


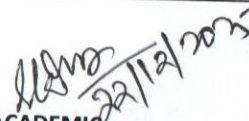
GOVT. POLYTECHNIC MAYURBHANJ LESSON PLAN

DSCIPLINE : MECHANICAL ENGG.		Semester: 4th	Name of the Teaching Faculty :Thakura Hansdah			
MECHATRONICS(C)		No. of Days / per week class allotted : 03	CHAPTER	Semester From date : 22,12.2025 To Date : 18.04.2026		
MONTH	Week	Day	Topics			
JANUARY	1ST	1st	CHAPTER-1	Introduction to Mechatronics		
	2nd	1ST		Mechatronics; Importance of Mechatronics; Systems:		
		2nd		Mea- surement systems; Control systems and their types; Closed-loop control System		
		5TH		Automatic water level controller; Sequential controllers-washing machine.		
	3rd	1ST		Measurement System terminology: Displacement, Position & Proximity Sensor		
		2nd		Velocity and Mo- tion Sensors; Force Sensors; Fluid Pressure Sensors; Flow Sensors;		
		5TH		Liquid Level Sensors; Tempera- ture Sensors; Light Sensors; Selection of Sensors		
	4th	1ST		Mechanical Actuation Systems: Types of motion; Freedom and constraints; Loading; G		
		2nd		Trains; Pawl & Ratchet; Belt & Chain drives; Bearings: Selection, Ball & Roller bea		
		5TH		Mechanical aspects of motor selection.		
	5TH	1ST		Electrical Actuation Systems: Switches & Relays; Solenoids; D.C Motors; A.C.M		
		2nd		tepper Mo- tors: Specifications and Control of stepper motors; Servomotors:		
		5TH		Servomotor and A.C Servomotor		
	FEBRUARY	2nd		1ST	CHAPTER-2	Pneumatic & Hydraulic Systems: Power supplies; DCV
				2nd		PCV; Cylinders; Rotary actuators.
5TH			Mathematical Model: Introduction to Mathematical model; Mechanical System building			
3rd		1ST	building blocks.			
		2nd	ystem Model: Engineering.Systems: Rotational, Translational Systems; ElectroMechanical System; Hydro-Mechanical System.			
			CLASS TEST-1			
4th		5TH	CHAPER-3	Input/Output Systems: Interfacing; Input/output ports; Interface requirements: Buffers		
		1ST		Hand- shaking, Polling and interrupts, Serial interfacing; Introduction to PIA; Seri		
		2nd		communications inter- face; Example of interfacing of a seven-segment display with a decoder.		
		5TH		Programmable Logic Controller (PLC): Definition; Basic block diagram and structure of PLC		

	5TH	1ST		Input/Output processing; PLC Programming: Ladder diagram, its logic functions,
		2nd		Latching and Sequencing; PLC mnemonics; Timers; Internal relays and Counters;
		5TH		Shift registers; Master and Jump Controls; Data handling; Analog input/output; Selection of PLC.
MARCH	2nd	1ST	CHAPTER-4	Constructional features and working of a telescopic shock absorber
		2nd		Design Examples & Advanced Applications in Mechatronics:
		5TH		Design process stages; Traditional Vs Mechatronics designs; Possible design solutions:
	3RD	1ST		Timed switch, Wind-screen wiper motion, Bath room scale; Case studies of Mechatronics systems:
		2nd		INTERNAL EXAMINATION-1
		5TH		INTERNAL EXAMINATION.
	4th	1ST		pick-and-place robot, Car park barrier, Car engine management system, Automatic Camera and Automatic
		2nd		pick-and-place robot, Car park barrier, Car engine management system, Automatic Camera and Automatic
		5TH		pick-and-place robot, Car park barrier, Car engine management system, Automatic Camera and Automatic
	5TH	1ST		Washing Machine only. Sensors for Condition Monitoring Systems of Production System
		2nd		Washing Machine only. Sensors for Condition Monitoring Systems of Production System
		5TH		INTERNAL EXAMINATION-2
APRIL	1ST	1ST	CHAPTER-6	Examples of Monitoring methods: Vibration monitoring, Temperature monitoring
		2nd		Examples of Monitoring methods: Vibration monitoring, Temperature monitoring
		5TH		Wear behavior monitoring; Mechatronics control in automated manufacturing:
	2nd	1ST		Monitoring of Manufacturing processes, On-line quality monitoring
		2nd		Model based systems, Hardware in-the-loop simulation
		5TH		Supervisory control in manufacturing inspection, Integration of heterogeneous systems
	3rd	1ST		REVISION
		2nd		REVISION
		5TH		CLASS TEST-2


 SUBJECT
 EXPERT
 G.P. MAYURBHANJ


 HOD
 MECHANICAL ENGINEERING
 G.P. MAYURBHANJ


 ACADEMIC
 COORDINATOR
 G.P. MAYURBHANJ