

**KIIT POLYTECHNIC**  
Department of Mechanical Engineering

***LESSON PLAN***

<b>Session</b>	<b>::</b>	Winter – 2022
<b>Course Type</b>	<b>::</b>	Theory
<b>Semester/Branch</b>	<b>::</b>	5 <sup>th</sup> Semester, Mechanical Engineering
<b>Subject (with code)</b>	<b>::</b>	<b>Mechatronics (Theory- 4)</b>
<b>Contact hours/week</b>	<b>::</b>	4
<b>Name of Faculty</b>	<b>::</b>	<b>Rabi Sankar Pattanaik</b>

SL. NO.	CLASS ID	COURSE CONTENT	MODE OF DELIVERY	EXHIBIT/ REFERENCE
1	1	INTRODUCTION TO MECHATRONICS Definition and Scope of Mechatronics in Industrial Sector.	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput
2	2	Components of a Mechatronics System, Advantages, disadvantages, and applications of Mechatronics	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput
3	3	Evolution of Mechatronics, Importance of mechatronics in automation	Student Presentation	
4	4	Recap/Summarize		
5	5	ROBOTICS Definition, Functions advantages and Disadvantages of robots	Hybrid learning	NPTEL LINK <a href="https://youtu.be/xrwz9IxpMJg">https://youtu.be/xrwz9IxpMJg</a>
6	6	Laws of robotics, Types of industrial robots	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput
7	7	Robotic systems	Video presentation	<a href="https://youtu.be/6rsvc4D4iCc">https://youtu.be/6rsvc4D4iCc</a>
8	8	Recap/Summarize		
9	9	Assignments/ Practice Test		
10	10	SENSORS AND TRANSDUCER Definition and Classification of Transducer	Hybrid learning	<a href="https://youtu.be/aFdWzYyZ2Gg">https://youtu.be/aFdWzYyZ2Gg</a>
11	11	Transducers Actuating Mechanisms	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput
12	12	Electromechanical Transducers	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput

13	13	Sensors, Definition and Classification	Video presentation	<a href="https://youtu.be/XI49uFm5HRE">https://youtu.be/XI49uFm5HRE</a>
14	14	Displacement & Positions Sensors	Lecture (Model)	Study Material/ A textbook of Mechatronics by R.K.Rajput
15	15	Velocity, motion, force and pressure sensors.	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput
16	16	Temperature and light sensors.	Hybrid learning	<a href="https://youtu.be/bgMgVyKJIt4">https://youtu.be/bgMgVyKJIt4</a> <a href="https://youtu.be/AOp9w8zijjo">https://youtu.be/AOp9w8zijjo</a>
17	17	Recap/Summarize		
18	18	Assignments/ Practice Test		
19	19	PROGRAMMABLE LOGIC CONTROLLERS(PLC) Definition, Selection and uses of PLC	Hybrid learning	<a href="https://youtu.be/kUBI0tEjXU">https://youtu.be/kUBI0tEjXU</a> Study Material/ A textbook of Mechatronics by R.K.Rajput
20	20	Architecture basic internal structures Input/output Processing and Programming	Hybrid learning	<a href="https://youtu.be/PbAGl_mv5XI">https://youtu.be/PbAGl_mv5XI</a> <a href="https://youtu.be/IftvADznXCU">https://youtu.be/IftvADznXCU</a>
21	21	Mnemonics Master and Jump Controller	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput
22	22	Recap/Summarize		
23	23	ELEMENTS OF CNC MACHINES Introduction to NC (Numerical Control) machines	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput
24	24	CNC machines, Advantages, Disadvantages and Applications	Hybrid learning	<a href="https://youtu.be/e_PDuQePdOE">https://youtu.be/e_PDuQePdOE</a> <a href="https://youtu.be/0H60K9mhcNY">https://youtu.be/0H60K9mhcNY</a>
25	25	CAD/CAM Definition, Application areas for CAD/CAM	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput
26	26	Functioning, Features and characteristics of CAD/CAM system	Student Presentation	
27	27	Elements of CNC machines Machine Structure	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput
28	28	Guideways/Slide ways and its types	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput
29	29	Factors of design of guideways	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput
30	30	Drives Spindle drives	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput
31	31	Spindle and Spindle Bearings	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput
32	32	Recap/Summarize		
33	33	Assignment/Practice Test		
34	34	ACTUATORS- Mechanical Actuators Machine, Kinematic Link, Kinematic Pair	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput
35	35	Mechanism, Slider crank Mechanism,	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput

36	36	Belt & Belt drive	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput
37	37	Gear Drive, Spur gear, Bevel gear, Helical gear, worm gear	Video presentation	<a href="https://youtu.be/HIHLdvBw7VU">https://youtu.be/HIHLdvBw7VU</a> <a href="https://youtu.be/FZllpoz4qsY">https://youtu.be/FZllpoz4qsY</a>
38	38	Bearings	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput
39	39	Electrical Actuator Switches and relay Solenoid	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput
40	40	D.C Motors	Lecture (Explanation)	<a href="https://youtu.be/0q5bARctt7M">https://youtu.be/0q5bARctt7M</a>
41	41	A.C Motors	Hybrid learning	<a href="https://youtu.be/qbNpONXRvj8">https://youtu.be/qbNpONXRvj8</a>
42	42	Stepper Motors	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput
43	43	Specification and control of stepper motors	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput
44	44	Servo Motors	Lecture (Explanation)	Study Material/ A textbook of Mechatronics by R.K.Rajput
45	45	Recap/Summarize		
46	46	Assignment/Practice Test		
47	47	Revision and Discussion of Previous year questions		
48	48	Revision and Discussion of Previous year questions		

Signature of Concern Teacher