

ASIAN SCHOOL OF TECHNOLOGY, KHORDHA
ACADEMIC LESSON PLAN (SUMMER 2026)
TH-1 Industrial Engineering & Management

Discipline: Mechanical Engineering	Semester: 6 th Sem	Name of the Teaching Faculty : Rajendra Sethy
Subject: TH-1 Industrial Engineering & Management	No. of days/per week class allotted:4p/week	Semester From: 05 th JAN 2026 to 18 th APRIL 2026 No.ofWeeks:15 weeks
Week	Class Day	Theory Topics
1st	1st	1. PLANT ENGINEERING 1.1 Selection of Site of Industry
	2nd	1.2 Define plant layout 1.3 Objectives and principles of plant layout
	3rd	1.4 Explain Process Layout, Product Layout and Combination Layout
	4th	1.5 Techniques to improve layout
2nd	1st	1.6 Principles of material handling equipment
	2nd	1.7 Plant maintenance 1.7.1 Importance of plant maintenance
	3rd	1.7.2 Breakdown maintenance 1.7.3 Preventive maintenance
	4th	1.7.4 Scheduled maintenance
3rd	1st	2. OPERATIONS RESEARCH 2.1 Introduction to Operations Research and its applications
	2nd	2.2 Define Linear Programming Problem (LPP)
	3rd	2.3 Solution of L.P.P. by graphical method (Part 1)
	4th	2.3 Solution of L.P.P. by graphical method (Part 2 - examples)
4th	1st	2.4 Evaluation of Project completion time by Critical Path Method (CPM)
	2nd	2.4 CPM - simple problems
	3rd	2.4 PERT - introduction and concepts
	4th	2.4 PERT - simple problems 2.5 Distinct features of PERT with respect to CPM
5th	1st	3. INVENTORY CONTROL 3.1 Classification of inventory 3.2 Objective of inventory control
	2nd	3.3 Functions of inventories 3.4 Benefits of inventory control
	3rd	3.5 Costs associated with inventory 3.6 Terminology in inventory control
	4th	3.7 Explain and Derive economic order quantity (EOQ) for Basic model
6th	1st	3.7 EOQ - solve numerical problems
	2nd	3.8 Define and Explain ABC analysis
	3rd	Inventory Control revision and problem solving
	4th	4. INSPECTION AND QUALITY CONTROL 4.1 Define Inspection and Quality control 4.2 Planning of inspection
7th	1st	4.3 Types of inspection
	2nd	4.4 Advantages and disadvantages of quality control 4.5 Factors influencing the quality of manufacture
	3rd	4.6 Concept of statistical quality control Control charts (X and R charts)
	4th	4.6 Control charts (P and C charts)
8th	1st	4.7 Methods of attributes
	2nd	4.8 Concept of ISO 9001-2008 4.9.1 Quality management system, Registration/certification procedure
	3rd	4.9.2 Benefits of ISO to the organization 4.9.3 JIT, Six sigma, 7S, Lean manufacturing
	4th	4.9.4 Solve related problems
9th	1st	Inspection and Quality Control revision
	2nd	5. PRODUCTION PLANNING AND CONTROL

		5.1 Introduction
		5.2 Major functions of production planning and control
	3rd	5.3 Methods of forecasting
	4th	5.3.1 Routing
10th	1st	5.3.2 Scheduling
	2nd	5.3.3 Dispatching
	3rd	5.3.4 Controlling
	4th	5.4 Types of production 5.4.1 Mass production
11th	1st	5.4.2 Batch production 5.4.3 Job order production
	2nd	5.5 Principles of product and process planning
	3rd	Production Planning and Control problem solving
	4th	REVISION Revision of Units 1 & 2
12th	1st	Revision of Units 3 & 4
	2nd	Revision of Unit 5
	3rd	Comprehensive problem solving session
	4th	MODEL TEST 1
13th	1st	MODEL TEST 2
	2nd	Doubt clearing session (Units 1-3)
	3rd	Doubt clearing session (Units 4-5)
	4th	Course review - important concepts and applications
14th	1st	Industry case studies and applications
	2nd	Final assessment
	3rd	Feedback session
	4th	Course conclusion and exam preparation guidance
15th	1st	Reserve/Extra class if needed
	2nd	Reserve/Extra class if needed
	3rd	Reserve/Extra class if needed
	4th	Reserve/Extra class if needed

Rosealita Satthy

Signature of Teaching Faculty

ASIAN SCHOOL OF TECHNOLOGY, KHORDHA
ACADEMIC LESSON PLAN (SUMMER 2026)
TH-2 Automobile Engineering and Hybrid Vehicles

