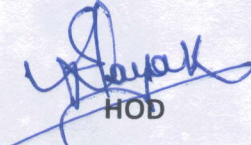


Vedang Institute of Technology
LESSION PLAN

Discipline: Mechanical Engg.	Semester : 6th	Name of the Teaching Faculty : Samaresh Pratap Mohanty
Subject : Industrial Engineering & Management	No. of days / Per weeks Class Allotted Weeks :4	Semester from date : 16/01/2024 to 26/04/2024 No. of Weeks : 15
Weeks	Class day	Theory
1 st	1st	Selection of Site of Industry
	2nd	Concept of Plant Layout
	3rd	objective and principles of plant layout
	4th	Process Layout, Product Layout and Combination Layout
2 nd	1st	Process Layout, Product Layout and Combination Layout
	2nd	Techniques to improve layout
	3rd	Principles of material handling equipment
	4th	Concept of Plant maintenance
3 rd	1 st	Importance of plant maintenance.
	2nd	Break down maintenance.
	3rd	Preventive maintenance.
	4th	Scheduled maintenance
4 th	1 st	Introduction to Operations Research and its applications
	2nd	Introduction to Operations Research and its applications
	3rd	Linear Programming Problem
	4th	Solution of L.P.P. by graphical method
5 th	1st	Solution of L.P.P. by graphical method
	2nd	Evaluation of Project completion time by Critical Path Method and PERT
	3rd	Evaluation of Project completion time by Critical Path Method and PERT
	4th	Evaluation of Project completion time by Critical Path Method and PERT
6 th	1 st	Distinct features of PERT with respect to CPM
	2nd	Classification of inventory
	3rd	Objective of inventory control
	4th	Describe the functions of inventories.
7 th	1st	Describe the functions of inventories.
	2nd	Benefits of inventory control.
	3rd	Costs associated with inventory.
	4th	Terminology in inventory control


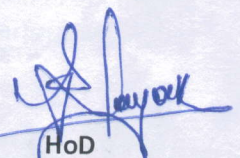
8 th	1st	Derivation on economic order quantity for Basic model
	2nd	Simple Problems Discussed
	3rd	Inspection and Quality control
	4th	planning of inspection
9 th	1st	Types of inspection
	2nd	Advantages and disadvantages of quality control
	3rd	Factors influencing the quality of manufacture
	4th	Concept of statistical quality control, Control charts (X, R, P and C - charts)
10 th	1st	Concept of statistical quality control, Control charts (X, R, P and C - charts)
	2nd	Concept of statistical quality control, Control charts (X, R, P and C - charts)
	3rd	Methods of attributes
	4th	Concept of ISO 9001-2008
11 th	1st	Quality management system, Registration /certification procedure
	2nd	Benefits of ISO to the organization
	3rd	Problems on X,P,R & C Charts
	4th	Problems on X,P,R & C Charts
12 th	1st	Introduction to Production Planning and Control
	2nd	Major functions of production planning and control
	3rd	Major functions of production planning and control
	4th	Methods of forecasting
13 th	1st	Routing
	2nd	Scheduling
	3rd	Dispatching
	4th	Controlling
14 th	1st	Mass Production
	2nd	Batch Production
	3rd	Job Order Production
	4th	Principles of product and process planning
15 th	1st	Principles of product and process planning
	2nd	Principles of product and process planning
	3rd	Doubt Clearance
	4th	Doubt Clearance

