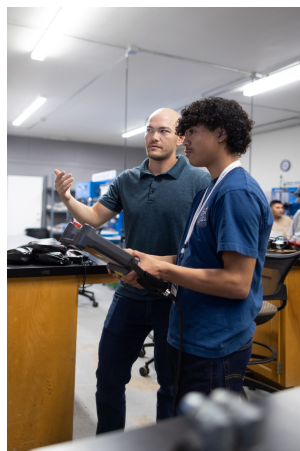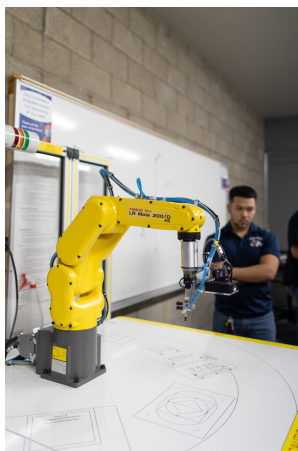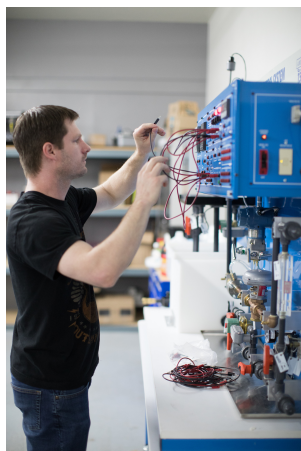**COLLEGE OF THE SEQUOIAS**

INDUSTRIAL AUTOMATION

This program prepares students for advanced-level employment in the fields of industrial automation and industrial maintenance. Students are required to complete the prerequisite of the industrial maintenance program or equivalent experience before enrolling in the industrial automation program.

WHAT YOU WILL LEARN

• Programmable Logic Controllers • Instrumentation • Closed Loop Process Control •
• Human Machine Interfaces •Variable Frequency Drives • Industrial Data Communications •
• Electrical Troubleshooting • Industrial Robotics •

WHERE DO YOU SEE YOURSELF?

• Automation Technician • Instrumentation Technician • Controls Technician •
• Industrial Maintenance Mechanic • Maintenance Technician • Field Service Technician •
• Robotics Technician • Electrical Technician • PLC Technician •
• Electrical Engineering Technician • Technical Sales Representative •

PAY RANGE

Average salary for entry-level automation technician is between $28-30 per hour.
Technicians with 5 years of experience can make between $35-40 per hour.

COS CAREER TECHNICAL EDUCATION

Learn More at COS.EDU/Automation

PROGRAM CONTACT:
Travis Asher
travisa@cos.edu
(559) 549-4552

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DEGREES & CERTIFICATES OFFERED

Associate of Science in Industrial Automation - 60 units
Certificate of Achievement in Industrial Automation - 32 units

CLASSES YOU MIGHT TAKE

ITEC 174 PLCs for Industrial Automation
The function and application of programmable logic controllers. Topics covered include bit-level instructions, timers, counters, I/O configuration, electrical wiring of PLC hardware, memory organization, documentation, and troubleshooting. Lab exercises will provide hands-on activities with hardware and software used in the industry.

ITEC 176 Advanced Programmable Logic Controllers
Advanced course in the function and application of programmable logic controllers. Topics covered include arrays, analog and digital I/O configuration, memory organization, data manipulation, sequencer functions, math instruction, array instructions, subroutines, programs, tasks, produce/consume tags, and networked applications.

ITEC 182 Methods of Automatic Control
Methods of automatic measurement and control used in industrial applications. Study of open and closed loop control systems. Loop controllers and programmable logic controllers. Closed loop control block diagrams. Sensing elements, transmitters, transducers, controllers and final control elements. PID control theory, system response curves, and basic tuning principles. Wiring, programming, operating, and troubleshooting closed loop control systems and the devices they consist of.

ITEC 184 Instrumentation
The theory and application of instrumentation in the manufacturing industry. Interpreting process documentation such as P&IDs and loop diagrams. Measurement and transmission of process variable such as temperature, pressure, level, and flow. Analog signal transmission, engineering units, scaling, programmable logic controllers, instrument calibration, diagnostic strategies, control valves, and process safety.

ITEC 283 Industrial Motion Control
This course covers the methods of industrial motion control using induction motors, variable frequency drives, stepper motor controllers an drives, servo motor controllers and drives, and other motion control devices. Lab activities will be provided with equipment and software used in the industry.

ITEC 285 Industrial Networks
The theory and implementation of industrial automation networks, including digital data, industrial control networks, instrumentation and process control bus and network standards.

ITEC 286 Human-Machine Interfaces
Programming of operator interface touch screen displays using hardware and software used in industry. The student will program, operate, and troubleshoot a touch screen display as used in industrial applications.

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