SSB REGIONAL INSTITUTE OF SCIENCE & TECHNOLOGY, CHITRADA, MAYURBHANJ

Theory Lesson Plan

Name of the faculty: - TAPAS KUMAR GIRI **Semester: - 6TH**

Department: - MECH. ENGG. **Theory: - TH - 01** **Subject: - INDUSTRIAL ENGINEERING & MANAGEMENT**

Chapter No.	Chapter Name	Chapter Contains	No. of Periods as per Syllabus	No. of Periods required to Covered	Remarks
01.	PLANT ENGINEERING	1.1 Selection of Site of Industry. 1.2 Define plant layout. 1.3 Describe the objective and principles of plant layout. 1.4 Explain Process Layout, Product Layout and Combination Layout. 1.5 Techniques to improve layout. 1.6 Principles of material handling equipment. 1.7 Plant maintenance. 1.7.1 Importance of plant maintenance. 1.7.2 Break down maintenance. 1.7.3 Preventive maintenance. 1.7.4 Scheduled maintenance	10	10	
02.	OPERATIONS RESEARCH	2.1 Introduction to Operations Research and its applications. 2.2 Define Linear Programming Problem, 2.3Solution of L.P.P. by graphical method. 2.4 Evaluation of Project completion time by Critical Path Method and PERT (Simple problems)- 2.5Explain distinct features of PERT with respect to CPM.	10	08	
03.	INVENTORY CONTROL	3.1 Classification of inventory. 3.2 Objective of inventory control. 3.3 Describe the functions of inventories. 3.4 Benefits of inventory control. 3.5 Costs associated with inventory. 3.6 Terminology in inventory control 3.7 Explain and Derive economic order quantity for Basic model. (Solve numerical) 3.8 Define and Explain ABC analysis	10	09	

04.	**INSPECTION AND QUALITY CONTROL**	4.1Define Inspection and Quality control. 4.2Describe planning of inspection. 4.3 Describe types of inspection. 4.4 Advantages and disadvantages of quality control. 4.5 Study of factors influencing the quality of manufacture. 4.6 Explain the Concept of statistical quality control, Control charts (X, R, P and C - charts). 4.7 Methods of attributes. 4.8 Concept of ISO 9001-2008. 4.9.1 Quality management system, Registration /certification procedure. 4.9.2 Benefits of ISO to the organization. 4.9.3 JIT, Six sigma,7S, Lean manufacturing 4.9.4 Solve related problems.	15	13
05.	**PRODUCTION PLANNING AND CONTROL**	5.1 Introduction 5.2 Major functions of production planning and control 5.3 Methods of forecasting 5.3.1 Routing 5.3.2Scheduling 5.3.3 Dispatching 5.3.4 Controlling 5.4 Types of production 5.4.1 Mass production 5.4.2 Batch production 5.4.3 Job order production 5.5 Principles of product and process planning.	15	13

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Sign. of Dept. HOD

Sign. of Principal

SSB REGIONAL INSTITUTE OF SC. & TECHNOLOGY,CHITRADA,MBJ

LESSON PLAN

BRANCH-- Mechanical Engg. SEM- 6th

FACULTY NAME-- Bindumadhaba Dalei SUBJECT- Automobile Engg. and Hybrid Vehicles

MONTH-	NO OF CLASSES PER WEEK ALLOTTED		SEM FROM DT- 10/3/22 TO DT- 10/6/22 NO. OF WEEKS
WEEK	CLASS DAY	DATE	THEORY/PRACTICAL TOPICS
1ST	1		
	2		
	3		
	4		
	5		
2ND	1		
	2		
	3	10.3.22	Introduction and objectives
	4	11.3.22	Introduction and Transmission system.
	5	12.3.22	Automobiles: Defination, need of
3RD	1		Classification
	2	14.3.22	Layout of automobile chasis With Major Components
	3	15.3.22	Clutch system - need and type. and working
	4	16.3.22	Gear box - Purpose of Gearbox
	5		Construction and working of a 4 speed
4TH	1	17.3.22	gear box
	2		
	3	21.3.22	Concept of Automatic gear changing Mechanism.
	4	22.3.22	Gear Changing Mechanism
	5	23.3.22	Propeller shaft
5TH	1	24.3.22	Construction of features
	2	25.3.22	Differential - need
	3	28.3.22	Types and working Principle
	4	29.3.22	Breaking system - need and types
	5	30.3.22	Mechanical Brake
		31.3.22	Hydraulic Brake

