SAMANTA CHANDRASEKHAR INSTITUTE OF TECHNOLOGY & MANAGEMENT

SEMILIGUDA-763008, KORAPUT

DEPT. OF.....Mechanical Engineering...

LESSON PLAN AND PROGESS REGISTER

(To be maintained by all members of the teaching staff)

SESSION.....2023-2024.....

(Diploma 3rd & 5th Sem.)

NAME Er. Shankheswar Pangi

DESIGNATION Lecturer

DEPT. Mechanical

Shankheswar

SIGNATURE

This Lesson Plan and Progress Register is to be submitted to the Director for verification and counter signature twice in every semester. The H.O.D. must verify and sign this Register before submission.

COURSES ALLOTED

FOR DIFFERENT BRANCHES & SEMESTER (Degree/Diploma/+2 Science)

Semister	Course No.	Course Title
3rd	Th-3	Engineering Material

N.B. : Submission of Annual Lession Plan-cum-Progress Register and performance Report for Assessment are responsibility of each faculty member.

COURSES ALLOTED

FOR DIFFERENT BRANCHES & SEMESTER (Degree/Diploma/+2 Science)

Semister	Course No.	Course Title
5th	Th-4	Mechatronics

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 3rd Branch Mechanical

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
16 August 2024	Th-3 1.	Engineering materials and their properties 1.1. Material classification into ferrous	
		and non-ferrous category and alloys.	1
17/8/24		1.2. Properties of material.	1
18/8/24		1.3. Performance requirements	1
21/8/24		1.4. Material reliability and safety.	1
22/8/24	2.	Ferrous Materials and alloys 2.1. Characteristics and application	2
23/8/24		of ferrous materials.	
24/8/24		2.2. Classification, Composition and application of low carbon steel,	1
25/8/24		medium Carbon steel and High Carbon steel.	1
28/8/24 29/8/24		2.3. Alloy steel: Low alloy steel, high alloy steel, tool steel and Stainless steel.	2
31/8/24 01/9/24		2.4. Tool steel; Effect of various alloying elements such as C, Mn, Ni, V, Mo.	2
04/9/24 05/9/24	3.	Iron - Carbon System 3.1. Concept of phase diagram & Cooling Curves.	2
07/9/24 08/9/24		3.2. Features of Iron - Carbon diagram with salient	2

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 3rd Branch Mechanical

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
11/9/24	3.	micro-Constituents of Iron & Steel.	1
12/9/24	4.	Crystal Imperfections 4.1. Crystal defines, Classification of Crystals ideal Crystal.	1
13/9/24		4.2. Crystal imperfection and its Classification.	1
14/9/24 15/9/24		4.3. Types and Causes of point defects.	2
21/9/24 23/9/24		4.4. Interstitials and Impurities.	3
25/9/24 26/9/24		4.5. Effect of imperfection on material properties.	2
27/9/24 30/9/24		4.6. Deformation by slip and twinning.	3
03/10/24		4.7. Effect of deformation on material properties.	1
04/10/24	5.	Heat Treatment 5.1. Purpose of heat treatment	1
05/10/24 07/10/24		5.2. Process of heat treatment.	3
09/10/24 10/10/24		5.3. Surface hardening Carburizing and Nitriding.	2
11/10/24 12/10/24		5.4. Effect of heat treatment on Properties of Steel.	2

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 3rd Branch Mechanical

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
13/10/24		5.5. Hardenability of Steel.	1
16/10/24	6.	Non-Ferrous Alloys 6.1. Aluminium alloys : Composition,	
18/10/24		Property and usage of duralumin, Yalloy.	3
19/10/24 20/10/24		6.2. Copper alloys : Composition, Property and usage of Copper-aluminium,	2
30/10/24 31/10/24		Copper-tin, Babbit phosperous bronze, brass, Copper-Nickel.	2
01/11/24 02/11/24		6.3. Predominating elements of lead alloys, Zinc alloys and Nickel alloys.	2
06/11/24 07/11/24		6.4. Low alloy materials like P-91, P-22 for power plants and	2
08/11/24		other high temperature services.	1
09/11/24 10/11/24		6.5. High alloy materials like Stainless Steel grades of	2
11/11/24		duplex, Super duplex materials etc.	1
14/11/24	7.	Bearing Material 7.1. Classification, Composition,	
15/11/24		Properties and uses of Copper base, Tin base,	2
16/11/24 17/11/24		lead base, Cadmium base bearing material.	2