Discipline: Mechanical Engineering	Semester: 6 th Sem	Name of the Teaching Faculty: Sudhir Kumar Mahapatra
Subject: TH-2 (AE&HV)	No. of days/per week class allotted:4p/wee k	Semester From: 5 th January to 18 th April 2026 No.ofWeeks:15 weeks
Week	Class Day	Theory Topics
1st	1st	1.0 INTRODUCTION & TRANSMISSION SYSTEM 1.1 Automobiles: Definition, need and classification
	2nd	1.1 (Cont.) Layout of automobile chassis with major components (Line diagram)
	3rd	1.2 Clutch System: Need, Types (Single & Multiple) and Working principle with sketch
	4th	1.2 (Cont.) Clutch system details and working
2nd	1st	1.3 Gear Box: Purpose of gear box, Construction and working of a 4-speed gear box
	2nd	1.3 (Cont.) Gear box operation and mechanisms
	3rd	1.4 Concept of automatic gear changing mechanisms
	4th	1.5 Propeller shaft: Constructional features
3rd	1st	1.6 Differential: Need, Types and Working principle
	2nd	1.6 (Cont.) Differential operation and applications
	3rd	2.0 BRAKING SYSTEM 2.1 Braking systems in automobiles: Need and types
	4th	2.2 Mechanical Brake
4th	1st	2.3 Hydraulic Brake
	2nd	2.4 Air Brake
	3rd	2.5 Air assisted Hydraulic Brake
	4th	2.6 Vacuum Brake
5th	1st	3.0 IGNITION & SUSPENSION SYSTEM 3.1 Battery ignition and Magnet ignition system
	2nd	3.1 (Cont.) Comparison and working of ignition systems
	3rd	3.2 Spark plugs: Purpose, construction and specifications
	4th	3.3 Common ignition troubles and remedies
6th	1st	3.4 Conventional suspension system for Rear and Front axle
	2nd	3.4 (Cont.) Suspension system components and working
	3rd	3.5 Independent suspension system used in cars (coil spring and tension bars)
	4th	3.6 Constructional features and working of telescopic shock absorber
7th	1st	4.0 COOLING AND LUBRICATION 4.1 Engine cooling: Need and classification
	2nd	4.2 Defects of cooling and remedial measures
	3rd	4.3 Function of lubrication
	4th	4.4 Lubrication System of I.C. engine
8th	1st	4.4 (Cont.) Lubrication system components and operation
	2nd	5.0 FUEL SYSTEM 5.1 Air fuel ratio
	3rd	5.2 Carburetion process for Petrol Engine
	4th	5.3 Multipoint fuel injection system for Petrol Engine
9th	1st	5.4 Working principle of fuel injection system for multi-cylinder Engine
	2nd	5.5 Filter for Diesel engine
	3rd	5.6 Working principle of Fuel feed pump and Fuel Injector for Diesel engine
	4th	5.6 (Cont.) Diesel fuel system components
10th	1st	6.0 ELECTRIC AND HYBRID VEHICLES 6.1 Introduction, Social and Environmental importance of Hybrid and Electric Vehicles
	2nd	6.2 Description of Electric Vehicles, operational advantages, performance and applications
	3rd	6.3 Battery for Electric Vehicles, Battery types and fuel cells
	4th	6.3 (Cont.) Battery technology and fuel cell systems

11th	1st	6.4 Hybrid vehicles, Types: Parallel, Series, Parallel and Series configurations
	2nd	6.4 (Cont.) Hybrid vehicle configurations and working
	3rd	6.5 Drive train
	4th	6.6 Solar powered vehicles
12th	1st	Revision: Units 1 & 2
	2nd	Revision: Units 3 & 4
	3rd	Revision: Units 5 & 6
	4th	Problem solving session
13th	1st	Model Test / Assessment 1
	2nd	Model Test / Assessment 2
	3rd	Doubt clearing session (Units 1-3)
	4th	Doubt clearing session (Units 4-6)
14th	1st	Final assessment
	2nd	Course review and important concepts
	3rd	Industry applications and case studies
	4th	Feedback session
15th	1st	Reserve/Extra class if needed
	2nd	Reserve/Extra class if needed
	3rd	Reserve/Extra class if needed
	4th	Course conclusion

Sudhinkumar Mahapatra
Signature of Teaching Faculty

ASIAN SCHOOL OF TECHNOLOGY, KHORDHA
ACADEMIC LESSON PLAN (SUMMER 2026)
TH-3 Power Station Engineering

