Course Title: Adv. Concepts and Applications of Instrumentation and Control - ELE 235
Date: August 2019

Course Team: Juan C. Luna.

Expected Learning Outcomes

- Explain electronic signal conditioner circuits for sensor data acquisition.
- Distinguish between different DAQ techniques along with its corresponding software integration.
- Understand typical design constraints of a Data Acquisition System (software and hardware).

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 ELE235 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:**
N/A

**Strengths & Weaknesses:**
The data is not conclusive since this course was taught with only two students

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

ELE235 was based on LabView equipment. It was the first time this software was used and it was having issues in STEM313 due to old computer equipment. The textbook was adequate, the student learning comprehension was remarkable, but we expect to improve the lab conditions next time this course is offered.

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

No resources needed.