unit	2		Dt·03·12·21, 04·12·21, 06·12·21
	Pressure control valves: Pressure relief valves, Pressure regulation valves	3		Dt·07·12·21, 08·12·21, 09·12·21, 10·12·21
	Direction control valves:3/2DCV, 5/2 DCV,5/3DCV ,Flow control valves, Throttle valves	3		Dt·11·12·21, 13·12·21, 14·12·21, 15·12·21
	ISO Symbols for hydraulic components.	2		Dt·16·12·21, 17·12·21, 18·12·21
	Pneumatic circuits: Direct control of single acting cylinder, Operation of double acting cylinder, Operation of double acting cylinder with metering in and metering out control	5		Dt·20·12·21, 21·12·21, 22·12·21 23·12·21, 24·12·21, 25·12·21, 27·12·21 28·12·21
5	**HYDRAULIC CONTROL SYSTEM**	**20**		
	Hydraulic system, its merit and demerits	1		Dt·29·12·21, 30·12·21, 31·12·21
	Hydraulic accumulators, Pressure control valves, Pressure relief valves, Pressure regulation valves	3	JANUARY	Dt·03·01·22, 04·01·22, 05·01·22
	Direction control valves: 3/2DCV,5/2 DCV,5/3DCV,Flow control valves, Throttle valves	3		06·01·22, 07·01·22, 08·01·22, 10·01·22
	Fluid power pumps: External and internal gear pumps,Vane pump,Radial piston pumps	3		Dt·11·01·22, 12·01·22, 13·01·22, 15·01·22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
	ISO Symbols for hydraulic components.	2		Dt. 17.01.22, 18.01.22, 19.01.22 20.01.22
	Actuators	3		Dt. 21.01.22, 22.01.22, 24.01.22, 25.01.22
	Hydraulic circuits: Direct control of single acting cylinder, Operation of double acting cylinder, Operation of double acting cylinder with metering in and metering out control	3		Dt. 27.01.22, 28.01.22, 29.01.22
	Comparison of hydraulic and pneumatic system	2		Dt. 31.01.22.

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SEMESTER FROM : 01.10.2021 to 31.01.2022			THEORY SUBJECT: MECHATRONICS (TH-4)	
CLASS ALLOTTED /WEEK : 04 PERIODS				
Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	**INTRODUCTION TO MECHATRONICS**	**5**	OCTOBER	.
	Definition of Mechatronics:Advantages & disadvantages of Mechatronics, Application of Mechatronics	2		Dt·01·10·21, 04·10·21, 05·10·21
	Scope of Mechatronics in Industrial Sector	1		Dt·07·10·21, 08·10·21
	Components of a Mechatronics System	1		Dt·09·10·21, 18·10·21
	Importance of mechatronics in automation	1		Dt·19·10·21, 20·10·21
2	**SENSORS AND TRANSDUCERS**	**10**	OCTOBER	
	Defination of Transducers, Classification of Transducers	1		Dt·21·10·21, 22·10·21
	Electromechanical Transducers	2		Dt·23·10·21, 25·10·21, 26·10·21
	Transducers Actuating Mechanisms	2	NOVEMBER	Dt·01·11·21, 02·11·21, 03·11·21
	Displacement & Positions Sensors	2		Dt·05·11·21, 06·11·21, 08·11·21
	Velocity, motion, force and pressure sensors.	2		Dt·09·11·21, 10·11·21, 11·11·21
	Temperature and light sensors.	1		Dt·12·11·21

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
3	**ACTUATORS-MECHANICAL, ELECTRICAL**	**10**	NOVEMBER	
	Mechanical Actuators: Machine, Kinematic Link, Kinematic Pair Mechanism, Slider crank Mechanism, Gear Drive, Spur gear, Bevel gear, Helical gear, worm gear, Belt & Belt drive, Bearings	6		Dt·13·11·21, 15-11·21, 16·11·21, 17·11·21 18·11·21, 20-11·21, 22·11·21, 23·11·21 24·11·21, 25·11·21
	Electrical Actuator: a)Switches and relaySolenoid b) D.C Motors c) A.C Motors d)Stepper Motors e)Specification and control of stepper motors f)Servo Motors D.C & A.C	4		Dt· 26-11·21, 27·11·21, 29·11·21, 30·11·21 Dt· 01·12·21, 02·12·21
4	**PROGRAMMABLE LOGIC CONTROLLERS(PLC)**	**15**	DECEMBER	
	Introduction, Advantages of PLC	2		Dt 03·12·21, 04·12·21, 06·12·21
	Selection and uses of PLC	2		Dt·07·12·21, 08·12·21, 09·12·21
	Architecture basic internal structures	3		Dt.10·12·21, 11·12·21, 13·12·21, 14·12·21 Dt·15·12·21
	Input/output Processing and Programming	3		Dt·16·12·21, 17·12·21, 18·12·21
	Mnemonics	2		Dt· 20·12·21, 21·12·21, 22·12·21
	Master and Jump Controllers	3		Dt 23·12·21 24·12·21, 25·12·21 Dt· 27·12·21

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
5	ELEMENTS OF CNC MACHINES	15	DECEMBER	
	Introduction to Numerical Control of machines and CAD/CAM: NC machines, CNC machines, CAD/CAM, CAD,CAM, Software and hardware for CAD/CAM,Functioning of CAD/CAM system, Features and characteristics of CAD/CAM system,Application areas for CAD/CAM	8		Dt. 28.12.21, 29.12.21, 30.12.21 Dt. 31.12.21, 03.01.22, 04.01.22, 05.1.22, 06.01.22, 07.01.22 08.01.22
	elements of CNC machines: Introduction , Machine Structure ,Guideways/Slide ways, Introduction and Types of Guideways ,Factors of design of guideways, Drives,Spindle drives ,Feed drive 5.2.5 Spindle and Spindle Bearings	7		Dt. 10.01.22, 11.01.22, 12.01.22 13.01.22, 15.01.22, 17.01.22 18.01.22, 19.01.22, 20.01.22 21.01.22
6	ROBOTICS	5	JANUARY	
	Definition, Function and laws of robotics	1		Dt. 22.01.22
	Types of industrial robots	1		Dt. 24.01.22, 25.01.22
	Robotic systems	2		Dt. 27.01.22, 28.01.22, 29.01.22
	Advantages and Disadvantages of robots	1		Dt. 31.01.22

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BRANCH:-MECHANICAL ENGINEERING SEMESTER: 5TH SECTION: MA & MB

NAME OF THE FACULTY : (1) ER. DEWAN KUMAR SAHU
(2) ER. LAKIN KU. SAHU (LECT. IN MECH. ENGG.)

