

CERTIFICATE COURSE ON INDUSTRIAL AUTOMATION

Upgrade Your Skills with Industrial Automation

Duration: 40 Hours

Target Groups:

- Students currently pursuing B.Sc. and have studied Physics, Electronics, and/or Instrumentation
- Students currently pursuing B.E./B.Tech. in Instrumentation Engineering, Electronics, or Communication Engineering

Introduction:

Industrial automation has become an indispensable component of modern manufacturing. Efficient use of energy, minimizing environmental impact, and ensuring safety are essential for sustainable industrialization. To address the growing demand for industrial automation, we have designed a Certificate Course on Industrial Automation, which will help you develop the skills necessary to thrive in the rapidly growing automation industry.

Course Overview:

This certificate course will provide hands-on training on industrial automation using state-of-the-art equipment. Gauhati University is the first university in India to have a mobile unit equipped with all modern components of Industrial Automation. The unit will be used for on-site training on Industrial Automation on a request basis. A nominal fee will be charged for the trainees, and upon successful completion, a certificate will be provided to the participants. The course covers the following topics:

- Basic PLC programming with Step 7 Basic Version 14(TIA portal) software.
- Realization of basic logic gates with PLC programming.
- HMI interfacing with machines.
- Working of industrial inductive, capacitive and optical sensors.
- Controlling of forward and reverse actions of solenoid operated double acting cylinder and sequencing two double acting cylinder using sensors.
- Realization and use of up counter and down counter in Industry.
- Implementation of comparing operation for two numbers.
- Speed control of induction motor using VFD.
- Controlling the speed of a DC motor in manual and auto modes.
- Automatic control of the temperature of a furnace using PLC.
- Water level control using float type sensors.
- Introduction to SCADA for controlling and monitoring in Industry.

Benefits:

After completing this course, you will have a comprehensive understanding of industrial automation and be able to apply your skills to enhance productivity, quality, and safety in various industries. The skills you acquire will enable you to pursue careers in a wide range of industries, including manufacturing, automotive, aerospace, and many more.

Evaluation:

Evaluation of the participants' learning will be conducted throughout the course to ensure that they are meeting the learning outcomes. The evaluation will be in the form of quizzes, assignments, and hands-on exercises, which will be given at regular intervals.

Schedule:

Sl. No.	Topics	Contact Hours	
		Theory	Lab
1	Introduction to industrial automation, its history, and its applications. Overview of modern automation systems, including PLCs and HMIs.	3	1.5
2	Basic concepts of PLC programming, including ladder logic and function blocks. Hands-on exercises using Step 7 Basic Version 14 (TIA portal) software.	3	2
3	Advanced PLC programming concepts, including the use of counters, timers, and comparisons. Introduction to HMI interfacing with machines.	3	2
4	Understanding different types of industrial sensors, including inductive, capacitive, and optical sensors. Controlling forward and reverse actions of solenoid-operated double-acting cylinders and sequencing two double-acting cylinders using sensors.	3	1.5
5	Realization and use of up and down counters in industry. Introduction to VFD and its use for controlling the speed of an induction motor.	3	2
6	Controlling the speed of a DC motor in manual and auto modes. Automatic control of furnace temperature using PLC.	3	2
7	Water level control using float-type sensors. Introduction to SCADA for controlling and monitoring in industry.	3	2
8	Final project submission and certification. Demonstration of the skills acquired during the course. Course evaluation and feedback.	3	3

Conclusion:

This Certificate Course on Industrial Automation offers an excellent opportunity to upgrade your skills and keep up with the rapidly changing automation industry. Register now and unlock your potential to take your career to the next level.