

GUJARAT TECHNOLOGICAL UNIVERSITY (GTU)

IV - SEMESTER

Course Title: Automation - II

(Course Code: 1343403)

Diploma Programme in which this course is offered	Semester in which offered
Mechanical (Manufacturing Technology)	Fourth Semester

Module.	Topics	Hours
Module 1	PLC Basics 1.1 Over all look inside PLC 1.2 General PLC programming procedure & I/O device 1.3 ON/OFF input & ON/OFF output 1.4 Relation between digital gates & coil/contact logic 1.5 Creating ladder diagrams for process control	3 h
Module 2	PLC Function 2.1 Registers basics 2.2 Timer function 2.3 Counter function 2.4 Intermediate function 2.4.1 Arithmetic function 2.4.2 Number comparison function 2.4.3 Number conversion function 2.5 Data handling function 2.5.1 PLC skip and master control relay functions 2.5.2 Jump instruction 2.5.3 Data movement instruction	6 h
Module 3	Application of PLC 3.1 Industrial application with timer and counter	3 h
Module 4	Introduction to Robots 4.1 Definition of Robot 4.2 Benefits of Robot 4.3 Laws of Robotics 4.4 Selection of Robot	4 h
Module 5	Anatomy of Robots 5.1 Parts of Robot 5.2 Links and joints 5.3 Degree of freedom 5.4 Arm configuration 5.5 Wrist configuration 5.6 Types of manipulator and gripper 5.6.1 Mechanical gripper 5.6.2 Magnetic gripper 5.6.3 Vacuum gripper 5.6.4 Pneumatics gripper	5 h
Module 6	Programming of Robots 6.1 Introduction to Programming of Robots 6.2 Teach Pendant	2 h

	6.3 Lead through programming 6.4 Online / Offline programming 6.5 Simple Programming	
Module 7	Application of Robotics 7.1 Industrial Application 7.1.1 Material handling 7.1.2 Assembling 7.1.3 Inspection 7.1.4 Drilling 7.1.5 Painting 7.1.6 Welding	5 h