SEMESTER FROM : 01.10.2021 to 31.01.2022

THEORY SUBJECT: REFRIGERATION AND AIR CONDITIONING (TH-5)

CLASS ALLOTTED /WEEK : 04 PERIODS

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	AIR REFRIGERATION CYCLE	5		
	Definition of refrigeration and unit of refrigeration	1	OCTOBER	Dt. 01.10.21,
	Definition of COP, Refrigerating effect (R.E)	2		Dt. 04.10.21, 5.10.21,
	Principle of working of open and closed air system of refrigeration. 1.3.1 Calculation of COP of Bell-Coleman cycle and numerical on it	2		Dt: 07.10.21, 08.10.21, 09.10.21
2	SIMPLE VAPOUR COMPRESSION REFRIGERATION SYSTEM	10		
	schematic diagram of simple vapors compression refrigeration system, Types	1		Dt.18.10.21, 19.10.21
	Cycle with dry saturated vapors after compression.	1		Dt. 20.10.21, 21.10.21
	Cycle with wet vapors after compression	1		Dt. 22.10.21
	Cycle with superheated vapors after compression	1		Dt. 23.10.21, 25.10.21
	Cycle with superheated vapors before compression.	1		Dt. 26.10.21.
	Cycle with sub cooling of refrigerant	1	NOVEMBER	Dt. 01.11.21
	Representation of above cycle on temperature entropy and pressure enthalpy diagram	2		Dt. 02.11.21, 03.11.21
	Numerical on above (determination of COP,mass flow)	2		Dt. 05.11.21, 06.11.21, 08.11.21
3	VAPOUR ABSORPTION REFRIGERATION SYSTEM	7		
	Simple vapor absorption refrigeration system	1		Dt. 09.11.21, 10.11.21,
	Practical vapor absorption refrigeration system	2		Dt. 11.11.21, 12.11.21

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
	COP of an ideal vapor absorption refrigeration system	2		Dt·13·11·21, 15·11·21,
	Numerical on COP	2		Dt·16·11·21, 17·11·21, 18·11·21
	REFRIGERATION EQUIPMENTS	**8**		
4	REFRIGERANT COMPRESSORS: a)Principle of working and constructional details of reciprocating and rotary compressors b)Centrifugal compressor only theory c)Important terms d)Hermetically and semi hermetically sealed compressor.	3	NOVEMBER	Dt·20·11·21, 22·11·21, 23·11·21 29·11·21, 25·11·21
	CONDENSERS: a)Principle of working and constructional details of air cooled and water cooled condenser, b)Heat rejection ratio, c)Cooling tower and spray pond.	2		Dt·26·11·21, 27·11·21, 29·11·21 30·11·21
	EVAPORATORS: a)Principle of working and constructional details of an evaporator, b)Types of evaporator, c)Bare tube coil evaporator, finned evaporator, shell and tube evaporator	3	DECEMBER	Dt: 01·12·21, 02·12·21, 03·12·21 04·12·21, 06·12·21
	REFRIGERANT FLOW CONTROLS, REFRIGERANTS & APPLICATION OF REFRIGERANTS	**10**		
	EXPANSION VALVES: a) Capillary tube, b)Automatic expansion valve, c)Thermostatic expansion valve	3		Dt·07·12·21, 08·12·21, 09·12·21, 10·12·21
5	REFRIGERANTS: a) Classification of refrigerants b)Desirable properties of an ideal refrigerant. c) Designation of refrigerant. d) Thermodynamic Properties of Refrigerants. e)Chemical properties of refrigerants. f) commonly used refrigerants, R-11, R-12, R-22, R-134a, R-717 g)Substitute for CFC	5		Dt·11·12·21, 13·12·21, 14·12·21 15·12·21, 16·12·21, 17·12·21 18·12·21, 20·12·21, 21·12·21

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
	Applications of refrigeration: a)cold storageb)dairy refrigeration, c) ice plant , d) water cooler , e) frost free refrigerator	2		Dt·22·12·21 , 23·12·21 , 29·12·21
6	**PSYCHOMETRICS &COMFORT AIR CONDITIONING SYSTEMS**	**10**		
	Psychometric terms	1		Dt·25·12·21 , 27·12·21 ,
	Adiabatic saturation of air by evaporation of water	1		Dt· 28·12·21 , 29·12·21 ,
	Psychometric chart and uses.	2		Dt· 30·12·21 , 31·12·21
	Psychometric processes:a) Sensible heating and Cooling, b)Cooling and Dehumidification c)Heating and Humidification, d)Adiabatic cooling with humidification, e)Total heating of a cooling process, f)SHF, BPF, g)Adiabatic mixing, h)Problems on above.	4	JANUARY	Dt·03·01·22 , 04·01·22 , 05·01·22 , 06·01·22 , 07·01·22 , 08·01·22
	Effective temperature and Comfort chart	2		Dt·10·01·22 , 11·01·22 , 12·01·22 ,
7	**AIR CONDITIONING SYSTEMS**	**10**		
	Factors affecting comfort air conditioning	1		Dt·13·01·22 , 15·01·22 .
	Equipment used in an air-conditioning	1		Dt·17·01·22 , 18·01·22 ,
	Classification of air-conditioning system	1		Dt·19·01·22 , 20·01·22 ,
	Winter Air Conditioning System	2		Dt·21·01·22 , 22·01·22 ; 29·01·22
	Summer air-conditioning system.	2		Dt· 25·01·22 , 27·01·22 ·
	Numerical on above	3		Dt· 28·01·22 , 29·01·22 , 31·01·22

