	Vedang	Institute of recimology
		Lesson Plan
Discipline: Mechanical Engineering	Semester: 5th	Name of the Teaching Faculty: Samresh Pratap Mohanty
Subject : Design of Machine Elements	No. of day days/Per weeks Class Allotted Weeks :4	Semester from date : 01/08/2023 To Date: 30/11/2023 No. of Weeks :15
Weeks	Class day	Theory
Treens	1 st	Introduction to Machine Design and Classify it.
	2nd	Different mechanical engineering materials used in design with their uses and their mechanical and physical properties.
1ST	3rd	Different mechanical engineering materials used in design with their uses and their mechanical and physical properties
	4th	Define working stress, yield stress, ultimate stress & factor of safety and stress –strain curve for M.S & C.I
	1st	Define working stress, yield stress, ultimate stress & factorof safety and stress – strain curve for M.S & C.I
	2nd	Modes of Failure (By elastic deflection, general yielding & fracture)
2ND	3rd	Modes of Failure (By elastic deflection, general yielding & fracture
	4th	State the factors governing the design of machine elements
	1 st	State the factors governing the design of machine elements
3RD	and	Describe design procedure.
·SRD	3rd	Describe design procedure.
	4th	REVISION
	1st	Joints and their classification.
	2nd	State types of welded joints.
4TH	3rd	State advantages of welded joints over other joints.
	4th	Design of welded joints for eccentric loads
	1 st	State types of riveted joints and types of rivets.
	2nd	Describe failure of riveted joints
5TH	3rd	Determine strength & efficiency of riveted joints
	4th	Design riveted joints for pressure vessel.
6TH	1 st	Solve numerical on Welded Joint and Riveted Joints.
	2nd	Solve numerical on Welded Joint and Riveted Joints.
	3rd	Solve numerical on Welded Joint and Riveted Joints.
	4th	REVISION
	1 st	Design of shafts and Keys
	2nd	State function of shafts
7TH	3rd	State materials for shafts.
/ 111	4th	Design solid & hollow shafts to transmit a given power atgr rpm based on (a) Strength: (i) Shear stress, (ii)

		Combined bending & tension
	1st	Design solid & hollow shafts to transmit a given powerat given rpm based on Rigidity: (i) Angle of twist, (ii) Deflection, (iii) Modulus of rigidity
8TH	2nd	State standard size of shaft as per I.S.
	3rd	State function of keys, types of keys & material of keys
	4th	Describe failure of key, effect of key way
	1 st	 Design rectangular sunk key considering its failure againstshear & crushing
9TH	2nd	Design rectangular sunk key by using empirical relation for given diameter of shaft
	3rd	State specification of parallel key, gib-head key, taper keyas per I.S.
	4th	Solve numerical on Design of Shaft and keys
	1 st	Design of belt drivers and pulleys
10711	2nd	State types of belt drives & pulleys
IUIH	3rd	State formula for length of open belt
	4th	State formula for length of crossed belt,
	1 st	Ratio of driving and driven side tension
	2nd	Centrifugal tension
11TH	3rd	Relation between centrifugal tension and tension on tightside for maximum power transmission
	4th	Determine belt thickness and width for given permissible Stress for open belt considering centrifugal tension.
	1 st	Determine belt thickness and width for given permissibleStress for crossed belt considering centrifugal tension.
12TH	and	Design a cast iron (C.I) pulley using empirical formula only
12111	3rd	Solve numerical on design of belt and design of C.I pulley
	⊿th	Solve numerical on design of belt and design of C.I pulley
	1 St	Design a closed coil helical spring
	and	Materials used for helical spring
13TH	3rd	Standard size spring wire. (SWG)
	⊿th	Terms used in compression spring
	1 St	Stress in helical spring of a circular wire
-	and	End connection for helical tension spring
14TH	3rd	Deflection of helical spring of circular wire
	⊿th	Eccentric loading of spring
	1 St	Surge in spring
	and	Solve numerical on design of spring
15TH	3rd	Solve numerical on design of spring
	⊿th	Solve numerical on design of spring
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Samarresh Pratap Mohantz Faculty Signature

