

Program Title: Industrial Technology

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Cross Walk: Learning Outcomes and Relevant Courses

Learning Outcome	Relevant Course
Outcome #1: Identify typical tools and proper use of a variety of devices including precision measurement.	INT 101 Introduction to Industrial Technology
Outcome #2: Perform test procedures (start-up) for a variety of industrial equipment such as hydraulics, pneumatic, pumps, hvac systems, boilers, compressed air systems etc.	INT 101 Introduction to Industrial Technology INT 102 Introduction to PLC INT 110 Fundamentals of Electricity INT 105 Plumbing and Pipefitting INT 107 Introduction to HVAC
Outcome #3: Perform data collection and evaluation for equipment used in the industrial environment.	INT 101 Introduction to Industrial Technology INT 110 Fundamentals of Electricity INT 105 Plumbing and Pipefitting INT 107 Introduction to HVAC INT 106 Welding
Outcome #4: Understand and use proper communications.	INT 101 Introduction to Industrial Technology

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Outcome #5: Maintain and troubleshoot a variety of systems.	INT 101 Introduction to Industrial Technology INT 102 Introduction to PLC INT 110 Fundamentals of Electricity INT 105 Plumbing and Pipefitting INT 107 Introduction to HVAC
Outcome #6: Recognize standard safety practices, procedures, and personal protection equipment.	INT 104 Facilities Safety and Compliance INT 106 Welding

Expected Learning Outcomes

- Identify typical tools and proper use of a variety of devices including precision measurement.
- Perform test procedures (start-up) for a variety of industrial equipment such as hydraulics, pneumatic, pumps, hvac systems, boilers, compressed air systems etc.
- Perform data collection and evaluation for equipment used in the industrial environment.
- Understand and use proper communications.
- Maintain and troubleshoot a variety of systems.
- Recognize standard safety practices, procedures, and personal protection equipment.

Assessment (How do students demonstrate achievement of these outcomes?)

Final Project: Students will install components, test and start-up systems, and collect and analyze data.

Satisfactory scores on exams and projects.

Satisfactory scores on exams modeled after industry standard certification exams.

Validation (What methods are used to validate your assessment?)

1. Approval by Industrial Technology/Alternative Energy Technology Advisory Committee
2. Tests comparable to Industry Standard Certification Exams.
3. Faculty Review
2. Project similar in scope real world experience/installation.

Results (What do the data show?)

Course testing data and feedback from full time and adjunct instructors show student performance is meeting targeted outcomes. Students were again advised to use tutoring services to improve their math skills, and some cases brush up on their math skills based on results of some classroom calculation activities.

Due to the new advanced Manufacturing program being implemented, course materials are being adjusted as needed.

Testing results and hands-on exercises show acceptable level of accomplishing student learning outcomes. It is evident that the more hands-on activities the students participate in, the more they understand the theory behind the applications. It is noticeable that a single student who struggles with theory-related test questions can better answer the same questions after given application exposure. Videos shown in class that represent equipment that is not available on campus also have had a positive result on understanding the concepts described in the textbooks. Students seem to be more and more lax on turning in homework on time when no penalty is conveyed up front.

The first students to complete INT 206 AWS certification completed this spring. Three students passed the AWS D1.1 industry certification for welding the first time out of 5 who tested.

Follow-up (How have you used the data to improve student learning?)

The Advanced Manufacturing Systems Degree is in the process of replacing the outdated Industrial Technology Degree. The Industrial Technology Certificate is still being offered with modified course requirements and content. Also a new Basic Electronics Certificate has been added. The HVAC and Plumbing LOR as well as the Welding LOR are continued as stand-alone offerings.

We continue to modify presentations, course content, and add higher technology hands-on exercises using Advanced Manufacturing Equipment has been in process, in particular using the robotic assembly system.

We have expanded use of the Siemens PLC Training equipment to complement the Allen Bradley PLC equipment on campus to address regional business needs.

Budget Justification

(What resources are necessary to improve student learning?)

Unit Planning request for updated Precision alignment equipment.