Discipline: Mechanical Engineering	Semester: 6 th Sem	Name of the Teaching Faculty : PRIYARANJAN PATTANAIK
Subject: TH-3 (Power Station Engineering)	No. of days/per week class allotted:4p/week	Semester From: 05 th JAN 2026 to 18 th APRIL 2026 No.ofWeeks:15 weeks
Week	Class Day	Theory Topics
1st	1st	1.0 INTRODUCTION 1.1 Describe sources of energy 1.2 Explain concept of Central and Captive power station
	2nd	1.3 Classify power plants 1.4 Importance of electrical power in day today life
	3rd	1.5 Overview of method of electrical power generation
	4th	2.0 THERMAL POWER STATIONS 2.1 Layout of steam power stations
2nd	1st	2.2 Steam power cycle: Carnot vapour power cycle with P-V, T-s diagrams and thermal efficiency
	2nd	2.3 Rankine cycle with P-V, T-S, H-s diagrams; thermal efficiency, work done, specific steam consumption
	3rd	2.4 Select thermal power stations in the state with their capacities
	4th	2.5 Boiler Accessories: Operation of Air pre-heater, Economiser, Electrostatic precipitator, Super heater
3rd	1st	2.5 (Cont.) Need of boiler mountings and operation of boiler
	2nd	2.6 Draught systems (Natural, Forced & Balanced draught) with advantages & disadvantages
	3rd	2.7 Steam prime movers: Advantages & disadvantages of steam turbine, Elements of steam turbine
	4th	2.7 (Cont.) Governing of steam turbine; Thermal efficiency, Stage Efficiency, Overall efficiency
4th	1st	2.8 Steam condenser: Function, Classification, Condenser auxiliaries (hot well, extraction pumps, cooling water)
	2nd	2.9 Cooling water: Functions and types of cooling tower, spray ponds
	3rd	2.10 Selection of site for thermal power stations
	4th	3.0 NUCLEAR POWER STATIONS 3.1 Classify nuclear fuel (Fissile & fertile material)
5th	1st	3.2 Explain fusion and fission processes
	2nd	3.3 Working of nuclear power plants with block diagram
	3rd	3.4 Working process and construction of nuclear reactor
	4th	3.5 Compare nuclear and thermal plants
6th	1st	3.6 Disposal of nuclear waste
	2nd	3.7 Selection of site for nuclear power stations
	3rd	3.8 List of nuclear power stations
	4th	4.0 DIESEL ELECTRIC POWER STATIONS 4.1 Advantages and disadvantages of diesel electric power stations
7th	1st	4.2 Different systems of diesel electric power stations: Fuel storage and supply system
	2nd	4.2 (Cont.) Fuel injection system, Air supply system, Exhaust system
	3rd	4.2 (Cont.) Cooling system, Lubrication system, Starting system, Governing
	4th	4.3 Selection of site for diesel electric power stations
8th	1st	4.4 Performance and thermal efficiency of diesel electric power stations
	2nd	5.0 HYDEL POWER STATIONS 5.1 Advantages and disadvantages of hydroelectric power plant
	3rd	5.2 Classification and general arrangement of storage type hydroelectric project and its operation
	4th	5.3 Selection of site of hydel power plant
9th	1st	5.4 List of hydel power stations with capacities and number of units in the state

	2nd	5.5 Types of turbines and generators used
	3rd	5.6 Simple problems
	4th	6.0 GAS TURBINE POWER STATION 6.1 Selection of site for gas turbine stations
10th	1st	6.2 Layout of gas turbine
	2nd	6.3 Elements of starting gas turbine power plants
	3rd	6.4 Merits, demerits and application of gas turbine power plants
	4th	REVISION Revision of Introduction and Thermal Power Stations
11th	1st	Revision of Thermal and Nuclear Power Stations
	2nd	Revision of Nuclear and Diesel Power Stations
	3rd	Revision of Diesel and Hydel Power Stations
	4th	Revision of Hydel and Gas Turbine Power Stations
12th	1st	MODEL TEST 1
	2nd	MODEL TEST 1 (Continued)
	3rd	MODEL TEST 2
	4th	MODEL TEST 2 (Continued)
13th	1st	Doubt clearing session
	2nd	Problem solving session
	3rd	Course review (Units 1-3)
	4th	Course review (Units 4-6)
14th	1st	Final assessment
	2nd	Final assessment (Continued)
	3rd	Feedback session
	4th	Course conclusion
15th	1st	Reserve/Extra class if needed
	2nd	Reserve/Extra class if needed
	3rd	Reserve/Extra class if needed
	4th	Reserve/Extra class if needed

Pradyumn Pattnaik

Signature of Teaching Faculty

ASIAN SCHOOL OF TECHNOLOGY, KHORDHA
ACADEMIC LESSON PLAN (SUMMER 2026)
TH-4B Advance Manufacturing Process