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	Veda	ng Institute of Technology
		Lesson Plan
Discipline : Mechanical Engineering	SEMESTER: 5TH	Name of Teaching Staff: Soumyashree Senapati
Subject: Hydraulic Machines & Industrial Fluid Power	No. of days/Per weeks Class Allotted Weeks: 4	Semester from date : 01/08/2023 To Date: 30/11/2023 No. of Weeks : 15
Weeks	Class day	Theory
107	1st	Entrepreneurship ,Concept /Meaning of Entrepreneurship Need of Entrepreneurship,Characteristics, Qualities and Types of entrepreneur, Functions
IST	2 nd	Barriers in entrepreneurship, Entrepreneurs vrs. Manager
	3rd	partnership forms and others
	_4th	Types of Industries, Concept of Start-ups
	1 st	Entrepreneurial support agencies at National, State, District Level(Sources): DIC, NSIC,OSIC, SIDBI, NABARD, Commercial Banks, KVIC etc
2ND	2nd	. Entrepreneurial support agencies at National, State, District Level(Sources): DIC, NSIC,OSIC, SIDBI, NABARD,Commercial Banks, KVIC etc
	3rd	Technology Business Incubators (TBI) and Scienceand Technology Entrepreneur Parks
	4 th	Technology Business Incubators (TBI) and Scienceand Technology Entrepreneur Parks
	- 1 st	Planning)
		Business Planning
3RD	3rd	SSI, Ancillary Units, Tiny Units, Service sector Units
	4 th	Time schedule Plan, Agencies to be contacted for Project Implementation
	1 st	Assessment of Demand and supply and Potential areas of Growth
4TH	and	Identifying Business Opportunity
1.11	3rd	Final Product selection
	4th	Project report Preparation
	1 st	Preliminary project report
5TH	2nd	Detailed project report, Techno economic Feasibility
5111	3rd	Project Viability
	4 th	Management Principles
	1 st	Definitions of management
6TH	2nd	Principles of management
	3rd	directing and controlling etc.)
77711	4 th	Level of Management in an Organisation
71H	1 st	Functional Areas of Management

	2nd	a) Production management Functions, Activities Productivity
	3rd	• Quality control Production Planning and control
	4 th	b) Inventory Management Need for Inventory management Models/Techniques of Inventory management
	1 st	c) Financial Management Functions of Financial management
	2nd	• Management of Working capital Costing (only concept)
8TH	3rd	 Break even Analysis Brief idea about Accounting Terminologies: Book Keeping, Journal entry, Petty Cash book P&L Accounts, Balance Sheets(only Concepts) d) Marketing Management
	4th	Concept of Marketing and Marketing Management Marketing Techniques (only concepts) (Price, Place, Product, Promotion)
	1 st	e) Human Resource Management Functions of Personnel Management
9TH	2nd	• Manpower Planning, Recruitment, Sources of manpower, Selection process, Method of Testing, Methods of Training& Development, Payment of Wages
	3rd	Leadership and Motivation a) Leadership Definition and Need/Importance
	4th	• Qualities and functions of a leader Manager Vs Leader)
	1 st	• Style of Leadership (Autocratic, Democratic, Participative
	2nd	b) Motivation Definition and characteristics Importance motivation Factors affecting motivation
10TH	3rd	• Theories of motivation (Maslow) Methods of Improving Motivation
	4th	• Importance of Communication in Business Typesand Barriers of Communication
	1 st	Work Culture, TQM & Safety Human relationship and Performance in Organization
	2nd	Relations with Peers, Superiors and Subordinates
11TH	3rd	TQM concepts: Quality Policy, Quality Management, Quality system
	4th	• Accidents and Safety, Cause, preventive measures, General Safety Rules, Personal Protection Equipment(PPE)
	1 st	•Accidents and Safety, Cause, preventive measures, General Safety Rules, Personal Protection Equipment(PPE)
12TH	2nd	Legislation a) Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights
	3rd	a) Intellectual Property Rights(IPR), Patents, Trademarks, Copyrights
	4 th	b) Features of Factories Act 1948 with Amendment (only salient points)
	1 st	b) Features of Factories Act 1948 with Amendment (only salient points)
13TH	2nd	c) reatures of Payment of Wages Act 1936 (only salient points)
	3rd	c) reatures of Payment of Wages Act 1936 (only salient points)
	4th	Smart Technology 🗆 Concept of IOT, How IOT works 🗆
	1.st	• Concept of IOT, How IOT works
14TH	2nd	IOT
	ord	Components of IOT, Characteristics of IOT, Categories of IC