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BRANCH:-MECHANICAL ENGINEERING SEMESTER: 6TH SECTION: MA			NAME OF THE FACULTY : (1) ER. DEWAN KU. SAHU, (2) ER. RASABIHARI SAHOO, (3) ER. SUBHAM PRADHAN (LECT. IN MECH. ENGG.)	
SEMESTER FROM : 14.03.2022 to 30.06.2022			THEORY SUBJECT: INDUSTRIAL ENGG. & MANAGEMENT (TH-1)	
CLASS ALLOTTED /WEEK : 04 PERIODS				
Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	**PLANT ENGINEERING**	10		
	Selection of Site of Industry.	1	MARCH	Dt. 14.03.2022
	Define plant layout.	2		Dt. 15.03.2022 , 16.03.2022
	Describe the objective and principles of plant layout.	1		Dt. 17.03.2022
	Explain Process Layout, Product Layout and Combination Layout.	1		Dt. 21.03.2022
	Techniques to improve layout	1		Dt. 22.03.2022
	Principles of material handling equipment.	1		Dt. 23.03.2022
	Plant maintenance: a)Importance of plant maintenance b)Break down maintenance C)Preventive maintenance d)Scheduled maintenance	3		Dt. 24.03.2022 , 25.03.2022 , 28.03.2022 , 29.03.2022
2	**OPERATIONS RESEARCH:**	10		
	Introduction to Operations Research and its applications	2		Dt. 29.03.2022 , 30.03.2022, 31.03.2022
	Define Linear Programming Problem	1	APRIL	Dt. 04.04.2022
	Solution of L.P.P. by graphical method	3		Dt. 05.04.2022 , 06.04.2022 , 07.04.2022
	Evaluation of Project completion time by Critical Path Method and PERT (Simple problems)	2		Dt. 08.04.2022 , 12.04.2022 , 13.04.2022
	Explain distinct features of PERT with respect to CPM.	2		Dt. 14.04.2022 , 18.04.2022

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
3	**INVENTORY CONTROL**	**10**		
	Classification of inventory ,Objective of inventory control.	1		Dt. 19.04.2022
	Describe the functions of inventories.	1		Dt. 20.04.2022
	Benefits of inventory control.	1		Dt. 21.04.2022
	Costs associated with inventory	2		Dt. 22.04.2022 , 25.04.2022
	Terminology in inventory control	1		Dt. 26.04.2022
	Explain and Derive economic order quantity for Basic model. (Solve numerical)	2		Dt. 27.04.2022 , 28.04.2022
	Define and Explain ABC analysis	2		Dt. 29.04.2022 , 02.05.2022 , 04.05.2022
4	**INSPECTION AND QUALITY CONTROL:**	**15**		
	Define Inspection and Quality control.	1	MAY	Dt. 06.05.2022
	Describe planning of inspection.	2		Dt. 09.05.2022 , 10.05.2022, 11.05.2022
	Describe types of inspection.	2		Dt. 12.05.2022 , 13.05.2022 , 17.05.2022
	Advantages and disadvantages of quality control.	1		Dt. 18.05.2022
	Study of factors influencing the quality of manufacture.	1		Dt. 19.05.2022 , 20.05.2022
	Explain the Concept of statistical quality control, Control charts (X, R, P and C - charts).	2		Dt. 23.05.2022 , 25.05.2022
	Methods of attributes.	1		Dt. 26.05.2022
	Concept of ISO 9001-2008.	2		Dt. 27.05.2022 , 31.05.2022
	Quality management system, Registration / certification procedure, Benefits of ISO to the organization,JIT, Six sigma,7S, Lean manufacturing ,Solve related problems	3	JUNE	Dt. 01.06.2022 , 02.06.2022 , 03.06.2022

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
5	PRODUCTION PLANNING AND CONTROL	15		
	Introduction	2	JUNE	Dt. 06.06.2022., 07.06.2022,
	Major functions of production planning and control	3		Dt. 08.06.2022, 09.06.2022, 10.06.2022
	Methods of forecasting: a)Routing b)Scheduling c)Dispatching d)Controlling	4		Dt. 13.06.2022, 16.06.2022, 17.06.2022, 20.06.2022
	Types of production: a)Mass production b)Batch production c)Job order production	3		Dt. 21.06.2022, 22.06.2022 23.06.2022, 24.06.2022
	Principles of product and process planning.	3		Dt. 27.06.2022, 28.06.2022, 29.06.2022, 30.06.2022

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THEORY LESSON PLAN FOR THE SESSION 2021-22				
BRANCH:-MECHANICAL ENGINEERING SEMESTER: 6TH SECTION: MA			NAME OF THE FACULTY : (1) ER. TARANISEN MOHANTY (2) ER. MANAS RANJAN BEHERA, (3) ER. GOURI SANKAR PRADHAN (LECT. IN MECH. ENGG.)	
SEMESTER FROM : 14.03.2022 to 30.06.2022			THEORY SUBJECT: AUTOMOBILE ENGINEERING (TH-2)	
CLASS ALLOTTED /WEEK : 04 PERIODS				
Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	**INTRODUCTION & TRANSMISSION SYSTEM :**	12		
	Automobiles: Definition, need and classification: Layout of automobile chassis with major components (Line diagram)	2	March	Dt. 14.03.2022 , 15.03.2022
	Clutch System: Need, Types (Single & Multiple) and Working principle with sketch	2		Dt. 16.03.2022 , 17.03.2022 , 21.03.2022
	Gear Box: Purpose of gear box, Construction and working of a 4 speed gear box	2		Dt. 22.03.2022 , 23.03.2022
	Concept of automatic gear changing mechanisms	2		Dt. 24.03.2022 , 25.03.2022
	Propeller shaft: Constructional features	2		Dt. 28.03.2022 , 29.03.2022
	Differential: Need, Types and Working principle	2		Dt. 30.03.2022 , 31.03.2022
2	**BRAKING SYSTEM**	5		
	Braking systems in automobiles: Need and types	1	April	Dt. 04.04.2022
	Mechanical Brake	1		Dt. 05.04.2022
	draulic Brake	1		Dt. 06.04.2022
	Air Brake	1		Dt. 07.04.2022
	Air assisted Hydraulic Brake, Vacuum Brake	1		Dt. 08.04.2022
3	**IGNITION & SUSPENSION SYSTEM**	10		
	Describe the Battery ignition and Magnet ignition system	1		Dt. 11.04.2022 , 12.04.2022
	Spark plugs: Purpose, construction and specifications	1		Dt. 13.04.2022 , 18.04.2022