Samarresh Pratap Mohanty
Faculty Signature


HOD

Vedang Institute of Technology Lesson Plan

Discipline : Mechanical Engg	Semester : 6th	Name of the Teaching Faculty : Omm Prakash Kar
Subject : Advance manufacturing Process	No. of days/Per weeks Class Alloted Weeks :4	Semester from date : 16/01/2024 to 26/04/2024 No. of Weeks : 15
Weeks	Class day	Theory
1 st	1st	Introduction – comparison with traditional machining
	2nd	Ultrasonic Machining: principle, Description of equipment, applications
	3rd	
	4th	Electric Discharge Machining: Principle, Description of equipment, Dielectric fluid, tools (electrodes), Process parameters, Output characteristics, applications.
2 nd	1st	Wire cut EDM: Principle, Description of equipment, controlling parameters; applications.
	2nd	
	3rd	Abrasive Jet Machining: principle, description of equipment, Material removal rate, application
	4th	
3 rd	1st	Laser Beam Machining: principle, description of equipment, Material removal rate, application
	2nd	
	3rd	Electro Chemical Machining: principle, description of equipment, Material removal rate, application.
	4th	
4 th	1st	Plasma Arc Machining – principle, description of equipment, Material removal rate, Process parameters, performance characterization, Applications.
	2nd	
	3rd	Electron Beam Machining - principle, description of equipment, Material removal rate, Process parameters, performance characterization, Applications.
	4th	
5 th	1st	Processing of plastics.
	2nd	
	3rd	Moulding processes: Injection moulding, Compression moulding, Transfer moulding.
	4th	
6 th	1st	Extruding; Casting; Calendering.
	2nd	
	3rd	Fabrication methods-Sheet forming, Blow moulding, Laminating plastics (sheets, rods & tubes), Reinforcing.
	4th	
7 th	1st	Applications of Plastics.
	2nd	
	3rd	Introduction, Need for Additive Manufacturing
	4th	
8 th	1st	Fundamentals of Additive Manufacturing, AM Process Chain
	2nd	
	3rd	Advantages and Limitations of AM, Commonly used Terms
	4th	
9 th	1st	
	2d	

10 th	3rd	Classification of AM process, Fundamental Automated Processes, Distinction between AM and CNC, other related technologies.
	4th	
	1st	
	2nd	
11 th	3rd	Application –Application in Design, Aerospace Industry, Automotive Industry, Jewelry Industry, Arts and Architecture. RP Medical and Bioengineering Applications.
	4th	
	1st	
	2nd	
12 th	3rd	Web Based Rapid Prototyping Systems.
	4th	
	1st	
	2nd	
13 th	3rd	Concept of Flexible manufacturing process, concurrent engineering, production tools like capstan and turret lathes, rapid prototyping processes.
	4th	
	1st	
	2nd	
14 th	3rd	Concept, General elements of SPM, Productivity improvement by SPM, Principles of SPM design
	4th	
	1st	
	2nd	
15 th	3rd	Types of maintenance, Repair cycle analysis, Repair complexity, Maintenance manual, Maintenance records, Housekeeping. Introduction to Total Productive Maintenance (TPM).
	4th	
	1st	
	2nd	
		Doubt Clearance
 Faculty Signature		 HoD

Vedang Institute of Technology
LESSION PLAN

Discipline: Mechanical Engg	Semester : 6th	Name of the Teaching Faculty : Soumya Ranjan Nayak
Subject : AUTOMOBILE ENGINEERING & HYBRID VEHICLES	No. of days / Per weeks Class Allotted Weeks :4	Semester from date : 16/01/2024 to 26/04/2024 No. of Weeks : 15
Weeks	Class day	Theory
1 st	1st	Automobiles: Definition, need and classification Layout of automobile chassis with major components (Line diagram)
	2nd	
	3rd	Clutch System: Need, Types (Single & Multiple) and Working principle with sketch
	4th	
2 nd	1st	Gear Box: Purpose of gear box, Construction and working of a 4 speed gear box
	2nd	
	3rd	Concept of automatic gear changing mechanisms
	4th	
3 rd	1st	Propeller shaft: Constructional features
	2nd	
	3rd	Differential: Need, Types and Working principle
	4th	
4 th	1st	Braking systems in automobiles: Need and types
	2nd	Mechanical Brake in detail
	3rd	Hydraulic Brake
	4th	Air Brake
5 th	1st	Air assisted Hydraulic brake
	2nd	Vacuum Brake
	3rd	Describe the Battery ignition and Magnet ignition system
	4th	
6 th	1st	Description of the conventional suspension system for Rear and Front axel
	2nd	
	3rd	Constructional features and working of a telescopic shock absorber
	4th	
7 th	1st	Engine cooling: Need and classification
	2nd	
	3rd	Describe defects of cooling and their remedial measures
	4th	
8 th	1st	Describe the Function of lubrication
	2nd	Describe the Function of lubrication
	3rd	Describe the lubrication System of I.C. engine
	4th	
9 th	1st	Describe Air fuel ratio

