

## **Civil Engineering Students' Ability of Knowledge Application**

### **Civil Engineering BS - College of Engineering and Computer Science**

#### **Step 1: Student Learning Outcome**

An ability to apply knowledge of mathematics, science and engineering.

#### **Step 2: Methods and Measures**

**Direct Measure:** SLO Assessment Exam

The exam is administered to all students enrolled in CE 201, CE 301, and CE 408. The exams are graded at the scale of 100 and assessed based on the average course grade. For quantitative assessment, exam questions are developed in each course specifically to assess whether the students attained the SLOs identified for that course. Although one core course may be sufficient to assess students' satisfactory performance in one SLO, more than one course were chosen to increase redundancy.

The following performance indicators are assessed as follows:

- Knowledge of fundamental math and science to apply in civil engineering (CE 201)\*
- Use math and science to solve basic civil engineering problems (CE 301)\*
- Combine different civil engineering concepts to create solutions in real world application (CE 408)\*
- Possess the technical knowledge to work in civil engineering projects (CE 408)\*

Courses are identified where the outcome is, Initiated, Reinforced or Enhanced.

**Indirect Measure:** Senior survey

Administered to graduating students to understand their self-assessed confidence on the SLO.

#### **Step 3: Criteria for Success**

**Direct Measure:** Seventy percent (70%) of students will have an average score higher than 3.5 on a 5 point scale, i.e. 70%, for each course to be considered as outcome satisfied.

**Indirect Measure:** Eighty percent (80%) of the students will have an average score higher than 3.5 on a 5 point scale to be considered as outcome satisfied.

#### **Step 4: Results**

In Fall 2014, SLO (a) was assessed in EGCE 201 (sample size 139), EGCE 301 (sample size 40), EGCE 408 (sample size 37) and average score in performance indicators 1, 2, 3, and 4 were 3.9, 3.7, 3.6, and 3.6, all higher than 3.5.

The average assessment score was 3.7, higher than 3.5 and has been considered as satisfactory.

#### **Step 5: Improvement Actions**

Currently the SLO is met and the program will retain the current practice for 2 years, and will re-evaluate all of the above courses in fall 2016.