

Level 1: Fundamentals

Industry 4.0

Level 1

As an introduction to Industry 4.0, this course aims to relay foundational information about Industry 4.0 and help to establish a base upon which more detailed information regarding the topic can be layered. The course will introduce the various industrial revolutions and how Industry 4.0, the internet of things, smart factories, and cyber-physical systems are a disruption to the manufacturing industry and discusses the impact and implications that these advancements introduce.

Course Topics

- Introduction to Industry 4.0
- Digitization of our lives
- Terms and concepts
- The foundations of Industry 4.0
- Implications, benefits, and value
- The integration behind Industry 4.0
- Case studies in Industry 4.0

Core Competencies

- Explain what Industry 4.0 is
- Discuss how these changes impact the industry, current and future employees, and other members of the manufacturing value chain
- Give examples of the benefits and value of Industry 4.0
- Explain the ‘interconnected world’
- Define important terms, theories, and ideas behind Industry 4.0

No hardware is required for this course



Level 2: Advanced Mechatronics

Applied Industry 4.0



Estimated Duration: 20 hours

Level 2

Building upon the base knowledge gained in the Level I Industry 4.0 Course, students will delve deeper into the IIOT (Industrial Internet of Things) as it applies to modern production systems. Much of the focus will be on how MES (Manufacturing Execution Systems) send and receive data from the production process. Participants will work with the MES and learn how to process, utilize, and protect critical data. The students will work with real production scenarios and real-world industrial equipment to incorporate HMI (Human Machine Interface) with the MES and equipment.

Course Topics

- Introduction to MES
- Introduction to HMI
- Introduction to Data Safety
- Introduction to 3D Modeling

Core Competencies

- Define MES and related functionality
- Configuration of MES
- Incorporate HMI applications to a production system
- Utilize web services/email push delivery
- Explain the importance of data security
- Explain how 3D Modeling of systems impacts production systems

Equipment

MPS-203 I4.0

Applied Industry 4.0 topics can be learned on many training systems from Festo including our CP Lab/Factory systems or with MPS203 I4.0. This system can also be used for Basic Networking and Product ID.

It is comprised of 3 stations and includes:

- Set-up and optimization of material flow
- Optimization of setup times
- Material flow control
- Enhanced I/O communication
- RFID technology
- Network technology
- Condition monitoring
- Web services
- MES



The same system can apply to Product ID and I4.0 certification.

