Course Title: Fundamentals of Electricity- ELE 110     Date: August 2019

Course Team: Juan C. Luna.

Expected Learning Outcomes

• Identify hazards of electrical circuits and be able to work safely.
• Explain the concepts of current flow, AC/Dc Circuits and Ohm’s Law.
• Troubleshoot basic electrical circuits using schematic diagrams.
• Explain the operation and application of common components such as AC and DC motors, relays, switches, power supplies.
• Perform basic industrial wiring and troubleshooting.

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 ELE110 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:

Merging Pedagogical Approaches: University of Glasgow-UESTC Joint Education Programme in Electronics and Electrical Engineering. K. Meehan et al.
Frontiers in Education Conference (FIE), 2014 IEEE. 978-1-4799-3922-0

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

Assessment of undergraduate electrical engineering laboratory studies. G. Carter et al.

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.

COMPARISONS TO PREVIOUS SEMESTERS:

Assessment Final Exam Results: Fall 2017

The overall average score for the exam was 68.5%, the median was 74.5%, and the highest score was 94%. The sample size was 11 for the Fall 2017 semester. There is no breakdown by relevant course outcome questions.

Fall 2017. N=11
Average Course Grade: 68.5%

Assessment Final Exam Results: Fall 2018

The overall average score for the exam was 64.75%, the median was 82.50%, and the highest score was 95%. The sample size was 20 for the Fall 2018 semester. There is no breakdown by relevant course outcome questions.

Fall 2018. N=20

Average Course Grade: 64.75%

Strengths & Weaknesses:
Based in the data, after a textbook change in Fall 2017, the grades remain consistent in Fall 2018, which shows a stable and predictable course with labs, course assignments and quizzes correlated into a single unit.

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

Student surveys and student performance in this course suggest that this course is highly structured for a first-time electricity student. New lab equipment is being purchased to support this successful course; new lab exercises will be added. Online lab-assignments have been popular, and it will continue to be offered in this course.

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

No additional resources needed.