

SYNERGY SCHOOL OF ENGINEERING, DHENKANAL



LESSON PLAN

Session (2026-2027)

Discipline: Mechanical Engineering	Semester: 5th, Winter/2026	Name of the Faculty: Mr Mihir Kumar Swain Lecturer Email ID: rmihirswain13@gmail.com
Subject: IE&M, Theory-3(A) Course code- MEPE301(A)	No. of Days/week: 03	Start Date: 01/07/2026 End Date: 05/11/26

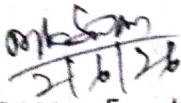
Week	Class Day	Theory Topics
1st	1st	Plant; Selection of site of industry; Plant layout; Principles of a good layout
	2nd	Types; Process; Product and Fixed position; Techniques to improve Layout;
	3rd	Principles of Material handling equipment; Plant maintenance; Importance;
2nd	1st	Break down maintenance; Preventive maintenance and Scheduled maintenance.
	2nd	Plant Safety: Importance; Accident: Causes and Cost of an Accident
	3rd	Accident Proneness, Prevention of Accidents;
3rd	1st	Industrial disputes; Settlement of Industrial disputes; Collective bargaining; Conciliation; Mediation
	2nd	Arbitration; Indian Factories Act 1948 and its provisions related to health, welfare and safety.
	3rd	Work Study: Productivity; Standard of living; Method of improving Productivity;
4th	1st	Objectives; Importance of good working conditions.

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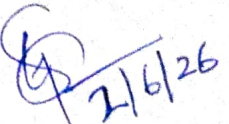
	2nd	Method Study: Definition; Objectives; Selection of a job for method study; Basic procedure for conduct of Method study
	3rd	Tools used; Operation process chart; Flow process chart; Two handed process chart;
5th	1st	Man Machine chart; String diagram and flow diagram.
	2nd	Work Measurement: Definition; Basic procedure in making a time study; Employees rating factor
	3rd	Application of time allowances: Rest, Personal, Process, Special and Policy allowances
6th	1st	Calculation of standard time; Numerical Problems; Basic concept of production study
	2nd	Techniques of Work Measurement; Ratio delay study; Synthesis from standard data; Analytical estimating
	3rd	Predetermined Motion Time System (PMTS).
7th	1st	Production Planning and Control: Introduction; Major functions of Production Planning and Control; Preplanning ; Methods of forecasting
	2nd	Routing and Scheduling; Dispatching and Controlling
	3rd	Concept of Critical Path Method (CPM);
8th	1st	Types of Production: Mass Production, Batch Production and Job Order Production;
	2nd	Characteristics; Economic Batch Quantity (EBQ); Principles of Product and Process Planning; Make or Buy decision;
	3rd	Numerical problems.
9th	1st	Quality Control: Definition; Objectives; Types of Inspection: First piece, Floor and Centralized Inspection; Advantages and Disadvantages;

	2nd	Statistical Quality Control; Types of Measurements
	3rd	Method of Variables; Method of Attributes; Uses of X, R, p and c chart Operating Characteristics curve (O.C curve); Sampling Inspections
10th	1st	Single and Double Sampling plan; Concept of ISO 9001:2008
	2nd	Quality Management System Registration/Certification pro Benefits of ISO to the organization cadre;
	3rd	Principles of Management: Definition of Management; Administration; Organization; F.W. Taylor's and Henry Fayol's Principles of Management;
11th	1st	Functions of Manager; Types of Organization: Line, Staff, Taylor's Pure functional types;
	2nd	Line and staff and committee type; Directing; Leadership; Styles of Leadership; Qualities of a good leader; Motivation; Positive and Negative Motivation;
	3rd	Modern Management Techniques; Just In Time; Total Quality Management (TQM); Quality circle; Zero defect concept;
12th	1st	5S Concept; Management Information Systems.
	2nd	Personnel Management: Responsibility of Human Resource Management; Selection Procedure; Training of Workers; Apprentice Training;
	3rd	On the Job training and Vestibule School Training; Job Evaluation and Merit Rating; Objectives and Importance;
13th	1st	Wages and Salary Administration; Components of Wages; Wage Fixation;
	2nd	Type of Wage Payment: Halsey's 50% Plan, Rowan's Plan and Emerson's efficiency plan; Numerical Problems.
	3rd	Financial Management: Fixed and Working Capital; Resources of Capital; Shares Preference and Equity Shares;
14th	1st	Debentures; Type of debentures; Public Deposits; Factory Costing: Direct Cost; Indirect Cost; Factory Overhead;
	2nd	selling Price of a product; Profit; Numerical Problems;

	3rd	Depreciation; Causes; Methods: Straight line, sinking fund and percentage on Diminishing Value Method; Numerical Problems.
15th	1st	Material Management: Objectives of good stock control system; ABC analysis of Inventory
	2nd	Procurement and Consumption cycle; Minimum Stock, Lead Time,
	3rd	Reorder Level-Economic Order Quantity problems; Supply Chain.


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 Concern Faculty


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