Prepare your students for success in Mechatronics

LJ Create Mechatronics is a set of courses at three levels, designed to provide students with a strong foundation in mechatronic principles and applications.

The courses will provide students with the expertise they need to succeed in industrial skills programs and industry certification courses.

- Suitable for students of all abilities and aptitudes
- Cost effective and sustainable

ljcreate.com
Control and Instrumentation

Students explore instrumentation and transducer technology, and motor control concepts.

Advanced Mechatronics

Courses teaching the basic principles of the technologies used in mechatronic systems:

Engineering Principles
Students explore basic engineering science principles including materials, drawing skills and control theory.

Mechanical Systems
Students explore mechanical systems including gears, levers, belts, and bearings.

Fluid Power
Students explore the principles and components of pneumatic and hydraulic systems.

Electrical and Electronics
This course explores DC and AC, digital electronics principles, electromagnetic concepts, transformers, and motors.

Introduction to PLCs
Students are introduced to PLC technology and ladder logic programming concepts.

Introduction to Process Control
Students are introduced to process control concepts.

Foundation Mechatronics

Short project-based courses that explore basic mechatronic principles. Investigate the application of mechatronics in a wide range of different career clusters:

Engineering Design
Students explore the engineering design process as a methodology for solving problems, and use the design process to develop an automated railroad crossing.

Mechatronic Systems
This course explores basic mechanical principles and the principles of fluid power. Students design a fairground ride.

Computer Science
Students explore techniques for algorithm development, including problem-solving methods, flowchart design, and pseudo code.

Electrical Technology
Students explore basic electrical concepts and components.

Capstone Robotics Project
Students design algorithms and then develop and test programs to control a range of robotic systems. Students design and program a robotic control system.

HARDWARE
220-01 Engineering Construction Kit
250-01 Educational Robotics Invention Kit
278-01 Fluid Power Student Resource Pack

Mechatronics Systems

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Students are introduced to process control concepts.

Advanced Mechatronics Core

All students explore advanced mechatronic principles including robotics, production and business concepts - before progressing onto the following optional courses:

Industrial PLC Systems (Opt. 1)
Students explore industrial PLC programming using Siemens or Allen Bradley PLCs (includes SCADA and HM).

Control and Instrumentation (Opt. 2)
Students explore instrumentation and transducer technology, and motor control concepts.

Process Control (Opt. 3)
Students explore process control concepts including: flow, pressure, temperature, and level control.

System-Based Electronics (ETA) (Opt. 4)
This electronics course prepares students for ETA certification.

MSSC CPT Preparation (Opt. 5)
Designed to prepare students to take the MSSC CPT certification tests.

HARDWARE
207-00 Analog and Digital Motor Control Teaching Set
208-10 Process Control Tech. Benchtop Trainer
217-00 Transducers, Instrumentation and Control Teaching Set
240-01 Robotics Trainer
290-00/AB (or /SI) Industrial Control Teaching Set (Siemens or AB)
292-00/AB (or /SI) PETRA Advanced Industrial Control Teaching Set (Siemens or AB)
320-10 Complete Electronics Workstation
## Aligned to educational standards and industry certification standards

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