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
	State the common ignition troubles and its remedies	2		Dt. 19.04.2022 , 20.04.2022, 21.04.2022
	Description of the conventional suspension system for Rear and Front axle	2		Dt. 22.04.2022 , 25.04.2022 26.04.2022
	Description of independent suspension system used in cars (coil spring and tension bars)	2		Dt. 27.04.2022 , 28.04.2022 29.04.2022
	Constructional features and working of a telescopic shock absorber	2	May	Dt. 02.05.2022 , 04.05.2022
4	**COOLING AND LUBRICATION**	**8**		
	Engine cooling: Need and classification	2		Dt. 05.05.2022 , 06.05.2022
	Describe defects of cooling and their remedial measures	2		Dt. 09.05.2022 , 10.05.2022
	Describe the Function of lubrication	2		Dt. 11.05.2022 , 12.05.2022
	Describe the lubrication System of I.C. engine	2		Dt. 13.05.2022 , 17.05.2022
5	**FUEL SYSTEM:**	**10**		
	Describe Air fuel ratio	1		Dt. 18.05.2022
	Describe Carburetion process for Petrol Engine	2		Dt. 19.05.2022 , 20.05.2022
	Describe Multipoint fuel injection system for Petrol Engine	1		Dt. 23.05.2022 , 24.05.2022
	Describe the working principle of fuel injection system for multi cylinder Engine	2		Dt. 25.05.2022 , 26.05.2022
	Filter for Diesel engine	2		Dt 27.05.2022 , 31.05.2022
	Describe the working principle of Fuel feed pump and Fuel Injector for Diesel engine	2	June	Dt. 01.06.2022 , 02.06.2022

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
6	**ELECTRIC AND HYBRID VEHICLES**	15		
	Introduction, Social and Environmental importance of Hybrid and Electric Vehicles	2		Dt. 03.06.2022, 06.06.2022 07.06.2022
	6.2 Description of Electric Vehicles, operational advantages, present performance and applications of Electric Vehicles	4		Dt. 08.06.2022, 09.06.2022, 10.06.2022, 13.06.2022
	6.3 Battery for Electric Vehicles, Battery types and fuel cells	2		Dt. 16.06.2022, 17.06.2022 20.06.2022
	6.4 Hybrid vehicles, Types of Hybrid and Electric Vehicles: Parallel, Series, Parallel and Series configurations;	2		Dt. 21.06.2022, 22.06.2022
	6.5 Drive train	2		Dt. 23.06.2022, 24.06.2022
	6.6 Solar powered vehicles	3		Dt. 27.06.2022, 28.06.2022 29.06.2022, 30.06.2022.

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THEORY LESSON PLAN FOR THE SESSION 2021-22				
BRANCH:-MECHANICAL ENGINEERING SEMESTER: 6TH SECTION: MA			NAME OF THE FACULTY : (1) ER. DEWAN KU. SAHU, (2) ER. SAMIR SAHU (LECT. IN MECH. ENGG.)	
SEMESTER FROM : 14.03.2022 to 30.06.2022			THEORY SUBJECT: POWER STATION ENGINEERING (TH-3)	
CLASS ALLOTTED /WEEK : 04 PERIODS				
Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	**INTRODUCTION:**	**5**		
	1.1 Describe sources of energy.	1	March	Dt.14.03.2022
	1.2 Explain concept of Central and Captive power station.	1		Dt.15.03.2022
	1.3 Classify power plants.	1		Dt.16.03.2022
	1.4 Importance of electrical power in day today life.	1		Dt.17.03.2022
	1.5 Overview of method of electrical power generation.	1		Dt.21.03.2022
2	**THERMAL POWER STATIONS:**	**20**		
	2.1 Layout of steam power stations.	1		Dt.22.03.2022
	2.2 Steam power cycle. Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency	2		Dt.23.03.2022 , 24.03.2022
	2.3 Explain Rankine cycle with P-V, T-S & H-s diagram and determine thermal efficiency, Work done, work ratio, and specific steam Consumption.	2		Dt.28.03.2022 , 29.03.2022
	2.4 Solve Simple Problems.	2		Dt.30.03.2022
	2.5. List of thermal power stations in the state with their capacities.	1		Dt.31.03.2022

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
	2.6 Boiler Accessories: Operation of Air pre heater, Operation of Economiser, Operation Electrostatic precipitator and Operation of super heater. Need of boiler mountings and operation of boiler	2	April	Dt. 04.04.2022 , 05.04.2022
	2.7 Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages.	2		Dt. 06.04.2022 , 07.04.2022
	2.8 Steam prime movers: Advantages & disadvantages of steam turbine, Elements of steam turbine, governing of steam turbine. Performance of steam turbine: Explain Thermal efficiency, Stage efficiency and Gross efficiency	2		Dt. 11.04.2022 , 12.04.2022
	2.9 Steam condenser: Function of condenser, Classification of condenser. function of condenser auxiliaries such as hot well, condenser extraction pump, air extraction pump, and circulating pump.	2		Dt. 13.04.2022 , 18.04.2022
	2.10 Cooling Tower: Function and types of cooling tower, and spray ponds	2		Dt. 19.04.2022 , 20.04.2022
	2.11 Selection of site for thermal power stations.	2		Dt. 21.04.2022
3	**NUCLEAR POWER STATIONS:**	**10**		
	3.1 Classify nuclear fuel (Fissile & fertile material)	1		Dt. 25.04.2022
	3.2 Explain fusion and fission reaction.	1		Dt. 26.04.2022
	3.3 Explain working of nuclear power plants with block diagram .	1		Dt. 27.04.2022
	3.4 Explain the working and construction of nuclear reactor .	2		Dt. 28.04.2022 , 02.05.2022

