Software Engineering BS

Ethical Principles And Management Skills

Goal Description:

To develop students' knowledge of ethical principles, technical skills, and management skills relevant to the field of computer software Engineering Technology.

Providing Department: Software Engineering BS

Progress: Completed

RELATED ITEMS/ELEMENTS

RELATED ITEM LEVEL 1

Ethical Principles And Management Skills

Learning Objective Description:

Students will develop and demonstrate an understanding of the ethic considerations and management principles relevant to the field of Computer Software Engineering Technology.

RELATED ITEM LEVEL 2

New Indicator, Criterion, and Findings Item

Indicator Description:

We are in the process of obtaining ABET accreditation for our software engineering program. Data for a list of classes will be collected during Fall and Spring of each year. We will use classes data to measure the performance of the program.

The new committee has been formed during the spring 2023 semester. The designated committee has concluded their work during Fall 2023 by submitting a self-study report to ABET evaluation committee for review. The application is still in the review process.

Criterion Description:

Students learning outcomes defined for a list of classes will be used to assess the program performance. SLOs based on exams homework's and students project will be used for assessing our software engineering program.

Findings Description:

New assessment tools have been proposed during the Fall 2023 semester and still waiting approval by ABET. The new assessment tools be used to assess the software engineering program. Upon approval by ABET, data from various COSC courses will be collected and analyzed.

RELATED ITEM LEVEL 2

SOs PEOs Assessments

Indicator Description:

Students performance were assessed based on the following:

- Software engineering's term project assessment, which include, project presentation, project functionality, faculty evaluation, and peer reviews.
- Student exit survey conducted in COSC 4319. It was implemented to evaluate students learning outcomes and PEOs

Rubrics for peer evaluation, project presentation, and project functionality were developed. For more information refer to the attached documents.

Based on last year's comments, we are in the process of adjusting our indicators for the next cycle assessment.

Attached Files

Handout 2-Student-Exit-Survey.docx

Criterion Description:

Students must achieve above 60% on project functionality, peer evaluation, and project presentation to pass.

RELATED ITEM LEVEL 3

Action - SOs PEOs Assessments

Action Description:

This program has been assessed by the department for the application of ABET accreditation. A self-study report has been prepared during Fall 2023 and shared with the department during the UCC meeting. The self-study report is still under review by the ABET review committee.

Technical Competence

Goal Description:

Students will have a strong technical foundation, i.e., students will develop and demonstrate knowledge of theoretical materials, and computational and technical skills in the areas of Computer Software Engineering Technology.

Providing Department: Software Engineering BS

Progress: Completed

RELATED ITEMS/ELEMENTS

RELATED ITEM LEVEL 1

Technical Competence

Learning Objective Description:

Students will develop and demonstrate knowledge of technical skills, relevant to the field of computer software engineering technology.

RELATED ITEM LEVEL 2

New Indicator, Criterion, and Findings Item

Indicator Description:

We are in the process of obtaining ABET accreditation for our software engineering program. Data for a list of classes will be collected during Fall and Spring of each year. We will use classes data to measure the performance of the program.

The new committee has been formed during the spring 2023 semester. The designated committee has concluded their work during Fall 2023 by submitting a self-study report to ABET evaluation committee for review. The application is still in the review process.

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RELATED ITEM LEVEL 2

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Criterion Description:
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RELATED ITEM LEVEL 3

Action - SOs PEOs Assessments

Action Description:
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Update to Previous Cycle's Plan for Continuous Improvement Item

Previous Cycle's Plan For Continuous Improvement (Do Not Modify):

Closing Summary
During Fall 2022 and Spring 2023, the department has form a committee to perform a self study report on obtaining ABET accreditation for the B.SC in software engineering. The following list of courses has been included for future assessment of our B.SC software engineering program. Data will be collected from these classes during Fall and spring semesters to monitor the program performance. Five years data will gathered and shared with the ABET committee members and program evaluators.

COSC 3312 Numerical Methods

COSC 3318 Data Base Management Systems

COSC 3319 Data Structures and Algorithms

COSC 4314 Data Mining

COSC 4318 Advanced Language Concepts

COSC 4319 Software Engineering

COSC 4320 System Modeling and Simulation

COSC 4349 Professionalism and Ethics

Update of Progress to the Previous Cycle's PCI:
Upon approval by ABET, class scores data will be collected during Fall and Spring semester of each year. No Data are collected during this past academic year.

New Plan for Continuous Improvement Item

Closing Summary:

To measure our software engineering program, we have relied on the COSC 4319 Software Engineering course. Course-specific learning outcomes were used to measure students' retention of knowledge in key concepts they learned during the class and how they apply these concepts in high-level classes. Another metric we have used to measure students' success is the existing survey data. The following summarized Course Learning Outcomes (CLO)s of COSC 4319.

CLO1: Be able to identify, formulate, and solve software engineering problems, including the specification, design, implementation, and testing of software systems that meet specification, performance, maintenance, and quality requirements.

CLO2: Be able to elicit, analyze, and specify software requirements through a productive working relationship with various stakeholders of a software development project.

CLO3: Work and collaborate effectively in teams possibly with multidisciplinary backgrounds as a leader or a member

CLO4: Participate in design, development, deployment, and maintenance of a large-scale software development project including various testing and security issues

CLO5: Communicate effectively through effective written reports/documents, effective presentations, and other means of verbal/written communications

CLO6: Be able to evaluate the impact of potential solutions to software engineering problems in a global society, using the knowledge of contemporary issues and emerging software engineering trends, models, tools, security, and techniques

We measured each CLO using various assessment tools. The following table provides a summary of assessment tools used to measure CLO in COSC 4319.

Table 1: CLOs and assessment tools

Course Learning Outcomes	Assessment Tools
CLO1	Proposal presentation, Feasilibility Report, Midterm01
CLO2	Proposal presentation, Feasilibility Report, Midterm02
CLO3	Progress presentation
CLO4	Midterm01, Midterm02, Final Exam
CLO5	Final Presentation, Final Report
CLO6	Poster, Final Exam

We observed that students were scoring high on these CLOs. Although we have a high success rate on CLOs for COSC 4319, but this data might not be able to provide sufficient information on student's retentions of knowledge in other areas within the BSc program in Software Engineering. Meanwhile, we are in the process of applying for ABET accreditation, a self-study report has been submitted during Spring 2024. Five core classes were selected to measure ABET learning outcomes. We will use data collected from these classes to measure students' retention of knowledge and skills they were able to acquire through the BSc program in Software Engineering.