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LESSON PLAN

BRANCH– Mechanical Engg. SEM- 6th

FACULTY NAME– Bijaymadhaba Sahoo SUBJECT- Automobile Engg and Hybrid Vehicles

MONTH-	NO OF CLASSES PER WEEK ALLOTTED		SEM FROM DT- 10/3/22 TO DT- 10/6/22 NO. OF WEEKS
WEEK	CLASS DAY	DATE	THEORY/PRACTICAL TOPICS
1ST	1	2.4.22	Air break
	2	4.4.22	Air assisted Hydraulic break
	3	5.4.22	Vacuum Brake
	4	6.4.22	Ignition and Suspension system.
	5		Describe the battery ignition
2ND	1	7.4.22	Magnet ignition system
	2	8.4.22	Spark Plugs. Purpose, Construction and
	3	9.4.22	Specification
	4	11.4 22	state the Common ignition troubles and remedies.
	5	12.4.22	Describe the Conventional Suspension system
3RD	1		for rear axle.
	2	13.4 22	Describe Conventional suspension system
	3		for front axle.
	4	19.4 22	Describe the Independent Suspension
	5	20.4.22	system used in cars
4TH	1	21.04.22	Construction features and working of a
	2		telescopic shock absorber.
	3	25.4.22	Cooling and Lubrication
	4		Engine Cooling
	5	26.4.22	Classification
5TH	1	27.4.22	Difect of Cooling and their remedial
	2	28.4.22	Measures
	3	29.4.22	Describe the function of lubrication
	4	30.4.22	Describe the lubrication system of IC
	5		engine

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BRANCH-- Mechanical Engg. SEM- 6th

FACULTY NAME-- Bindumadhab Dolai SUBJECT- Automobile Engg & Hybrid Vehicle

MONTH- | NO OF CLASSES PER WEEK ALLOTTED | SEM FROM DT- 10/3/22 TO DT- 10/6/22 NO. OF WEEKS

WEEK	CLASS DAY	DATE	THEORY/PRACTICAL TOPICS
1ST	1	2.5.22	Fuel system
	2		Describe Air fuel ratio
	3	4.5.22	Describe Carburation Process for Petrol
	4	5.5.22	Engine.
	5	6.5.22	Describe Multipoint fuel injection system
2ND	1	7.5.22	for Petrol Engine
	2	9.5.22	Describe the working principle of fuel
	3	10.5.22	injection system for multicylinder Engine
	4	11.5.22	Fuel for diesel Engine
	5	12.5.22	Describe the working Principle of fuel
3RD	1	13.5.22	feed pump and fuel injector for diesel
	2		Engine
	3	14.5.22	Electric Hybrid Vehicles
	4		Introduction
	5	17.5.22	Social and Environmental importance of
4TH	1	18.5.22	Hybrid and Electric Vehicles
	2	19.5.22	Description of Electric Vehicles
	3	20.5.22	Operational advantages, Present
	4	235.22	Performance and application of Electric Veh.
	5	24.5.22	Battery for Electric vehicles
5TH	1	25.5.22	Battery types and fuel cells
	2	26.5.22	Hybrid Vehicles types of Hybrid Vehicle
	3	27.5.22	Parallel, Series, Parallel and Series
	4	31.5.22	Configuration
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LESSON PLAN

BRANCH-- Mech. Engg.
FACULTY NAME-- Bindumadhaba Dalei

SEM- 6th
SUBJECT- Automobile Engg and Hybrid Vehicle

MONTH- NO OF CLASSES PER WEEK ALLOTTED
SEM FROM DT- 10/3/22 TO DT- 10/6/22
NO. OF WEEKS

WEEK	CLASS DAY	DATE	THEORY/PRACTICAL TOPICS
1ST	1	1.6.22	Drive train
	2	2.6.22	Drive train
	3	3.6.22	Solar Powered vehicles
	4	4.6.22	Solar Powered vehicles
	5	6.6.22	Solar Powered vehicles
2ND	1	7.6.22	Revision Transmission system
	2	8.6.22	Revision Breaking system
	3	9.6.22	Ignition system (Revision)
	4	10.6.22	Cooling System (Revision)
	5		
3RD	1		
	2		
	3		
	4		
	5		
4TH	1		
	2		
	3		
	4		
	5		
5TH	1		
	2		
	3		
	4		
	5		