15TH	1st	Smart Home., Smart Healthcare,
	2nd	Smart Industry, Smart Agriculture.
	3rd	Smart Energy Management etc
	4th	Revision

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Vedang Institute of Technology

Lesson Plan

Discipline : Mechanical	SEMESTER: 5TH	Name of Teaching Staff: Omm Prakash Kar
Subject: Mechatronics	No. of days/Per weeks Class Allotted Weeks: 4	Semester from date : 01/08/2023 To Date: 30/11/2023 No. of Weeks : 15
Weeks	Class day	Theory
	1st	Definition of Mechatronics, Advantages & Disadvantages of
	2nd	Application of Mechatronics
1ST	3rd	Scope of Mechatronics in Industrial Sector
	4th	Components of Mechatronics System
-	1st	Importance of Mechatronics in automation
	2nd	Definition of Transducers, Classification of Transducers
2ND	3rd	Electromechanical Transducers
	4th	Transducers Actuation Mechanism
	1st	Displacement & Positions Sensors
	2nd	Displacement & Positions Sensors
3RD	3rd	Velocity, Motion, Force and Pressure Sensors
	4th	Velocity, Motion, Force and Pressure Sensors
	1st	Temperature and Light Sensors
	2nd	Displacement & Positions Sensors.
4TH	3rd	Mechanical Actuators
	4th	Machine, Kinematic Link, Kinematic Pair
	1st	Machine, Kinematic Link, Kinematic Pair
	2nd	Mechanism, Slider Crank Mechanism
5TH .	3rd	Gear Drive, Spur Gear, Bevel Gear, Helical Gear, Worm Gear
	4th	Belt & Belt Drive, Bearing
	1st	Electrical Actuator, Switches and Relay
	2nd	Solenoid, D.C. Motors
6TH	3rd	A.C.Motors, Steppers Motors
	4th	Specification and control of stepper motors
	1st	Servo Motors DC & AC
	2nd	Introduction to PLC
/IH	3rd	Advantages of PLC
	4th	Selection and uses of PLC
	1st	Selection and uses of PLC
ЯТН	2nd	Architecture basic internal structures
0111	3rd	Architecture basic internal structures
	4th	Architecture basic internal structures
	1st	Input/ Output Processing and Programming

	2nd	Input/ Output Processing and Programming
	3rd	Input/ Output Processing and Programming
	4th	Mnemonics
	1st	Mnemonics
10TH	2nd	Master and Jump Controllers
	3rd	Master and Jump Controllers
	4th	Introduction to Numerical Control of Machines and CAD/CAM
	1st	Introduction to Numerical Control of Machines and CAD/CAM
	2nd	NC Machines
11TH	3rd y	CNC Machies
	4th	CAD/ CAM
	1st	Software and Hardware for CAD/CAM
	2nd	Functioning of CAD/CAM system
12TH	3rd	Features and characteristic of CAD/CAM system
	4th	Application areas for CAD/CAM
	1st	Elements of CNC machines
	2nd	Introduction to Machine Structure
13TH	3rd	Guideways/Slide ways.
	4th	Introduction and Types of Guideways
	1st	Facturs of Design of Guideways
	2nd	Drives, Spindle Drives
14th	3rd	Feed Drives, Spindle and Spindle Bearings
	4th	Definition, Function and Laws of Robotics
	1st	Robotics Systems
	2nd	Advantages and Disadvantages of Robots
15TH	3rd	Revision and Doubt Clearance
	4th	Revision and Doubt Clearance