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
	3.5 Compare the nuclear and thermal plants.	1	May	Dt. 04.05.2022
	3.6 Explain the disposal of nuclear waste.	1		Dt. 05.05.2022
	3.7 Selection of site for nuclear power stations.	2		Dt. 09.05.2022 , 10.05.2022
	3.8 List of nuclear power stations.	1		Dt. 11.05.2022
4	**DIESEL ELECTRIC POWER STATIONS:**	**10**		
	4.1 State the advantages and disadvantages of diesel electric power stations.	2		Dt. 12.05.2022 , 17.05.2022
	4.2 Explain briefly different systems of diesel electric power stations: Fuel storage and fuel supply system, Fuel injection system, Air supply system, Exhaust system, cooling system, Lubrication system, starting system, governing system.	3		Dt 18.05.2022 , 19.05.2022 23.05.2022 .
	4.3 Selection of site for diesel electric power stations.	3		Dt. 25.05.2022 , 26.05.2022 31.05.2022
	4.4 Performance and thermal efficiency of diesel electric power stations.	2	June	Dt. 01.06.2022 , 02.06.2022
5	**HYDEL POWER STATIONS:**	**10**		Dt.
	5.1 State advantages and disadvantages of hydroelectric power plant.	1		Dt. 06.06.2022
	5.2 Classify and explain the general arrangement of storage type hydroelectric project and explain its operation.	2		Dt. 07.06.2022 , 08.06.2022
	5.3 Selection of site of hydel power plant.	2		Dt. 09.06.2022 , 13.06.2022

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
	5.4 List of hydro power stations with their capacities and number of units in the state.	2		Dt. 16.06.2022 , 20.06.2022
	5.5 Types of turbines and generation used.	2		Dt. 21.06.2022 , 22.06.2022
	5.6 Simple problems.	1		Dt. 23.06.2022 ,
6	**GAS TURBINE POWER STATIONS**	**5**		
	6.1 Selection of site for gas turbine stations.	1		Dt. 27.06.2022
	6.2 Fuels for gas turbine	1		Dt. 28.06.2022
	6.3 Elements of simple gas turbine power plants	1		Dt. 29.06.2022
	6.4 Merits, demerits and application of gas turbine power plants.	2		Dt. 30.06.2022

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THEORY LESSON PLAN FOR THE SESSION 2021-22				
BRANCH:-MECHANICAL ENGINEERING SEMESTER: 6TH SECTION: MA			NAME OF THE FACULTY : (1) ER. SUBHASMITA JENA, (2) ER. MADHUMITA SAHOO (LECT. IN MECH. ENGG.)	
SEMESTER FROM : 14.03.2022 to 30.06.2022			THEORY SUBJECT: ADVANCE MANUFACTURING PROCESS (TH-4B)	
CLASS ALLOTTED /WEEK : 04 PERIODS				
Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	**Modern Machining Processes:**	**20**		
	1.1 Introduction – comparison with traditional machining.	1	MARCH	14·03·22
	1.2 Ultrasonic Machining: principle, Description of equipment, applications.	2		15·03·22, 16·03·22
	1.3 Electric Discharge Machining: Principle, Description of equipment, Dielectric fluid, tools (electrodes), Process parameters, Output characteristics, applications.	5		17·03·22, 21·03·22, 22·03·22 23·03·22, 24·03·22
	1.4 Wire cut EDM: Principle, Description of equipment, controlling parameters; applications.	2		28·03·22, 29·03·22
	1.5 Abrasive Jet Machining: principle, description of equipment, Material removal rate, application.	2		30·03·22, 31·03·22
	1.5 Laser Beam Machining: principle, description of equipment, Material removal rate, application.	2	APRIL	04·04·22, 05·04·22
	1.6 Electro Chemical Machining: principle, description of equipment, Material removal rate, application.	2		06·04·22, 07·04·22
	1.7 Plasma Arc Machining – principle, description of equipment, Material removal rate, Process parameters, performance characterization, Applications.	2		12·04·22, 13·04·22
	1.8 Electron Beam Machining - principle, description of equipment, Material removal rate, Process parameters, performance characterization, Applications.	2		14·04·22, 18·04·22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
2	**Plastic Processing:**	10		
	2.1 Processing of plastics.	2	APRIL	19.04.22, 20.04.22
	2.2 Moulding processes: Injection moulding, Compression moulding, Transfer moulding.	2		21.04.22, 25.04.22
	2.3 Extruding; Casting; Calendering.	2		26.04.22, 27.04.22, 28.04.22
	2.4 Fabrication methods-Sheet forming, Blow moulding, Laminating plastics (sheets, rods & tubes), Reinforcing.	2	MAY	02.05.22, 04.05.22,
	2.5 Applications of Plastics.	2		05.05.22, 09.05.22
3	**Additive Manufacturing Process:**	15		
	3.1 Introduction, Need for Additive Manufacturing	2		10.05.22, 11.05.22
	3.2 Fundamentals of Additive Manufacturing, AM Process Chain	3		12.05.22, 17.05.22, 18.05.22
	3.3 Advantages and Limitations of AM, Commonly used Terms	2		19.05.22, 23.05.22
	3.4 Classification of AM process, Fundamental Automated Processes, Distinction between AM and CNC, other related technologies.	2		25.05.22, 26.05.22
	3.5 Application –Application in Design, Aerospace Industry, Automotive Industry, Jewelry Industry, Arts and Architecture, RP Medical and Bioengineering Applications.	2		31.05.22, 01.06.22
	3.6 Web Based Rapid Prototyping Systems.	2	JUNE	02.06.22, 06.06.22
	3.7 Concept of Flexible manufacturing process, concurrent engineering, production tools like capstan and turret lathes, rapid prototyping processes.	2		07.06.22, 08.06.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
4	**Special Purpose Machines (SPM):**	7		
	4.1 Concept, General elements of SPM, Productivity improvement by SPM, Principles of SPM design.	7		09.06.22, 13.06.22, 16.06.22 20.06.22, 21.06.22, 22.06.22 23.06.22
5	**Maintenance of Machine Tools:**	8		
	5.1 Types of maintenance, Repair cycle analysis, Repair complexity, Maintenance manual, Maintenance records, Housekeeping. Introduction to Total Productive Maintenance (TPM).	8		27.06.22, 28.06.22, 29.06.22 30.06.22