Discipline: Mechanical Engineering	Semester: 6 th Sem	Name of the Teaching Faculty : Gopabandhu Swain
Subject: TH- 4B (Advance manufacturing process)	No. of days/per week class allotted:4p/week	Semester From: 05 th JAN 2026 to 18 th APRIL 2026 No.ofWeeks:15 weeks
Week	Class Day	Theory Topics
1st	1st	1.0 Modern Machining Processes 1.1 Introduction – comparison with traditional machining
	2nd	1.2 Ultrasonic Machining: principle, description of equipment
	3rd	1.2 (Cont.) Ultrasonic Machining: applications
	4th	1.3 Electric Discharge Machining: Principle, description of equipment
2nd	1st	1.3 (Cont.) EDM: Dielectric fluid, tools (electrodes), process parameters
	2nd	1.3 (Cont.) EDM: Output characteristics, applications
	3rd	1.4 Wire cut EDM: Principle, description of equipment
	4th	1.4 (Cont.) Wire cut EDM: controlling parameters; applications
3rd	1st	1.5 Abrasive Jet Machining: principle, description of equipment
	2nd	1.5 (Cont.) Abrasive Jet Machining: Material removal rate, application
	3rd	1.6 Laser Beam Machining: principle, description of equipment
	4th	1.6 (Cont.) Laser Beam Machining: Material removal rate, application
4th	1st	1.7 Electro Chemical Machining: principle, description of equipment
	2nd	1.7 (Cont.) Electro Chemical Machining: Material removal rate, application
	3rd	1.8 Plasma Arc Machining: principle, description of equipment
	4th	1.8 (Cont.) Plasma Arc Machining: Material removal rate, process parameters, applications
5th	1st	1.8 (Cont.) Plasma Arc Machining: performance characterization
	2nd	1.9 Electron Beam Machining: principle, description of equipment
	3rd	1.9 (Cont.) Electron Beam Machining: Material removal rate, process parameters
	4th	1.9 (Cont.) Electron Beam Machining: performance characterization, applications
6th	1st	2.0 Plastic Processing 2.1 Processing of plastics
	2nd	2.2 Moulding processes: Injection moulding
	3rd	2.2 (Cont.) Compression moulding, Transfer moulding
	4th	2.3 Extruding; Casting; Calendering
7th	1st	2.4 Fabrication methods: Sheet forming, Blow moulding
	2nd	2.4 (Cont.) Laminating plastics (sheets, rods & tubes), Reinforcing
	3rd	2.5 Applications of Plastics
	4th	3.0 Additive Manufacturing Process 3.1 Introduction, Need for Additive Manufacturing
8th	1st	3.2 Fundamentals of Additive Manufacturing, AM Process Chain
	2nd	3.3 Advantages and Limitations of AM, Commonly used Terms
	3rd	3.4 Classification of AM process, Fundamental Automated Processes
	4th	3.4 (Cont.) Distinction between AM and CNC, other related technologies
9th	1st	3.5 Application in Design, Aerospace Industry
	2nd	3.5 (Cont.) Application in Automotive Industry, Jewelry Industry
	3rd	3.5 (Cont.) Application in Arts and Architecture, RP Medical and Bioengineering Applications
	4th	3.6 Web Based Rapid Prototyping Systems
10th	1st	3.7 Concept of Flexible manufacturing process, concurrent engineering
	2nd	3.7 (Cont.) Production tools like capstan and turret lathes, rapid prototyping processes
	3rd	4.0 Special Purpose Machines (SPM) 4.1 Concept, General elements of SPM
	4th	4.1 (Cont.) Productivity improvement by SPM, Principles of SPM design
11th	1st	5.0 Maintenance of Machine Tools 5.1 Types of maintenance

	2nd	5.1 (Cont.) Repair cycle analysis, Repair complexity
	3rd	5.1 (Cont.) Maintenance manual, Maintenance records
	4th	5.1 (Cont.) Housekeeping, Introduction to Total Productive Maintenance (TPM)
12th	1st	Revision: Unit 1 (Modern Machining Processes)
	2nd	Revision: Unit 2 (Plastic Processing) & Unit 3 (Additive Manufacturing)
	3rd	Revision: Unit 4 (SPM) & Unit 5 (Maintenance)
	4th	Problem solving session
13th	1st	Model Test / Assessment 1
	2nd	Model Test / Assessment 2
	3rd	Doubt clearing session (Units 1-3)
	4th	Doubt clearing session (Units 4-5)
14th	1st	Final assessment
	2nd	Course review and important concepts
	3rd	Industry applications and case studies
	4th	Feedback session
15th	1st	Reserve/Extra class if needed
	2nd	Reserve/Extra class if needed
	3rd	Reserve/Extra class if needed
	4th	Course conclusion

Gopabandhu Swain
Signature of Teaching Faculty