

GOVT.POLYTECHNICMAYURBHANJ ,LESSONPLAN-2026/27(WINTER)

Discipline:		SEMESTER:3RDSEM		NAME OF THE TEACHING FACULTY: Shiba Kumar Patra		
SUBJECT:ROBOTICS		No. of Days/Per week class allotted:03		Semester From date:15.07.2026 To Date:5.11.2026		
MONTH	Week	DAY	TOPIC			
JULY	3RD	3RD	Introduction To Robotics: Introduction to Robotics and Automation, laws of robot, brief history of robotics, basic components of robot, robot specifications			
		5TH	classification of robots- Legged robot, wheeled robot, aerial robots, Industrial robots, Humanoids, Robots, Autonomous robots and Swarm robots			
		6TH	Safety measures in robotics, social impact, Robotics market and the prospects,			
	4TH	3RD	advantages and disadvantages of robots			
		5TH	Robot Anatomy and Motion Analysis: Anatomy of a Robot, Robot configurations: polar, cylindrical, Cartesian, and jointed arm configurations			
	5TH	3RD	Robot links and joints, Degrees of freedom			
		5TH	Types of movements, vertical, radial and rotational traverse,roll,pitch and yaw,Wok volume/envelope			
	AUGUST	1ST	6TH	Robot Drives and End Effectors: Robot drive systems: Hydraulic, Pneumatic and Electric drive systems		
		2ND	3RD	classification of end effectors, mechanical grippers, vacuum grippers, magnetic grippers, adhesive gripper, gripper force analysis and gripper design		
5TH			1 DoF, 2 DoF, multiple degrees of freedom robot hand, tools as end effectors			
3RD		3RD	Robot control types: limited sequence control, point-to-point control			
		5TH	Playback with continuous path control, and intelligent control			
4TH		3RD	Control Components and Sensors: Mechanical control by stops and cams, Solenoids, Relays			
		5TH	Internal Sensors, potentiometers, resolvers and encoders			
5TH		5TH	External sensing: Simple touch sensing, strain sensing, tactile sensing			
		6TH	Acoustic sensing, magnetic sensing, capacitive sensing, laser sensing			
SEPTEMBER		1ST	3RD	Machine vision: Introduction to machine vision		
	6TH		The sensing and digitizing function in Machine vision.			
	2ND	3RD	Image processing and analysis, training and vision system.			
		3RD	Path Planning: Definition-Joint space technique			
	3RD	5TH	Joint space planning, Cartesian space planning			
		6TH	Cartesian trajectories			
	4TH	3RD	Point to point vs continuous path planning			
		5TH	Methods of Robot Programming			
	5TH	3RD	Online and offline programming			
OCTOBER	1ST	6TH	Lead-through and Walk-through programmmg			
	2ND	3RD	Robotics Applications			
		5TH	Material Handling			
	3RD	3RD	Pick and place			
		5TH	Palletizing and depalletizing			

06	4TH	3RD	machining loading and unloading
		5TH	welding & assembly
	5TH	3RD	Medical, agricultural and space applications
		5TH	Unmanned vehicles
		6TH	Ground, Ariel and underwater applications
	1ST	3RD	Robotic for computer integrated manufacturing
NOVEMBER			Revision
			Revision

G. p Mayurbhanj
 subject expert
 G. p Mayurbhanj
 15/07/2026

G. p Mayurbhanj
 HOD
 Mechanical Engg
 G. p Mayurbhanj
 15/07/2026

G. p Mayurbhanj
 Academic Co-ordinator
 G. p Mayurbhanj
 15.07.2026