8. Pre-requisite : Nill
9. Objective : To introduce recent advancement in Automation technology and the robots
10. Details of Course:

11.Suggested Books

S. No.	Contents	Contact Hours
1.	Introduction: Automation and Robotics, Definition, Basic Structure of Robots, Classification of Robots based on co-ordinate system, Present trends and future trends in robotics, Overview of robot subsystems, Components of Robot system-Manipulator, Controller, Power conversion UNIT etc, Specifications of robot.	**10**
2.	End Effectors and Actuators: Different types of grippers, vacuum & other methods of gripping, overview of actuators, Internal & External sensors, position, relocking and acceleration sensors, proximity sensors, force sensors, touch slip laser range tinder, camera.	**08**
3.	Motion Planning and Controllers: On-off trajectory, relocking and acceleration profile, Cartesian motion of manipulator, joint interpolated control, Jacobian in terms of D-H matrix, Obstacle avoidance, Basic control system, control loops of robotic system, Fuzzy controllers.	**08**
4.	Robot Vision: Machine Vision system, description, sensing, Digitizing, Image Processing and Analysis and Application of Machine Vision System, Robotic assembly sensors & Intelligent Sensors. Object recognition.	**08**
5.	Robots for Industrial Automation: Need for Automation, Robotics for automation. Robot Intelligence and Task Planning, MEMS (Micro Electro Mechanical Systems) – Introduction and working principle, Nano-robots	**08**
	Total	**42**

S.No.	Name of Books/ Authors	Year of Publication/ Reprint
1.	Fundamentals of Robotics: Analysis and Control by *Robert J Schilling* PHI	1990
2.	Robotic Engineering by *Klafter, Thomas Negin*	1993
3.	Robotics for Engineers by *Yoram Koren* McGraw Hill	1987
4.	Fundamentals of Robotics by T.C. Manjunath Nandu Publishers	2014
5.	Robotics and Control by R. K. Mittal, I. J. Nagrath Tata McGraw Hill	2003