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THEORY LESSON PLAN FOR THE SESSION 2021-22				
BRANCH:-MECHANICAL ENGINEERING SEMESTER: 6TH SECTION: MB			NAME OF THE FACULTY : (1) ER. DEWAN KU. SAHU, (2) ER. RASABIHARI SAHOO, (3) ER. SUBHAM PRADHAN (LECT. IN MECH. ENGG.)	
SEMESTER FROM : 14.03.2022 to 30.06.2022			THEORY SUBJECT: INDUSTRIAL ENGG. & MANAGEMENT (TH-1)	
CLASS ALLOTTED /WEEK : 04 PERIODS				
Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	**PLANT ENGINEERING**	**10**		
	Selection of Site of Industry.	1	MARCH	Dt. 14.03.2022 ,
	Define plant layout.	2		Dt. 15.03.2022 , 16.03.2022
	Describe the objective and principles of plant layout.	1		Dt. 17.03.2022
	Explain Process Layout, Product Layout and Combination Layout.	1		Dt. 21.03.2022
	Techniques to improve layout	1		Dt. 22.03.2022
	Principles of material handling equipment.	1		Dt. 23.03.2022
	Plant maintenance: a)Importance of plant maintenance b)Break down maintenance C)Preventive maintenance d)Scheduled maintenance	**3**		Dt. 24.03.2022 , 28.03.2022 29.03.2022
2	**OPERATIONS RESEARCH:**	**10**		
	Introduction to Operations Research and its applications	2		Dt. 30.03.2022
	Define Linear Programming Problem	1		Dt. 31.03.2022
	Solution of L.P.P. by graphical method	3	APRIL	Dt. 04.04.2022 , 05.04.2022
	Evaluation of Project completion time by Critical Path Method and PERT (Simple problems)	2		Dt. 06.04.2022 , 07.04.2022
	Explain distinct features of PERT with respect to CPM.	2		Dt. 11.04.2022 , 12.04.2022.

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
3	**INVENTORY CONTROL**	**10**		
	Classification of inventory ,Objective of inventory control.	1		Dt. 13.04.2022
	Describe the functions of inventories.	1		Dt. 18.04.2022
	Benefits of inventory control.	1		Dt. 19.04.2022
	Costs associated with inventory	2		Dt. 20.04.2022 , 21.04.2022
	Terminology in inventory control	1		Dt. 25.04.2022
	Explain and Derive economic order quantity for Basic model. (Solve numerical)	2		Dt. 26.04.2022 , 27.04.2022
	Define and Explain ABC analysis	2		Dt. 28.04.2022
4	**INSPECTION AND QUALITY CONTROL:**	**15**		
	Define Inspection and Quality control.	1		Dt. 29.04.2022
	Describe planning of inspection.	2	MAY	Dt. 02.05.2022 , 04.05.2022
	Describe types of inspection.	2		Dt. 06.05.2022 , 09.05.2022
	Advantages and disadvantages of quality control.	1		Dt. 10.05.2022
	Study of factors influencing the quality of manufacture.	1		Dt. 11.05.2022
	Explain the Concept of statistical quality control, Control charts (X, R, P and C - charts).	**2**		Dt. 12.05.2022 , 17.05.2022
	Methods of attributes.	1		Dt. 19.05.2022
	Concept of ISO 9001-2008.	2		Dt. 23.05.2022 , 26.05.2022
	Quality management system, Registration / certification procedure, Benefits of ISO to the organization, JIT, Six sigma, 7S, Lean manufacturing ,Solve related problems	3		Dt. 31.05.2022 , 01.06.2022 02.06.2022.

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
5	PRODUCTION PLANNING AND CONTROL	15		
	Introduction	2	JUNE	Dt. 06.06.2022, 07.06.2022
	Major functions of production planning and control	3		Dt. 08.06.2022, 09.06.2022, 13.06.2022
	Methods of forecasting: a)Routing b)Scheduling c)Dispatching d)Controlling	4		Dt. 16.06.2022, 20.06.2022, 21.06.2022, 22.06.2022
	Types of production: a)Mass production b)Batch production c)Job order production	3		Dt. 23.06.2022, 27.06.2022 28.06.2022
	Principles of product and process planning.	3		Dt. 29.06.2022, 30.06.2022

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THEORY LESSON PLAN FOR THE SESSION 2021-22				
BRANCH:-MECHANICAL ENGINEERING SEMESTER: 6TH SECTION: MB			NAME OF THE FACULTY : (1) ER. TARANISEN MOHANTY (2) ER. MANAS RANJAN BEHERA, (3) ER. GOURI SANKAR PRADHAN (LECT. IN MECH. ENGG.)	
SEMESTER FROM : 14.03.2022 to 30.06.2022			THEORY SUBJECT: AUTOMOBILE ENGINEERING (TH-2)	
CLASS ALLOTTED /WEEK : 04 PERIODS				
Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	**INTRODUCTION & TRANSMISSION SYSTEM :**	**12**		
	Automobiles: Definition, need and classification: Layout of automobile chassis with major components (Line diagram)	2	March	Dt. 14.03.2022 , 15.03.2022
	Clutch System: Need, Types (Single & Multiple) and Working principle with sketch	2		Dt. 16.03.2022 , 17.03.2022
	Gear Box: Purpose of gear box, Construction and working of a 4 speed gear box	2		Dt. 21.03.2022 , 22.03.2022
	Concept of automatic gear changing mechanisms	2		Dt. 23.03.2022 , 24.03.2022
	Propeller shaft: Constructional features	2		Dt. 28.03.2022 , 29.03.2022
	Differential: Need, Types and Working principle	2		Dt. 30.03.2022 , 31.03.2022
2	**BRAKING SYSTEM**	**5**		
	Braking systems in automobiles: Need and types	1	April	Dt. 04.04.2022
	Mechanical Brake	1		Dt. 05.04.2022
	draulic Brake	1		Dt. 06.04.2022
	Air Brake	1		Dt. 07.04.2022
	Air assisted Hydraulic Brake, Vacuum Brake	1		Dt. 11.04.2022
3	**IGNITION & SUSPENSION SYSTEM**	**10**		
	Describe the Battery ignition and Magnet ignition system	1		Dt. 12.04.2022
	Spark plugs: Purpose, construction and specifications	1		Dt. 13.04.2022