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LESSON PLAN

BRANCH-- MECHANICAL ENGG. SEM- 6 TH

FACULTY NAME-- UTTAM KUMAR BEHERA SUBJECT- POWER STATION ENGINEERIN

MONTH- | NO OF CLASSES PER WEEK ALLOTTED | SEM FROM DT- 10/03/22 TO DT- 10/06/22 NO. OF WEEKS 16

WEEK	CLASS DAY	DATE	THEORY/PRACTICAL TOPICS
1ST	1		
	2		
	3		
	4		
	5		
2ND	1		
	2		
	3	10/03/22	Introduction about Power Station Engineering
	4	11/03/22	Various source of energy.
	5	12/03/22	Concept of Central and Captive power station
3RD	1	14/03/22	Classification of power plants.
	2	15/03/22	Importance of electrical power.
	3	17/03/22	Overview of method of electrical power generation.
	4	21/03/22	Layout of steam power stations.
	5	22/03/22	Carnot vapour power cycle with P-V, T-S dia.
4TH	1	24/03/22	Thermal efficiency of carnot v.p. cycle.
	2	25/03/22	Rankine cycle with P-V, T-S. & H-S diagram.
	3	26/03/22	Thermal efficiency, workdone, work ratio
	4		
	5		
5TH	1	28/03/22	specific steam consumption of Rankine cycle.
	2	29/03/22	Simple problems on Carnot and Rankine cycle.
	3	31/03/22	Simple problems on Carnot & Rankine cycle.
	4		
	5		

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LESSON PLAN

BRANCH-- MECH. ENGG. SEM- 6TH

FACULTY NAME-- UTTAM KUMAR BEHERA SUBJECT- POWER STATION ENGG.

MONTH-	NO OF CLASSES PER WEEK ALLOTTED		SEM FROM DT- 10/3/22 TO DT- 10/6/22 NO. OF WEEKS 16
WEEK	CLASS DAY	DATE	THEORY/PRACTICAL TOPICS
1ST	1		
	2		
	3		
	4		
	5	2/04/22	Thermal Power stations in the state.
2ND	1	4/04/22	Capacities of thermal power stations.
	2	5/04/22	Operation of Air pre heater, Economiser,
	3	7/04/22	Electrostatic precipitator, superheater.
	4	8/04/22	Need of boiler mountings & operation of boiler.
	5	9/04/22	Draught systems with advantages & disadvantages
3RD	1	11/04/22	Draught system.
	2	12/04/22	Advantages & Disadvantages of steam
	3	16/04/22	turbine. Elements of steam turbine,
	4		Governing of steam turbine. Performance
	5		of steam turbine and various efficiencies.
4TH	1	18/04/22	Function and classification of condenser.
	2	19/04/22	Functions of hot well, condenser extraction
	3	21/04/22	pump, air extraction pump & circulating pump.
	4	22/04/22	Function and types of cooling tower & spray ponds.
	5	23/04/22	Selection of site for thermal power stations.
5TH	1	25/04/22	Classification of nuclear fuel.
	2	26/04/22	Explaination of fusion & fission reaction
	3	28/04/22	Working of nuclear power plants.
	4	29/04/22	Working & construction of nuclear reactor.
	5	30/04/22	Comparison betn nuclear & thermal plants.

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BRANCH-- MECH. ENGG. SEM- 6 TH
FACULTY NAME-- UTTAM KUMAR BEHERA SUBJECT- POWER STATION ENGG.