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	Veda	ang Institute of Technology
	t.	Lesson Plan
Discipline:		Name of the Teaching Faculty :
Mechanical	Semester: 5th	Soumva Banian Navak
Engineering		Sourrya Narijar Nayak
Subject :	No. of days/Per	
REFRIGERATION	weeks Class	Semester from date : 01/08/2023 To 30/11/2023
	Allotted Weeks	No. of Weeks: 15
	Alotted Veels.	
CONDITIONING	4	
Weeks	Class day	Theory
	1 st	AIR REFRIGERATION CYCLE
	2 nd	Definition of refrigeration and unit of refrigeration.
1ST	3 rd	Definition of COP, Refrigerating effect (R.E)
	4 th	Principle of working of open and closed air system of refrigeration.
	1 st	SIMPLE VAPOUR COMPRESSION REFRIGERATION SYSTEM
	2 nd	schematic diagram of simple vapors compression
2ND		refrigeration system
	3 rd	Types
	4 th	Cycle with dry saturated vapors after compression.
	1 st	Cycle with wet vapors after compression.
200	2 nd	Cycle with superheated vapors after compression.
SKD	3 rd	Cycle with superheated vapors before compression.
	4 th	Cycle with sub cooling of refrigerant
	1 st	Representation of above cycle on temperature entropyand
		pressure enthalpy diagram
4TH	2 nd	Numerical on above (determination of COP, mass flow)
	3 rd	VAPOUR ABSORPTION REFRIGERATION SYSTEM
-	4 th	Simple vapor absorption refrigeration system
	1 st	Practical vapor absorption refrigeration system
STH	2 nd	COP of an ideal vapor absorption refrigeration system.
5111	3 rd	Numerical on COP
	4 th	REFRIGERATION EQUIPMENTS
		REFRIGERANT COMPRESSORS
	2 ^{na}	Principle of working and constructional details of reciprocating and
CTU	ard	rotary compressors
DIH	3 rd	Centrifugal compressor only theory
ALC: NOT	4"	Important terms. Hermetically and semi hermeticallysealed
		compresser.
	1 st	CONDENSERS
	2 nd	Principle of working and constructional details of aircooled and
7TH		water cooled condenser
	3 rd	Heat rejection ratio
	4 th	Cooling tower and spray pond
	1 st	EVAPORATORS.
8TH	2 nd	Principle of working and constructional details of anevaporator.,

	3 rd	Types of evaporator, Bare tube coil evaporator, finned
	4 th	REFRIGERANT FLOW CONTROLS, REFRIGERANTS & APPLICATION OF REFRIGERANTS
	1 st	EXPANSION VALVES . Capillary tube
	2 nd	Automatic expansion valve. Thermostatic expansion valve
9TH	3 rd	REFRIGERANTS. Classification of refrigerants
	4 th	Desirable properties of an ideal refrigerant. , Designation of refrigerant.
0	1 st	Thermodynamic Properties of Refrigerants, Chemical properties of refrigerants.
10TH	2 nd	commonly used refrigerants, R-11, R-12, R-22, R-134a, R-717 5.2.7 Substitute for CFC
	3 rd	Applications of refrigeration
	4 th	cold storage, dairy refrigeration
	1 st	ice plant, water cooler
	2 nd	frost free refrigerator
11TH	3 rd	6.0 PSYCHOMETRICS & COMFORT AIR CONDITIONINGSYSTEMS
da i	4 th	Psychometric terms
	1 st	Adiabatic saturation of air by evaporation of water
1210	2 nd	Psychometric chart and uses. , Psychometric processes
1211	3 rd	Sensible heating and Cooling
	4 th	Cooling and Dehumidification, Heating and Humidification
	1 st	Adiabatic cooling with humidification
1270	2 nd	Total heating of a cooling process
1211	3 rd	SHF, BPF, Adiabatic mixing
	4 th	Problems on above,
	1 st	Effective temperature and Comfort chart
1 4711	2 nd	7.0 AIR CONDITIONING SYSTEMS
141H	3 rd	Factors affecting comfort air conditioning.
	4 th	Equipment used in an air-conditioning.
	1 st	Classification of air-conditioning system
15711	2 nd	Winter Air Conditioning System
151H	3 rd	Summer air-conditioning system
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