

Academic Lesson Plan for Production Technology (Winter-2023)		
Discipline: Mechanical Engineering	Semester: 3rd	Name of Faculty: Chandrasekhar Dash
Subject: Production Technology	No. of days/per week Class Allotted: 4	Semester from: 01/08/2023 - 30/11/2023
		No. of weeks:15
Week	Class Day	Theory Topics
1st	1st	UNIT-1: Extrusion: Definition & Classification
	2nd	Explain direct, indirect and impact extrusion process.
	3rd	Explain direct, indirect and impact extrusion process.
	4th	Define rolling. Classify it
2nd	1st	Differentiate between cold rolling and hot rolling process.
	2nd	List the different types of rolling mills used in Rolling process.
	3rd	List the different types of rolling mills used in Rolling process.
	4th	UNIT-2: Define welding and classify various welding processes.
3rd	1st	Explain fluxes used in welding.
	2nd	Explain Oxy-acetylene welding process.
	3rd	Explain Oxy-acetylene welding process.
	4th	Explain various types of flames used in Oxy-acetylene welding process
4th	1st	Explain various types of flames used in Oxy-acetylene welding process
	2nd	Explain Arc welding process.
	3rd	Explain Arc welding process.

	4th	Specify arc welding electrodes
5th	1st	Define resistance welding and classify it
	2nd	Define resistance welding and classify it
	3rd	Describe various resistance welding processes such as butt welding, spot welding
	4th	Describe various resistance welding processes such as butt welding, spot welding
6th	1st	flash welding, projection welding and Seam Welding
	2nd	Explain TIG and MIG welding process
	3rd	State different welding defects with causes and remedies.
	4th	State different welding defects with causes and remedies.
7th	1st	UNIT-3 Define Casting and Classify the various Casting processes
	2nd	Classify the various Casting processes
	3rd	Explain different types of molding sands with their composition and properties
	4th	Explain different types of molding sands with their composition and properties
8th	1st	Classify different pattern and state various pattern allowances
	2nd	Classify different pattern and state various pattern allowances
	3rd	Classify core.
	4th	Describe construction and working of cupola and crucible furnace.
	1st	Describe construction and working of cupola and crucible furnace.

9th	2nd	Explain die casting method
	3rd	Explain die casting method
	4th	Explain centrifugal casting such as true centrifugal casting,
10th	1st	centrifuging with advantages, limitation and area of application
	2nd	Explain various casting defects with their causes and remedies.
	3rd	Explain various casting defects with their causes and remedies.
	4th	causes and remedies of casting defects
11th	1st	UNIT-4 Define powder metallurgy process.
	2nd	State advantages of powder metallurgy technology technique
	3rd	Describe the methods of producing components by powder
	4th	powder metallurgy technique.
12th	1st	Explain sintering.
	2nd	Economics of powder metallurgy.
	3rd	UNIT-5 Describe Press Works: blanking, piercing and trimming
	4th	List various types of die and punch
13th	1st	Explain simple, Compound & Progressive dies
	2nd	Explain simple, Compound & Progressive dies
	3rd	Describe the various advantages & disadvantages of above dies
	4th	Describe the various advantages & disadvantages of above dies

14th	1st	UNIT-6 Define jigs and fixture
	2nd	State advantages of using jigs and fixtures
	3rd	State the principle of locations
	4th	Describe the methods of location with respect to 3-2-1 point location of rectangular jig
15th	1st	Describe the methods of location with respect to 3-2-1 point location of rectangular jig
	2nd	List various types of jig and fixtures.
	3rd	State the principle of locations
	4th	State the principle of locations

Chandrasekhar Dash

Academic Lesson Plan for Mechatronics (Winter-2023)		
Discipline: Mechanical Engineering	Semester: 5th	Name of Faculty: Chandrasekhar Dash
Subject: Mechatronics	No. of days/per week Class Allotted: 4	Semester from: 01/08/2023 - 30/11/2023
		No. of weeks:15
Week	Class Day	Theory Topics
1st	1st	UNIT-1 Definition of Mechatronics
	2nd	Advantages & disadvantages of Mechatronics, Application of Mechatronics
	3rd	Scope of Mechatronics in Industrial Sector
	4th	Components of a Mechatronics System
2nd	1st	Importance of mechatronics in automation
	2nd	UNIT-2 Defination of Transducers
	3rd	Classification of Transducers
	4th	Electromechanical Transducers
3rd	1st	Transducers Actuating Mechanisms
	2nd	Displacement & Positions Sensors
	3rd	Velocity, motion Sensors
	4th	force and pressure sensors
4th	1st	Temperature sensors
	2nd	Light sensors.
	3rd	Temperature and light sensors.

	4th	UNIT-3 Mechanical Actuators, Machine, Kinematic Link, Kinematic Pair
5th	1st	Mechanism, Slider crank Mechanism
	2nd	Gear Drive, Spur gear, Bevel gear, Helical gear, worm gear
	3rd	Belt & Belt drive , Bearing
	4th	Electrical Actuator, Switches and relay
6th	1st	Solenoid
	2nd	D.C Motors, A.C motors
	3rd	Stepper Motors
	4th	Specification and control of stepper motors
7th	1st	Servo Motors D.C & A.C
	2nd	UNIT-4 PROGRAMMABLE LOGIC CONTROLLERS(PLC)
	3rd	Introduction
	4th	Advantages of PLC
8th	1st	Selection and uses of PLC
	2nd	Selection and uses of PLC
	3rd	Architecture basic internal structures
	4th	Architecture basic internal structures
9th	1st	Input/output Processing and Programming
	2nd	Input/output Processing and Programming

	3rd	Input/output Processing and Programming
	4th	Mnemonics
10th	1st	Mnemonics
	2nd	Master and Jump Controllers
	3rd	Master and Jump Controllers
	4th	Master and Jump Controllers
11th	1st	UNIT-5 Introduction to Numerical Control of machines and CAD/CAM
	2nd	NC machines, CNC machines
	3rd	Software and hardware for CAD/CAM
	4th	Functioning of CAD/CAM system
12th	1st	Application areas for CAD/CAM
	2nd	Features and characteristics of CAD/CAM system,
	3rd	Elements of CNC machines
	4th	Machine Structure
13th	1st	Introduction and Types of Guideways
	2nd	2 Factors of design of guideway
	3rd	Drives
	4th	Spindle drives
	1st	Feed drive

14th	2nd	Spindle and Spindle Bearings
	3rd	Spindle and Spindle Bearings
	4th	UNIT-6 Definition, Function and laws of robotics
15th	1st	Types of industrial robots
	2nd	Robotic systems
	3rd	Robotic systems
	4th	Advantages and Disadvantages of robots

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