	2d	Describe Carburetion process for Petrol Engine
	3rd	
	4th	
10 th	1st	Describe Multipoint fuel injection system for Petrol Engine
	2nd	
	3rd	
	4th	
11 th	1st	Describe the working principle of fuel injection system for multi cylinder Engine
	2nd	
	3rd	
	4th	
12 th	1st	Filter for Diesel engine
	2nd	
	3rd	
	4th	
13 th	1st	Describe the working principle of Fuel feed pump and Fuel Injector for Diesel engine
	2nd	
	3rd	
	4th	
14 th	1st	ELECTRIC AND HYBRID VEHICLES: Introduction, Social and Environmental importance of Hybrid and Electric Vehicles
	2nd	
	3rd	
	4th	
15 th	1st	Description of Electric Vehicles, operational advantages, present performance and applications of Electric Vehicles
	2nd	
	3rd	
	4th	
16 th	1st	Battery for Electric Vehicles, Battery types and fuel cells
	2nd	
	3rd	
	4th	
17 th	1st	Hybrid vehicles, Types of Hybrid and Electric Vehicles: Parallel, Series, Parallel and Series configurations
	2nd	
	3rd	
	4th	
18 th	1st	Series Configurations
	2nd	
	3rd	
	4th	
19 th	1st	Drive train
	2nd	
	3rd	
	4th	
20 th	1st	Problem Solving
	2nd	
	3rd	
	4th	
21 st	1st	Doubt Clearance
	2nd	
	3rd	
	4th	
22 nd	1st	Doubt Clearance
	2nd	
	3rd	
	4th	

Teaching Faculty

HOD

Vedang Institute of Technology

Lesson Plan

Discipline: Mechanical Engg.	Semester : 6th	Name of the Teaching Faculty : Soumya Ranjan Nayak
Subject : POWER STATION ENGINEERING	No. of days/Per weeks Class Allotted Weeks: 04	Semester from date : 16/01/2024 to 26/04/2024 No. of Weeks : 15
Weeks	Class day	Theory
1 st	1st	Describe sources of energy.
	2nd	
	3rd	Explain concept of Central and Captive power station.
	4th	Classify power plants, Importance of electrical power in day today life.
2 nd	1st	Overview of method of electrical power generation.
	2nd	Layout of steam power stations.
	3rd	Steam power cycle. Explain Carnot vapour power cycle with P-V, T-s diagram and determine thermal efficiency.
	4th	Explain Rankine cycle with P-V, T-S & H-s diagram, T-s diagram and determine thermal efficiency.
3 rd	1st	List of thermal power stations in the state with their capacities.
	2nd	
	3rd	
	4th	
4 th	1st	Boiler Accessories: Operation of Air pre heater, Economiser, Electrostatic precipitator and super heater. Need of boiler mountings and operation of boiler.
	2nd	
	3rd	Draught systems (Natural draught, Forced draught & balanced draught) with their advantages & disadvantages.
	4th	
5 th	1st	Steam prime movers: Advantages & disadvantages of steam turbine,.
	2nd	Elements of steam turbine, governing of steam turbine
	3rd	Performance of steam turbine: Explain Thermal efficiency, Stage efficiency and Gross efficiency.
	4th	
6 th	1st	Steam condenser:
	2nd	Function of condenser, Classification of condenser. function of condenser auxiliaries such as hot well, condenser extraction pump, air extraction pump, and circulating pump.
	3rd	
	4th	Cooling Tower:

7 th	1st	Cooling Tower: Function and types of cooling tower, and spray ponds , Selection of site for thermal power stations.
	2nd	Classify nuclear fuel (Fissile & fertile material)
	3rd	Explain fusion and fission reaction
	4th	
8 th	1st	Explain working of nuclear power plants with block diagram.
	2nd	
	3rd	Explain the working and construction of nuclear reactor
	4th	
9 th	1st	Compare the nuclear and thermal plants.
	2nd	Explain the disposal of nuclear waste.
	3rd	Selection of site for nuclear power stations and List of nuclear
	4th	State the advantages and disadvantages of diesel electric power
10 th	1st	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,.
	2nd	
	3rd	
	4th	
11 th	1st	governing system ,Selection of site for diesel electric power
	2nd	
	3rd	
	4th	
12 th	1st	Performance and thermal efficiency of diesel electric power stations
	2nd	State advantages and disadvantages of hydroelectric power plant.
	3rd	
	4th	Classify and explain the general arrangement of storage type hydroelectric project and explain its operation
13 th	1st	
	2nd	Selection of site of hydel power plant and List of hydro power stations with their capacities and number of units in the state.
	3rd	
	4th	Types of turbines and generation used
14 th	1st	
	2nd	Simple problems
	3rd	
	4th	Selection of site for gas turbine stations
15 th	1st	Fuels for gas turbine
	2nd	Elements of simple gas turbine power plants
	3rd	
	4th	Merits, demerits and application of gas turbine power plants.

[Signature]
CAPTAIN

[Signature]
K. P. D.