

COURSE	Name	: Automation Systems
	Code	: EE185722
	Credit(s)	: 2 Credit
	Semester	: (Elective Course)

Description of Course

This course provides an understanding to students about the forms of industrial automation system applications, various automation systems, control principles and various methods of designing ladders in the field of automation, and instrumentation technology and process control.

Learning Outcomes

Knowledge

(P01) Mastering the concepts and principles of science in a comprehensive manner, and to develop procedures and strategies needed for the analysis and design of systems related to the field of power systems, control systems, multimedia telecommunications, electronics, intelligent multimedia network, or telematics as a preparation for further education or professional career.

Specific Skill

(KK01) Being able to formulate engineering problems with new ideas for the development of technology in power systems, control systems, multimedia telecommunications, electronics, intelligent multimedia network, or telematics.

General Skill

(KU11) Being able to implement information and communication technology in the context of execution of his/her work.

Attitude

(S09) Demonstrating attitude of responsibility on work in his/her field of expertise independently.
(S12) Working together to be able to make the most of his/her potential.

Course Learning Outcomes

Knowledge

Mastering the concepts and principles of automation systems in industry.

Specific Skill

Able to analyze and design automation systems in the industry

Able to provide consultation on the design and development of automation systems in the industry.

General Skill

Able to apply various ladder diagram design methods to the Programmable Logic Controller (PLC) equipment.

Able to apply the technology products of system and control.

Attitude

Demonstrating attitude of responsibility on work in his/her field of expertise independently.

Main Subjects

1. Automation system concept
2. Automation system equipment
3. Designing a ladder diagram based on sequence charts
4. Designing a ladder diagram based on the cascade method
5. Designing a ladder diagram based on Grafchet
6. Designing ladder diagrams based on state diagrams
7. Designing a ladder diagram based on the huffman method
8. Designing a ladder diagram based on Petri-Net

Reference(s)

- [1] D. Pessen, Industrial Automation, Wiley, 1989
- [2] S. Baranov, Logic Synthesis for Control Automata, Kluwer Academic Publisher, 1994
- [3] Applying Structured Analysis To Automation Systems (Paper 1)
- [4] The Principles of State Logic Control (Paper 2)
- [5] Tadao Murata, Petri Nets: Properties, Analysis and Applications, Proceedings of the IEEE, vol.77, no 4, April 1989 (paper 3)

Prerequisite(s)

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