

Course Structure

Course Code : SM7306

Course Title : Low Cost Automated Systems

Credit Hours : 3

Course Description

- Identifying and defining the automation control requirements, and specifying tasks to be performed.
- Recognize automation types and strategies.
- Selecting appropriate actuators and control hardware (Microcontroller, PLC, or PAC)
- Setting up and testing of actuators and control hardware
- Developing appropriate software solution for chosen control hardware
- Documenting and presenting an appropriate solution

Course Objectives

- Get familiar with low cost automation techniques like efficient material handling and inventory management.
- Describe for choices of selection of sensors in automation systems.
- Strong Knowledge of PLC programming languages and skills.
- Get familiar with Distributed control system and SCADA system.
- Explain the operation, programming, and calibration of closed loop process controllers and control systems, including liquid level, flow, pressure, and temperature

Course Topics

- Introduction to Industrial Automation
- Revision on Digital Logic Design
- Introduction to Programmable Logic Controllers
- Introduction to PLC Programming
- Advanced topics in PLC
- Compound Building Blocks in PLC
- Sequential PLC Machine Control Design
- Automation with Fluid Power Circuits
- Fluid Power sequential circuits
- More on Fluid Power Circuits
- Low cost automation techniques
- Introduction to Process safety and Safety Management Systems
- DCS and SCADA

References

- Programmable Logic Controllers with ControlLogix. Author: Jon Stenerson ISBN: 978-1-435419-47.
- Rohner, P. (1996) Plc Automation with Programmable Logic Controllers.
- Rohner, P. (1979) Fluid Power Logic Circuit Design: Analysis, Design Methods and Worked Examples.