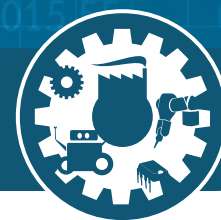# INDUSTRY 4.0 CAREER PATHWAYS - CORE (40-50 LESSONS)

This 45 hour course introduces students to the **development of the Industry 4.0 concept**, its development and impact on many industrial sectors. Students are introduced to the central themes of Industry 4.0 with a core focus on Sensors and Control, Data and Analytics, Energy Technology, and Materials.

Learning Objectives

- Explore the Smart Factory/Industry 4.0 concept and its application across career sectors
- Develop reading, writing, and presentation skills
- Explore and use the design process as a method for solving engineering problems
- Recognize basic mechanical principles and machines - such as gears and levers
- Identify the basic principles and applications of fluid power systems
- Recognize basic electrical terminology and measure current/voltage in an electrical circuit
- Use sensors and data capture technology to collect data and analyze systems
- Determine current, voltage, resistance and power by measurement and calculation
- Apply engineering principles to design a microprocessor-controlled mechatronic system

Design Projects

- Electric Motor Control
- Fairground Ride

Notes

The Industry 4.0 Career Pathways Core is the **starting place in the program** for all students. We recommend that this course be **studied as a whole class**.

Typical Careers

Robotics Engineer, Industrial Maintenance Technician, Automation Specialist, Industrial Production Manager

Lessons

- Introduction to Industry 4.0
- Tools and Safety
- Data and Measurement
- Engineering Design
- Electrical Systems
- Mechanical Systems
- 3D Printing

Equipment

- Basic Electricity Trainer (140-10)
- Datalogging Kit - Complete (520-00)
- Measurement Kit (511-08)
- Physics Apparatus Kit (511-01)
- Engineering Construction Kit (220-01)
- 3D Printer