

GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. SEMESTER : VIII

POWER ELECTRONICS ENGINEERING

Subject Name: **INDUSTRIAL AUTOMATION**

Sr. No.	Course Contents	Total Hrs
1.	PLC Basics <ul style="list-style-type: none"> An Overall Look at Programmable Logic Controllers – Types – Advantages & disadvantages – Overall PLC system – PLC input & output modules – PLC as a computer – General PLC Programming Procedures – Devices to which PLC Input and Output modules are connected. 	08
2.	Basics PLC Functions <ul style="list-style-type: none"> Register – General characteristics – Module addressing – Holding, input & output registers – PLC timer functions – Industrial process timing application – PLC counter functions. 	08
3.	Intermediate And Data Handling Functions <ul style="list-style-type: none"> PLC Arithmetic Functions – PLC repetitive clock, PLC trigonometric & log function - PLC number comparison functions – Applications – Numbering Systems and PLC number conversion functions – The PLC SKIP and MASTER CONTROL RELAY functions – Applications – Jump function – Data move systems – Other data handling functions. 	10
4.	PLC Functions Working with Bits: <ul style="list-style-type: none"> PLC digital bit functions and applications – Basics of PLC sequencer functions – Electromechanical sequencing – A basic application with timing – Basics of controlling a Robot with a PLC – PLC matrix functions 	08
5.	Advanced PLC Functions & DCS <ul style="list-style-type: none"> Analog PLC operation – Analog modules & systems – PLC analog signal processing – Introduction to DCS – Functions – Advantages and limitations – DCS as an automation tool to support Enterprise Resources Planning (ERP) 	08
6.	Application Development And Industrial Application <ul style="list-style-type: none"> Application development and automation for following industries: Power, Pharmaceuticals and Automobile. 	06

Text Books :

- John W. Webb and Ronald A. Reis, “Programmable Logic Controllers: Principles and Applications”, Prentice-Hall India
- S K Singh, “Computer Aided Process Control”, Prentice-Hall India
- PoppovikBhatkar , “Distributed Computer Control for Industrial Automation”, Dekkar Publications

References :

- John R. Hackworth and Frederick D. Hackworth Jr., “Programmable Logic Controllers: Programming methods and applications”, Pearson Education
- Krishna Kant, “Computer Based Process Control”, Prentice-Hall India