

GUJARAT TECHNOLOGICAL UNIVERSITY
DIPLOMA IN MECHATRONICS ENGINEERING
SEMESTER: V

Subject Name: **Programmable Logic Controller**

Sr. No.	Course content
1.	Idea of Programmable Logic: 1.1 Automation: Objectives, functions and technology 1.2 Different types of logic 1.3 Idea of a programmable processor 1.4 Types of timer instruction 1.5 Counter instruction 1.6 Communication with the outside <ul style="list-style-type: none">• Interface between programmable logic and process• Communication between man and machine 1.7 Contribution of Industrial PLC 1.8 Areas of application of PLCs.
2.	Architecture of Programmable Logic Controllers: 2.1 Block diagram of PLC and its environment 2.2 Sinking and sourcing configuration 2.3 Exchange of data: The basic concept 2.4 The processor <ul style="list-style-type: none">• Registers• Stacks• Data flow 2.5 Types of Memory 2.6 Scan time of a cycle 2.7 Error Handling 2.8 Industrial input - output <ul style="list-style-type: none">• Architecture of input-output system• Bitwise input - output• Numerical input - output.
3.	Accessories with P.L.C: 3.1 Discrete interfaces 3.2 Analog interface 3.3 Special interface <ul style="list-style-type: none">• stepper motor interface• D.A.C. card

4.	The Software of Industrial PLC: <ul style="list-style-type: none"> 4.1 Low level languages <ul style="list-style-type: none"> • Ladder diagram 4.2 Low level language - Boolean language 4.3 High level language – functional block diagram, computer type language
5.	AVAILABLE PLC <ul style="list-style-type: none"> 5.1 ABB process automation Inc. 5.2 Allen - Bradley company 5.3 Siemens industrial automation inc.

Reference Books:

1. Programmable logic controllers architecture & applications, Gilles Michael & John Wiley & Sons.
2. Programmable controllers hardware, software & applications, George L. Batten.
3. Programmable controllers operations & applications, Ian G. Warnock.
4. Industrial Control Handbook, E.A.Parr.