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 3rd Branch Mechanical

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
20/11/24 22/11/24	8.	8.1. Classification, Compotition, properties and uses of Iron-base and copper base Spring material.	3
23/11/24 24/11/24			2
28/11/24	9.	Polymers: 9.1. Properties and application of Polymer.	1
29/11/24		Thermosetting and thermoplastic Polymer.	1
30/11/24		9.2. Properties of elastomers.	1
01/12/24	10.	Composites and Ceramics 10.1. Classification, Composition,	1
06/12/24 07/12/24		properties uses of particulate based and fiber reinforced Composite.	2
08/12/24		10.2. Classification and uses of Ceramics.	1

LESSON PLAN Degree/Diploma/+2 Science (Theory/Pract/Lab/Workshop)

Semester 5th Branch Mechanical

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
16 August 2024	Th-4 1.	Introduction to mechatronics 1.1. Definition of mechatronics	
		1.2. Advantages and disadvantages of mechatronics.	1
17/8/24		1.3. Application of mechatronics	1
21/8/24		1.4. Scope of mechatronics in industrial sector.	1
22/8/24		1.5. Components of a mechatronics system.	1
23/8/24		1.6. Importance of mechatronics in automation.	1
24/8/24	2.	Sensors and Transducers 2.1. Defination of transducers	1
		2.2. Classification of transducers.	
25/8/24		2.3. Electromechanical transducers	1
28/8/24 29/8/24		2.4. Transducers actuating mechanisms	2
31/8/24 01/9/24		2.5. Displacement and positions sensors.	2
04/9/24 05/9/24		2.6. Velocity, motion, force and pressure sensors.	2
07/9/24 08/9/24		2.7. Temperature and light sensors.	2

LESSON PLAN

Degree/Diploma/+2 Science
(Theory/Pract/Lab/Workshop)

Semester 5th Branch Mechanical

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
11/9/24	3.	Actuators - Mechanical, Electrical 3.1. Mechanical actuators	1
		3.1.1. Machine, Kinematic link, Kinematic pair.	1
12/9/24		3.1.2. Mechanism, Slider Crank mechanism.	1
13/9/24		3.1.3. Gear drive, Spur gear, Bevel gear, Helical gear, Worm gear.	1
14/9/24		3.1.4. Belt and Belt drive 3.1.5. Bearings	1
18/9/24		3.2. Electrical Actuator 3.2.1. Switches and relay	1
21/9/24		3.2.2. Solenoid	1
22/9/24		3.2.3. D.C Motors	1
25/9/24		3.2.4. A.C Motors	1
26/9/24		3.2.5. Stepper Motors	1
27/9/24		3.2.6. Specification and control of Stepper motors	1
28/9/24		3.2.7. Servo motors D.C & A.C	1
03/10/24	4.	Programmable Logic Controllers (PLC) 4.1. Introduction	1
		4.2. Advantages of PLC.	

LESSON PLAN Degree/Diploma/+2 Science (Theory/Pract/Lab/Workshop)

Semester 5th Branch Mechanical

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
04/10/24	4.	4.3. Selection and uses of PLC	1
09/10/24 11/10/24		4.4. Architecture basic internal structures	3
12/10/24 14/10/24		4.5. Input/output processing and Programming.	3
16/10/24 21/10/24		4.6. Mnemonics 4.7. Master and Jump Controllers	6
30/10/24	5.	Elements of CNC Machines 5.1. Introduction to Numerical Control	
		of machines and CAD/CAM 5.1.1. NC machines	1
31/10/24		5.1.2. CNC machines	1
01/11/24 02/11/24		5.1.3. CAD/CAM 5.1.3.1. CAD	2
06/11/24		5.1.3.2. CAM	1
07/11/24		5.1.3.3. Software and hardware for CAD/CAM	1
08/11/24		5.1.3.4. Functioning of CAD/CAM System	1
09/11/24		5.1.3.5. Features and Characteristics of CAD/CAM System.	1
14/11/24		5.1.3.6. Application areas for CAD/CAM.	1
15/11/24		5.2. Elements of CNC machines. 5.2.1. Introduction 5.2.2. Machine Structures	1

LESSON PLAN Degree/Diploma/+2 Science (Theory/Pract/Lab/Workshop)

Semester 5th Branch Mechanical

Month & Date	Course No. & Title	Brief note of the topics to be covered	No. of Classes Required
16/11/24	5.	5.2.3. Guideways / Slideways	1
20/11/24		5.2.3.1. Introduction and types of guideways	1
21/11/24		5.2.3.2. Factors of design of guideways.	1
22/11/24		5.2.4. Drives 5.2.4.1. Spindle drives	1
28/11/24 29/11/24		5.2.4.2. Feed drives 5.2.5. Spindle and Spindle bearings.	2
30/11/24	6.	Robotics 6.1. Definition, function and laws of robotics	1
04/12/24		6.2. Types of industrial robots	1
06/12/24		6.3. Robotic Systems	1
07/12/24		6.4. Advantages and disadvantages of robots	1