



**KLS'S GOGTE INSTITUTE OF TECHNOLOGY
DEPARTMENT OF MECHANICAL ENGINEERING**



CREINTORS AUTOMATION SOLUTIONS PVT.LTD.

PRESENTS

HONOR'S PROGRAM IN PLC PROGRAMMING





Syllabus of Course



1. Basic of PLC

2. PLC Programming

3. SCADA Programming

4. AGV (Automatic Guided Vehicle)





Detail of Syllabus



Module 1

What is A PLC, Technical Definition of PLC, What are its advantages, Types of PLC, Block Diagram of PLC: Input/output (I/O) section, Processor Section, Power supply, Memory central Processing Unit: Different Languages of PLC, Ladder Language.

Module 2

Bit Logic Instructions: introduction: Input and Output contact program symbols, Numbering system of inputs and outputs, Program format, introduction to logic: Equivalent Ladder diagram of AND gate, OR Gate, NOT Gate, XOR Gate, NAND Gate, NOR Gate. Ladder design.



Detail of Syllabus



Module 3

PLC Timers and Counters: Timer-on Delay, Timer off delay, Retentive and non-retentive timers. Format of a timer instruction.

PLC Counter: Operation of PLC Counter, Counter Parameters, Counters Instructions Overview Count up (CTU) Count down (CTD).

Advanced instructions: Introduction: Comparison instructions, discussions on comparison instructions, “EQUAL” or “EQU” instruction, “NOT EQUAL” or “NEQ” instruction, “LESS THAN” or “LES” instruction, “LESS THAN OR EQUAL” or “LEQ” instruction, “GREATER THAN” OR “GRT” instruction, “GREATER THAN OR EQUAL TO” or “GRQ” instruction, “MASKED COMPARISON FOR EQUAL” or “MEQ” instruction, “LIMIT TEST” or “LIM” instruction.



Detail of Syllabus



Module 4

PLC input output (I/O) modules and power supply: Introduction: Classification of I/O, I/O system overview, practical I/O system and its mapping addressing local and expansion I/O, input-output systems, direct I/O, parallel I/O systems serial I/O systems. Sinking and sourcing. Remote/Discrete input module. Specifications of Remote/discrete input module, types of analog input module, special input modules, analog output module,

Module 5

SCADA SYSTEMS Introduction, definition of Supervisory Control and Data Acquisition, typical SCADA System Architecture, Communication requirements, Features, advantages, disadvantages and applications of SCADA. SCADA Architecture(First generation-Monolithic, Second Generation-Distributed, Third generation-Networked Architecture), SCADA systems in operation and control of interconnected power system, Water Treatment Plant, Hydraulic Test Rig, Power System Automation,