MONTH-	NO OF CLASSES PER WEEK ALLOTTED		SEM FROM DT- 10/3/22 TO DT- 10/6/22 NO. OF WEEKS 16
WEEK	CLASS DAY	DATE	THEORY/PRACTICAL TOPICS
1ST	1	2/05/22	Disposal of nuclear waste
	2	5/05/22	Selection of site for nuclear power stations.
	3	6/05/22	List of nuclear powere stations.
	4	7/05/22	Advantages and disadvantages of diesel.
	5		
2ND	1	9/05/22	electric power stations.
	2	10/05/22	Fuel storage and fuel supply system.
	3	12/05/22	Fuel injection system, Air supply system
	4	13/05/22	Exhaust system, cooling system
	5	14/05/22	Lubrication system, starting system, Governing system
3RD	1		
	2	17/05/22	Site selection for diesel electric power stations.
	3	19/05/22	Performance and efficiency of diesel
	4	20/05/22	electric powere stations.
	5	21/05/22	Advantages of hydro electric powereplant.
4TH	1	23/05/22	Disadvantages of hydro electric powere plant.
	2	24/05/22	Classification and explaination of
	3	26/05/22	the general arerangement of storage
	4	27/05/22	type hydroelectric project.
	5	28/05/22	Operation of hydel powere plant.
5TH	1		
	2	31/05/22	Site selection for hydel powere plant.
	3		
	4		
	5		

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BRANCH-- MECH. ENGG. SEM- 6TH

FACULTY NAME-- UTTAM KUMAR BEHERA SUBJECT- POWER STATION ENGG.

MONTH- NO OF CLASSES PER WEEK ALLOTTED SEM FROM DT- 10/3/22 TO DT- 10/6/22 NO. OF WEEKS 16

WEEK	CLASS DAY	DATE	THEORY/PRACTICAL TOPICS
1ST	1		
	2		
	3	2/06/22	List of hydro power stations in the state.
	4	3/06/22	Types of turbines & generation used..
	5	4/06/22	Simple problems on hydel power stations
2ND	1	6/06/22	Site selection for gas turbine stations.
	2	7/06/22	Fuels for gas turbines.
	3	9/06/22	Elements of simple gas turbine power plants
	4	10/06/22	Merits, demerits & application of gas
	5		turbine power plants.
3RD	1		
	2		
	3		
	4		
	5		
4TH	1		
	2		
	3		
	4		
	5		
5TH	1		
	2		
	3		
	4		
	5		

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LESSON PLAN

BRANCH-- MECHANICAL ENGG. SEM- 6th

FACULTY NAME-- SAUBHAGYA MOHANTY SUBJECT- ADVANCE MANUFACTURING

MONTH- NO OF CLASSES PER WEEK ALLOTTED | SEM FROM DT- 10.03.2022 TO DT- 10.06.2022. NO. OF WEEKS

WEEK	CLASS DAY	DATE	THEORY/PRACTICAL TOPICS
1ST	1		
	2		
	3		
	4		
	5		
2ND	1		
	2		
	3		
	4	10.3.22	INTRODUCTION - Comparison with traditional
	5		machining.
3RD	1	11.3.22	ULTRASONIC MACHINING: Principle
	2	12.3.22	Description of equipment, application.
	3	14.3.22	ELECTRO DISCHARGE MACHINING:- principle,
	4	15.3.22	Description of Equipment, Dielectric
	5		fluid. tools (Electrodes)
4TH	1	16.3.22	Process parameters, Output characteristics
	2		Applications of EDM.
	3	17.3.22	Wire Cut EDM:- Principle, Description
	4		of Equipment
	5	21.3.22	Controlling parameters, application.
5TH	1	22.3.22	Abrasive Jet Machining: Principle
	2		Description of Equipment.
	3	23.3.22	Material removal rate, application.
	4	24.3.22	Laser Beam Machining:. Principle
	5	25.3.22	Description of Equipment.
		28.3.22	Material removal rate, application.

