

AUTOMATION TECH/ROBOTICS (ATR)

ATR-105 Industrial Robotics (3)

Covers the tasks and procedures that an operator, technician, engineer or programmer needs to set up and program a Fanuc Robotics ArcTool software package. Arts & Sciences Elective Code: B

Hours per week: 1.0 lecture, 4.0 lab

ATR-126 Advanced Maintenance Technologies (2)

Teaches fundamentals of shaft alignment, predictive, and preventative maintenance at the intermediate level. Integrates hands-on shaft alignment with dial indicators and laser alignment. Includes training in technologies used for predictive maintenance in the workplace, e.g., thermal imaging, vibration analysis, and trend analysis. Utilizes labs to reinforce concepts and theory covered in lecture and online material. Arts & Sciences Elective Code: B

Hours per week: 1.0 lecture, 2.0 lab

Prerequisite: Take ATR-303.

ATR-136 Programmable Logic Controllers for Manufacturing (4)

Covers installing, programing and troubleshooting PLC systems as they are used in the manufacturing industry. Arts & Sciences Elective Code: B

Hours per week: 2.0 lecture, 4.0 lab

Prerequisite: Take ELE-364.

ATR-201 Automation and Instrumentation Capstone (4)

Explores manufacturing- and process-automation control systems while applying abilities, techniques and knowledge learned throughout program. Develops a control system from conception to completion. Arts & Sciences Elective Code: B

Hours per week: 2.0 lecture, 4.0 lab

Prerequisite: Take ATR-254.

ATR-210 Electromechanical Systems (4)

Integrates the concepts and components from mechanical and electrical courses to demonstrate how they function in different systems that are found in an industrial environment. Arts & Sciences Elective Code: B

Hours per week: 3.0 lecture, 2.0 lab

ATR-254 PLC Integration (4)

Provides an introduction to intermediate PLC software and the concepts associated with system integration. Arts & Sciences Elective Code: B

Hours per week: 2.0 lecture, 4.0 lab

Prerequisite: Take ATR-136.

ATR-279 Introduction to Industrial Networking (2)

Introduces the concepts of the TCP/IP suite of protocol. Covers IP addressing, universal naming conventions, and how this protocol is used to connect to the devices. Arts & Sciences Elective Code: B

Hours per week: 1.0 lecture, 2.0 lab

Prerequisite: Take ATR-136.

ATR-303 Mechanical Power Transmission (4)

Examines power transmission installation for a variety of mechanical systems. Includes torque and tensioning, couplings, chain drives, pulley drives, bearings, gear drives, motor leveling, and alignment of systems.

Arts & Sciences Elective Code: B

Hours per week: 1.0 lecture, 6.0 lab

ATR-310 Industrial Controls (5)

Introduces industrial control theory and applications. Covers AC and DC power sources, circuit protection devices, switching devices, pilot lights, schematic symbols, motor contactors, motor overloads, motor circuit breakers, sensors, and the use of schematics and wiring diagrams. Considers application, installation, and troubleshooting of control components. Students design, draw, wire, and troubleshoot circuits.

Theory and classroom study are reinforced with practical lab exercises.

Arts & Sciences Elective Code: B

Hours per week: 2.0 lecture, 6.0 lab

Prerequisite: Take ELE-364.

ATR-311 Controls Capstone (4)

Integrates the concepts covered in the Industrial Control courses into project-based lab activities. Focuses on utilizing skills acquired to design solutions for specific situations. Features assembling, testing, and evaluating original designs after approval. Includes larger scale electrical print reading. Arts & Sciences Elective Code: B

Hours per week: 1.0 lecture, 6.0 lab

Prerequisite: Take ATR-310.

ATR-328 Instrumentation and Process Control Devices (6)

Provides an introduction to various types of instrumentation, control devices, and distributed control systems. Explores commissioning, practical application, integration, and troubleshooting through lecture, reading, and hands-on labs. Arts & Sciences Elective Code: B

Hours per week: 3.0 lecture, 6.0 lab

ATR-450 Computer Integrated Manufacturing (3)

Introduces robotics and automated manufacturing concepts including computer modeling, production, and design analysis. Arts & Sciences Elective Code: B

Hours per week: 1.0 lecture, 4.0 lab