

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. Embedded Systems (Branch Code - 54)

Year – I (Semester – II) (W.E.F. January 2014)

Subject Name: Programmable Logic Controllers and Applications – Major Elective III

Subject Code: (725405)

Course Content:

Sr. No.	Course Content	Hours
1	PLC Basics: An overall look at PLC, Scan cycle and scan time of PLC, Block diagram of PLC, architecture of PLC, Input and output units of PLC, Processing inputs and outputs, connecting systems with PLC.	06
2	Basics of PLC Programming: Overview of different PLC programming languages: ladder diagram, Functional block diagram, Instruction list. Basic of PLC registers.	08
3	Basic Programs : Programming on-off inputs, to produce on-off outputs, logic gates using different PLC Programming Languages	08
4	Timers and counters: Timers: on delay timers, off delay timers, retentive on delay timers, pulse timers, Counters: up counters, down counters, up-down counters, programming of PLC using timers and counters	08
5	Analog PLC programming: Basics of analog I/O of PLC, Programming using analog I/O.	06
6	Data handling using PLC Data comparison in PLC, Arithmetic operations in PLC, Jump and call, introduction to close loop control using PLC	08
7	Applications Sequential process control using PLC, Batch process control using PLC, Control of conveyors, Control of electrical motors, Industrial lighting control, Process control in a chemical industry, Process control in a paint industry.	10
	Total	54

Reference Books:

1. Programmable Logic Controllers: Forth Edition, by W. Bolton, Pub: Elsevier Newnes
2. Programmable Controllers An engineer's guide, third edition by E.A.Parr, Pub: Elsevier Newnes

3. Programmable Logic Controllers: Principles and Applications, by John W. Webb and Ronald A. Reis, fifth edition, Pub: Prentice – Hall India