Annual Academic Assessment Report

Bachelor of Science in Civil Engineering (BSCE)

Student Learning Outcomes:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. an ability to communicate effectively.
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgement to draw conclusions.
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Assessment and Evaluation: AY 2022-2023

The faculty of the Department of Civil Engineering evaluated Student Learning Outcome assessment data at its annual faculty meeting, held August 11, 2023. The results of the analysis include the following:

- **Outcome 1**:
  - Problem solving skills exhibited on the standardized Fundamentals of Engineering (FE) examination indicate students are achieving the Outcome at the desired target level.
  - Problem solving skills exhibited within civil engineering courses indicate students are NOT achieving the Outcome at the desired target level.
- **Outcome 2**:
  - Engineering design skills exhibited in the capstone design experience indicate students are achieving the Outcome at the desired target level.

- **Outcome 3:**
    - Communication skills exhibited in the capstone design experience indicate students are achieving the Outcome at the desired target level.
- **Outcome 4:**
    - Recognizing ethical and professional responsibilities to make informed judgments exhibited in the capstone design experience and the Professional Issues course indicate the students are achieving the Outcome at the desired target level.
- **Outcome 5:**
    - Teamwork and leadership exhibited in the capstone design experience indicate students are achieving the Outcome at the desired target level.
- **Outcome 6:**
    - Conducting experiments, analyzing data, and drawing conclusions exhibited in two laboratory courses indicate the students are achieving the Outcome at the desired target level.
- **Outcome 7:**
    - Obtaining and applying new knowledge exhibited in the capstone design experience indicates students are achieving the Outcome at the desired target level.

Changes to the Degree Program – Planned or Considered

Based on the assessment of Outcome 1 (Problem Solving), the faculty voted to reinstate a requirement that students must earn a grade of "C" or better in required CVEG courses that serve as prerequisites to other required CVEG courses. This step is taken to address the concern that students earning a "D" grade in lower-level (foundational) courses have not developed the knowledge and skills necessary to succeed in subsequent courses.

Changes to the Assessment Process – Planned or Completed

Data related to Outcome 1 (problem solving) will be collected for civil engineering courses at the 2000-, 3000-, and 4000-levels, to identify whether difficulties in problem solving spans the civil engineering curriculum.

Assessment data reporting rubrics and forms associated with Outcome 6 (experimentation) will be re-designed to better capture each element of the outcome.