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
	State the common ignition troubles and its remedies	2		Dt. 18.04.2022
	Description of the conventional suspension system for Rear and Front axle	2		Dt. 19.04.2022 , 20.04.2022
	Description of independent suspension system used in cars (coil spring and tension bars)	2		Dt. 21.04.2022 , 25.04.2022
	Constructional features and working of a telescopic shock absorber	2		Dt 26.04.2022 , 27.04.2022
4	**COOLING AND LUBRICATION**	**8**		Dt.
	Engine cooling: Need and classification	2		Dt. 28.04.2022 , 02.05.2022
	Describe defects of cooling and their remedial measures	2	May	Dt. 04.05.2022 , 05.05.2022
	Describe the Function of lubrication	2		Dt. 09.05.2022 , 10.05.2022
	Describe the lubrication System of I.C. engine	2		Dt. 11.05.2022 , 12.05.202
5	**FUEL SYSTEM:**	**10**		
	Describe Air fuel ratio	1		Dt. 17.05.2022
	Describe Carburetion process for Petrol Engine	2		Dt. 18.05.2022 , 19.05.2022
	Describe Multipoint fuel injection system for Petrol Engine	1		Dt. 23.05.2022
	Describe the working principle of fuel injection system for multi cylinder Engine	2		Dt. 24.05.2022 , 25.05.2022
	Filter for Diesel engine	2		Dt. 26.05.2022
	Describe the working principle of Fuel feed pump and Fuel Injector for Diesel engine	2		Dt. 31.05.2022 , 01.06.2022

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
6	ELECTRIC AND HYBRID VEHICLES	15		
	Introduction, Social and Environmental importance of Hybrid and Electric Vehicles	2	June	Dt. 02.06.2022 , 06.06.2022
	6.2 Description of Electric Vehicles, operational advantages, present performance and applications of Electric Vehicles	4		Dt. 07.06.2022 , 08.06.2022 09.06.2022 , 13.06.2022
	6.3 Battery for Electric Vehicles, Battery types and fuel cells	2		Dt. 16.06.2022 , 20.06.2022
	6.4 Hybrid vehicles, Types of Hybrid and Electric Vehicles: Parallel, Series, Parallel and Series configurations;	2		Dt. 21.06.2022 , 22.06.2022
	6.5 Drive train	2		Dt. 23.06.2022 , 27.06.2022
	6.6 Solar powered vehicles	3		Dt. 28.06.2022 , 29.06.2022 30.06.2022.

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THEORY LESSON PLAN FOR THE SESSION 2021-22				
BRANCH:-MECHANICAL ENGINEERING SEMESTER: 6TH SECTION: MB			NAME OF THE FACULTY : (1) ER. DEWAN KU. SAHU, (2) ER. SAMIR SAHU (LECT. IN MECH. ENGG.)	
SEMESTER FROM : 14.03.2022 to 30.06.2022			THEORY SUBJECT: POWER STATION ENGINEERING (TH-3)	
CLASS ALLOTTED /WEEK : 04 PERIODS				
Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	**INTRODUCTION:**	5		
	1.1 Describe sources of energy.	1	March	Dt. 14.05.2022
	1.2 Explain concept of Central and Captive power station.	1		Dt. 15.03.2022
	1.3 Classify power plants.	1		Dt. 16.03.2022
	1.4 Importance of electrical power in day today life.	1		Dt. 17.03.2022
	1.5 Overview of method of electrical power generation.	1		Dt. 21.03.2022, 22.03.2022
2	**THERMAL POWER STATIONS:**	20		
	2.1 Layout of steam power stations.	1		Dt. 23.03.2022
	2.2 Steam power cycle. Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency	2		Dt. 24.03.2022, 25.03.2022
	2.3 Explain Rankine cycle with P-V, T-S & H-s diagram and determine thermal efficiency, Work done, work ratio, and specific steam Consumption.	2		Dt. 28.03.2022, 29.03.2022 30.03.2022
	2.4 Solve Simple Problems.	2		Dt. 31.03.2022, 04.04.2022
	2.5. List of thermal power stations in the state with their capacities.	1	April	Dt. 05.04.2022, 06.04.2022

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
	2.6 Boiler Accessories: Operation of Air pre heater, Operation of Economiser, Operation Electrostatic precipitator and Operation of super heater. Need of boiler mountings and operation of boiler	2		Dt. 07.04.2022 , 08.04.2022
	2.7 Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages.	2		Dt. 11.04.2022 , 12.04.2022 13.04.2022
	2.8 Steam prime movers: Advantages & disadvantages of steam turbine, Elements of steam turbine, governing of steam turbine. Performance of steam turbine: Explain Thermal efficiency, Stage efficiency and Gross efficiency	2		Dt. 18.04.2022 , 19.04.2022
	2.9 Steam condenser: Function of condenser, Classification of condenser, function of condenser auxiliaries such as hot well, condenser extraction pump, air extraction pump, and circulating pump.	2		Dt. 20.04.2022 , 21.04.2022
	2.10 Cooling Tower: Function and types of cooling tower, and spray ponds	2		Dt. 22.04.2022 , 25.04.2022
	2.11 Selection of site for thermal power stations.	2		Dt. 26.04.2022 , 27.04.2022
3	**NUCLEAR POWER STATIONS:**	**10**		
	3.1 Classify nuclear fuel (Fissile & fertile material)	1		Dt. 28.04.2022
	3.2 Explain fusion and fission reaction.	1		Dt. 29.04.2022
	3.3 Explain working of nuclear power plants with block diagram .	1	May	Dt. 02.05.2022
	3.4 Explain the working and construction of nuclear reactor .	2		Dt. 04.05.2022 , 05.05.2022 06.05.2022

