

Certificate in Mechatronics and Smart Industry – Course Syllabus

Module 1: Introduction to Mechatronics

In this module, students will learn about Mechatronics and its key elements, evolution of Mechatronics system and sensors, actuators, controllers used in Mechatronics systems.

Module 2: Industrial Automation

In this module, students will learn about PLC fundamentals and programming, introduction to SCADA and overview of Robotic systems.

Module 3: An Overview of IoT

In this module, students will learn about IoT and its application areas, technology enablement and key IoT technologies along with a case study.

Module 4: IoT Hardware Platforms

In this module, students will learn about the various IoT hardware platforms, programming with Arduino IDE and interfacing of sensors and actuators.

Module 5: Communication Protocols for IoT

In this module, students will learn about Wired Communication Protocols and Wireless Communication Protocols.

Module 6: Networking and Cloud Computing in IoT

In this module, students will get introduced to Cloud Computing, learn role of networks in Cloud Computing, role of web services, service models and connecting to cloud.

Module 7: Data Analytics for IoT

In this module, students will learn about data handling and data visualisation with use cases.

Module 8: Introduction to Industry 4.0

In this module, students will learn about Lean Manufacturing, Industry 4.0, Cyber-Physical Systems (CPS), Product Lifecycle Management in Industry 4.0 and Cyber Security.



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Module 9: AI for IoT

In this module, students will be introduced to ESP32 and Raspberry Pi and interfacing with camera, and IoT development system for implementing Artificial intelligence for IoT.

Module 10: Industrial Internet of Things (IIoT)

In this module, students will learn about Industrial Internet of Things (IIoT) and its components, IIoT cloud platforms and its use cases.