

Course Outcomes Guide

Course/Program Title: ELE 103 Analog and Digital Electronics Date: 15-May 2017

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Expected Learning Outcomes

1. Demonstrate knowledge of digital and analog electronics including dedicated microcomputers in instrumentation and control systems
 - Evaluate circuits involving inductors, capacitors, and transformers.
 - Investigate various semiconductor devices by building and testing circuits using such components as diodes, scr's, triacs, high speed solid state switches used in A.C. and D.C. power applications
 - Describe Digital Electronics and the relationship to Analog circuits
 - Interface simple micro-processor based controls
2. Knowledge of Instrumentation and Process Control hardware and software
 - Select and implement various instrumentation devices required to accomplish a task within a control system
3. Knowledge of Instrumentation troubleshooting, repair and maintenance
 - Troubleshoot, isolate and fix electronic instrumentation problems
 - Carry out simple repair procedures for the correction of faults on instrument systems
4. Exhibit professional/occupational behavior and work habits

Assessment (How do or will students demonstrate achievement of each outcome?)

This course was given to a limited number of students in a tutorial mode only (2 students in Spring 2017). The teaching was provided in a series of meetings to review and discuss the course material. There were also several lab assignments. The learning outcomes were demonstrated in the following manner:

Demonstrate knowledge of digital and analog electronics including dedicated microcomputers in instrumentation and control systems	<ul style="list-style-type: none"> • There was a test for each chapter of the book • A lab assignment using Automation Studio Software • Four, hands on labs using the LabVolt equipment
Knowledge of Instrumentation and Process Control hardware and software	
Knowledge of Instrumentation troubleshooting, repair and maintenance	
Exhibit professional/occupational behavior and work habits	<ul style="list-style-type: none"> • Completing all assignments, test and labs in a timely manner.

Validation (What methods have you used or will you use to validate your assessment?)

The course assessments will be validated by review from the following sources:

1. Faculty Peer validation through continued feedback from fellow faculty members
2. Industry validation through the Advisory Committee. The advisory committee has a chance to review the course outcomes and discuss how that fits with the over all program outcomes and regional industry needs

Results (What do your assessment data show? If you have not yet assessed student achievement of your learning outcomes, when is assessment planned?)

Since all students taught in this course model have been taught in a very hands-one tutorial mode, I'm happy to report that we have had a 100% success rate in meeting course outcome requirements:

Demonstrate knowledge of digital and analog electronics including dedicated microcomputers in instrumentation and control systems	Average test scores for both students were 91 and 92%.
Knowledge of Instrumentation and Process Control hardware and software	
Knowledge of Instrumentation troubleshooting, repair and maintenance	
Exhibit professional/occupational behavior and work habits	On-time Attendance: 100%

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

At this time, we do not have sufficient data to require making any changes to course content, however, students asked that more lab exercises be included, in the future. These will be incorporated the next time the class is taught, probably in the Spring of 2018.

Budget Justification (What resources are necessary to improve student learning?)

None needed, at this time.