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
	3.5 Compare the nuclear and thermal plants.	1	May	Dt. 09.05.2022
	3.6 Explain the disposal of nuclear waste.	1		Dt. 10.05.2022
	3.7 Selection of site for nuclear power stations.	2		Dt. 11.05.2022, 12.05.2022
	3.8 List of nuclear power stations.	1		Dt. 13.05.2022
	DIESEL ELECTRIC POWER STATIONS:	**10**		
4	4.1 State the advantages and disadvantages of diesel electric power stations.	2		Dt. 17.05.2022, 18.05.2022
	4.2 Explain briefly different systems of diesel electric power stations: Fuel storage and fuel supply system, Fuel injection system, Air supply system, Exhaust system, cooling system, Lubrication system, starting system, governing system.	3		Dt. 19.05.2022, 20.05.2022 23.05.2022
	4.3 Selection of site for diesel electric power stations.	3		Dt. 25.05.2022, 26.05.2022 27.05.2022
	4.4 Performance and thermal efficiency of diesel electric power stations.	2		Dt. 31.05.2022, 01.06.2022
	HYDEL POWER STATIONS:	**10**		
5	5.1 State advantages and disadvantages of hydroelectric power plant.	1	June	Dt. 02.06.2022, 03.06.2022
	5.2 Classify and explain the general arrangement of storage type hydroelectric project and explain its operation.	2		Dt. 06.06.2022, 07.06.2022
	5.3 Selection of site of hydel power plant.	2		Dt. 08.06.2022, 09.06.2022

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
	5.4 List of hydro power stations with their capacities and number of units in the state.	2	June	Dt. 10.06.2022 , 13.06.2022
	5.5 Types of turbines and generation used.	2		Dt. 16.06.2022 , 17.06.2022
	5.6 Simple problems.	1		Dt. 20.06.2022 , 21.06.2022
6	**GAS TURBINE POWER STATIONS**	**5**		
	6.1 Selection of site for gas turbine stations.	1		Dt. 22.06.2022 , 23.06.2022
	6.2 Fuels for gas turbine	1		Dt. 24.06.2022
	6.3 Elements of simple gas turbine power plants	1		Dt. 27.06.2022
	6.4 Merits, demerits and application of gas turbine power plants.	2		Dt. 28.06.2022 , 29.06.2022 , 30.06.2022

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THEORY LESSON PLAN FOR THE SESSION 2021-22				
BRANCH:-MECHANICAL ENGINEERING SEMESTER: 6TH SECTION: MB			NAME OF THE FACULTY : (1) ER. SUBHASMITA JENA, (2) ER. MADHUMITA SAHOO (LECT. IN MECH. ENGG.)	
SEMESTER FROM : 14.03.2022 to 30.06.2022		THEORY SUBJECT: ADVANCE MANUFACTURING PROCESS (TH-4B)		
CLASS ALLOTTED /WEEK : 04 PERIODS				
Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
1	**Modern Machining Processes:**	20		
	1.1 Introduction – comparison with traditional machining.	1	MARCH	14·03·22
	1.2 Ultrasonic Machining: principle, Description of equipment, applications.	2		15·03·22, 16·03·22
	1.3 Electric Discharge Machining: Principle, Description of equipment, Dielectric fluid, tools (electrodes), Process parameters, Output characteristics, applications.	5		17·03·22, 21·03·22, 22·03·22 23·03·22, 24·03·22
	1.4 Wire cut EDM: Principle, Description of equipment, controlling parameters; applications.	2		25·03·22, 28·03·22
	1.5 Abrasive Jet Machining: principle, description of equipment, Material removal rate, application.	2		29·03·22, 30·03·22
	1.5 Laser Beam Machining: principle, description of equipment, Material removal rate, application.	2		31·03·22, 04·04·22
	1.6 Electro Chemical Machining: principle, description of equipment, Material removal rate, application.	2	APRIL	05·04·22, 06·04·22
	1.7 Plasma Arc Machining – principle, description of equipment, Material removal rate, Process parameters, performance characterization, Applications.	2		07·04·22, 08·04·22
	1.8 Electron Beam Machining - principle, description of equipment, Material removal rate, Process parameters, performance characterization, Applications.	2		11·04·22, 12·04·22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
2	**Plastic Processing:**	**10**		
	2.1 Processing of plastics.	2	APRIL	13.04.22, 18.04.22
	2.2 Moulding processes: Injection moulding, Compression moulding, Transfer moulding.	2		19.04.22, 20.04.22
	2.3 Extruding; Casting; Calendering.	2		21.04.22, 22.04.22
	2.4 Fabrication methods-Sheet forming, Blow moulding, Laminating plastics (sheets, rods & tubes), Reinforcing.	2		25.04.22, 26.04.22
	2.5 Applications of Plastics.	2		27.04.22, 28.04.22
3	**Additive Manufacturing Process:**	**15**		
	3.1 Introduction, Need for Additive Manufacturing	2	MAY	29.04.22, 02.05.22
	3.2 Fundamentals of Additive Manufacturing, AM Process Chain	3		04.05.22, 05.05.22, 06.05.22
	3.3 Advantages and Limitations of AM, Commonly used Terms	2		09.05.22, 10.05.22, 11.05.22
	3.4 Classification of AM process, Fundamental Automated Processes, Distinction between AM and CNC, other related technologies.	2		12.05.22, 13.05.22, 17.05.22 18.05.22
	3.5 Application –Application in Design, Aerospace Industry, Automotive Industry, Jewelry Industry, Arts and Architecture. RP Medical and Bioengineering Applications.	2		19.05.22, 20.05.22, 23.05.22 25.05.22
	3.6 Web Based Rapid Prototyping Systems.	2		26.05.22, 27.05.22, 31.05.22
	3.7 Concept of Flexible manufacturing process, concurrent engineering, production tools like capstan and turret lathes, rapid prototyping processes.	2	JUNE	01.06.22, 02.06.22, 03.06.22

Sl. No.	CHAPTERS TO BE COVERED	NO OF PERIODS AS PER ACADEMIC CALENDAR	MONTH	ACTUAL PROGRESS OF THE COURSES MADE
4	**Special Purpose Machines (SPM):**	7		
	4.1 Concept, General elements of SPM, Productivity improvement by SPM, Principles of SPM design.	7		06.06.22, 07.06.22, 08.06.22 09.06.22, 10.06.22, 13.06.22 16.06.22, 17.06.22
5	**Maintenance of Machine Tools:**	8		
	5.1 Types of maintenance, Repair cycle analysis, Repair complexity, Maintenance manual, Maintenance records, Housekeeping. Introduction to Total Productive Maintenance (TPM).	8		20.06.22, 21.06.22, 22.06.22 23.06.22, 24.06.22, 27.06.22 28.06.22, 29.06.22, 30.06.22

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