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BRANCH-- MECHANICAL ENGG SEM- 6TH

FACULTY NAME-- SAUBHAGYA MOHANTY SUBJECT- ADVANCE MANUFACTURING

MONTH- SEM FROM DT- TO DT-

NO OF CLASSES PER WEEK ALLOTTED

NO. OF WEEKS

WEEK	CLASS DAY	DATE	THEORY/PRACTICAL TOPICS
1ST	1	29.3.22	ELECTRO CHEMICAL MACHINING: Principle
	2	30.3.22	Description of Equipment
	3	31.3.22	Material removal rate, Application.
	4	2.4.22	PLASMA ARC MACHINING:- Principle
	5	4.4.22	Description of Equipment. Material removal
2ND	1		rate
	2	5.422	Process Parameters, Performance.
	3		Characterization, Application.
	4	6.4.22	ELECTRON BEAM MACHINING:-
	5		Principle, description of Equipment
3RD	1		Material removal rate.
	2	7.4.22	Process parameters, Performance.
	3		Characterization, Application.
	4	8.4.22	PLASTIC PROCESSING.
	5		Processing of Plastic.
4TH	1	9.4.22.	Moulding process, Injection moulding
	2	11.4.22	Compression moulding, Transfer moulding
	3	12.4.22	Extruding, Casting
	4	13.4.22	Calendering
	5	19.4.22	Fabrication methods - Sheet forming.
5TH	1	20.4.22	Blow moulding
	2	21.4.22	Laminating Plastics (Sheets, rods & tubes)
	3	25.4.22	Reinforcing.
	4	26.4.22	Application of plastics.
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LESSON PLAN

BRANCH-- MECHANICAL ENGG — SEM- 6TH SEM
FACULTY NAME-- SAUBHAGYA MOHANTY — SUBJECT- ADVANCE MANUFACTURING

MONTH-	NO OF CLASSES PER WEEK ALLOTTED		SEM FROM DT- TO DT- NO. OF WEEKS
WEEK	CLASS DAY	DATE	THEORY/PRACTICAL TOPICS
1ST	1	27.4.22	ADDITIVE MANUFACTURING PROCESS :-
	2		Introduction, Need for additive Manufacturing
	3	28.4.22	fundamentals of Additive Manufacturing
	4		Process.
	5	29.4.22	Additive Manufacturing process Chain.
2ND	1	30.4.22	Advantages Limitation of AM Process.
	2		Commonly Used terms.
	3	2.5.22	Classification of AM Process
	4	4.5.22	fundamental Automated process.
	5	5.5.22	Distinction between AM and CNC, other.
3RD	1		related technologies.
	2	6.5.22	Application- Application in Design
	3	7.5.22	Aerospace Industry, Automotive Industry.
	4		Jewelery Industry
	5	9.5.22	Arts and Architecture. RP Medical
4TH	1		and Bioengineering Applications.
	2	10.5.22	Web Based rapid prototyping System.
	3	11.5.22	—DO—
	4	12.5.22	Concept of flexible manufacturing
	5		process
5TH	1	13.5.22	Concurrent Engineering, production
	2	.	tools like Capston and turret lathes.
	3	14.5.22	Rapid Prototyping process.
	4		
	5		
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LESSON PLAN

BRANCH-- MECHANICAL ENGG SEM- 6th

FACULTY NAME-- SAUBHAGYA MOHANTY SUBJECT- ADVANCE MANUFACTURING

MONTH- NO OF CLASSES PER WEEK ALLOTTED SEM FROM DT- TO DT- NO. OF WEEKS

WEEK	CLASS DAY	DATE	THEORY/PRACTICAL TOPICS
1ST	1	17.5.22	SPECIAL PURPOSE MACHINES (SPM)
	2		concept.
	3	18.5.22	General Elements of SPM
	4	19.5.22	Productivity improvement by (SPM)
	5	20.5.22	— Do —
2ND	1	21.5.22	Principle of SPM design.
	2	23.5.22	— Do —
	3	24.5.22	Maintenance of Machine Tools :-
	4		Types of maintenance.
	5	25.5.22	Repair Cycle analysis
3RD	1	26.5.22	Repair Complexity.
	2	27.5.22	Maintenance Manual
	3	31.5.22	Maintenance Records.
	4	1.6.22	Housekeeping.
	5	2.6.22	Introduction to total Productive
4TH	1		maintenance. (TPM)
	2	3.6.22	— Do —
	3	4.6.22	Revision of Modern Machining process.
	4	6.7.22	— Do —
	5	7.6.22	Revision plastic processing.
5TH	1	8.6.22	Revision of additive manufacturing
	2		Process.
	3	9.6.22	Revision Special purpose machine.
	4	10.6.22	Maintenance of Machine Tools Revision.
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