Course Outcomes Guide (COG)

Course Title: Repair and Maintenance for Instrumentation ELE 205 Date: August 2019

Course Team: Juan C. Luna.

Expected Learning Outcomes

- Understand principles of quality control.
- Describe Process Equipment and Instrumentation.
- Explain every process troubleshooting method.
- Predict and avoid the problems with installing measurement equipment.
- Specify instrument and loop documentation and standards to vendors.
- Design and install safe working systems in hazardous areas.
- Apply ISO 9000 to maintenance practices.

Assessment (How do or will students demonstrate achievement of each outcome? Please attach a copy of your assessment electronically.)

At the end of the Fall 2018 semester, the instructor administered a final ELE205 assessment exam. The assessment exam covers all course outcomes. The final grade is a composition of the final exam, homework assignments, and hands-on activities.

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

The course outcomes and assessment tool for Instrumentation and Process Control I (ELE 113) are consistent and aligned with recommendations from the following IEEE publications:


Intelligent Performance Assessment of Students’ Laboratory Work in a Virtual Electronic Laboratory Environment. Achumba et al. IEEE TRANSACTIONS ON LEARNING TECHNOLOGIES, VOL. 6, NO. 2, APRIL-JUNE 2013


The final grade comprises a combination of homework, lab activities, with several exams in between. A final assessment exam can determine the overall comprehension of the subject,
although it will not measure other components typical of lab activities, like team player skills, hands-on expertise. The final assessment exam cannot measure homework effort and time management skills. Nevertheless, the final assessment exam can be an expected consequence of the effort put into the lab and homework activities.

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

As it was expected the final grade is highly correlated with completion of assignments, lab activities, quizzes and exams.

![Graph showing correlation](image)

**COMPARISONS TO PREVIOUS SEMESTERS:**
N/A

**Strengths & Weaknesses:**
The data is not conclusive since this course was taught on a tutorial basis. The format was hybrid (online/onsite).

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

ELE205 has shown a great potential for an online course, the textbook was clear and easy to read.

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

No resources needed.