Computing Science BS

Ethical Principles, Technical Skills, And Management Skills (core)

Goal Description:

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

Providing Department: Computing Science BS

Progress: Completed

RELATED ITEMS/ELEMENTS

RELATED ITEM LEVEL 1

Acquisition Of Technical Skill, Management And Ethical Principles

Learning Objective Description:

Students will develop and demonstrate knowledge of ethical principles, technical skills, and management skills relevant to the field of computer science.

RELATED ITEM LEVEL 2

Finding: ABET Assessment data Indicator Description:

To assess the B.SC program in computer science, ABET results were collected during fall and spring semesters. We have implemented a course-based evaluation. The following provide a list of courses used during the assessment cycle:

- COSC 3318 Data Base Management System
- COSC 3319 Data Structure and Algorithm
- COSC 4318 Advanced Language Concepts
- COSC 4319 Software Engineering
- COSC 4349 Professionalism and Ethics

Standardized departmental syllabuses were developed for each of the above classes. Course contents were mapped directly to ABET students learning outcomes and used as indicators to measure students performance on these classes and ultimately measure the program overall performance. During the assessment period, students grades were collected from these five courses and processed to estimate the program overall performance. In our course-based evaluation, we considered a score of 70% on selected ABET student learning outcomes per course as passing criteria. The following provide a list of ABET students learning outcomes that are used to assess this program.

- 1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
- 2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline
- 3. Communicate effectively in a variety of professional contexts
- 4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles
- 5. Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline
- 6. Apply computer science theory and software development fundamentals to produce computing-based solutions

In addition to course-based evaluation, we have deployed the following measurement tools

• Exit survey

• Ethic Quiz

Attached Files

ABET Assessment Day Minutes.pdf

Handout 2-Student-Exit-Survey.docx

Handout 5.docx

Criterion Description:

The expected score used for course-based evaluation is 70% for measuring success. Average scores for each ABET students learning outcomes were computed based on (COSC 3318, COSC 3319, COSC 4319, and COSC 4349). Computed average scores were used to measure the overall program's performance.

See attached figure for ABET course summary evaluation

Attached Files ABET Summary Evaluation (FAll 2022).png ABET Summary Evaluation (SPRING 2022)(1).png Agneda-UCC-spring2022.docx Exit survey Answer sheet spr22 (1).xlsx Exit survey Answer sheet Fall 22.xlsx ABET-Fall2022.zip ABET-Spring-2022.zip UCC Minutes-April 4-2023.docx UCC Minutes-Oct 18 Fall-22docx (1).docx

Findings Description:

The attached data describe a summary of our CS program. We use five classes to assess the performance of the program pluse and an exist survey.

RELATED ITEM LEVEL 3

Action - ABET assessment for 2022 Action Description:

ABET data is collected and results are discussed during the department UCC meetings. Two UCC meetings were held during the year 2022.

Specialized Competencies

Goal Description:

To develop students' skills and knowledge in their concentration areas. The department offers three concentration areas: Computer Science, Information Systems, and Information Assurance.

Providing Department: Computing Science BS

Progress: Completed

RELATED ITEMS/ELEMENTS

RELATED ITEM LEVEL 1

Specialized Skills

Learning Objective Description:

Students will develop and demonstrate skills and knowledge in their concentration areas. The department offers three concentration areas: Computer Science, Information Systems, and Information Assurance and

Security.

Indicator: ABET data collected from five classes samples, COSC 3318, COSC 3319, COSC 4349, COSC 3319, and COSC 4318. These courses will be use to assess students' performance in developing various skills such as software design, advanced programming, ethical computing, data base programming, and team work and communication skills. During each semester, data will be collected from these five different classes, results are shared and analyzed with department during UCC meeting. Various computing metrics are extracted from the collected data, class averages, senior project development and presentation, and various terms projects and homework assignments.

Update to Previous Cycle's Plan for Continuous Improvement Item

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

Closing Summary

The UCC will conduct multiple meetings during the Fall 2022 and Spring 2023 semesters to apply some changes to the BS program.

UCC will discuss ABET assessment data with CS faculties during fall and spring to identify new metrics that can be used to improve the B.SC program in computer science. ABET results that score below 70% will be discussed with faculty teaching the course to find ways for improvement .

Update of Progress to the Previous Cycle's PCI:

Abet data for B.Sc in computer science have collected for two semesters and results are shared with the cs faculties during ucc meeting.

New Plan for Continuous Improvement Item

Closing Summary:

The following items were discussed during UCC meetings.

- 1. Possible revision of COSC 1436 and COSC 1437 courses' contents to strengthen students' knowledge in keys areas that might be relevant concepts covered in COSC 3319 course (Data Structure). The following is a list of topics that Dr. Burris has suggested for inclusion in COSC 1436 and COSC 1437:
 - Multi-threading
 - Synchronized methods
 - OOD, OOP and templates/generics
 - Inheritance and polymorphism
- Curriculum development and improvement
 - Redesign COSC 2329 course: The contents of the course will be fully revised during Fall 2023. The revisions include adapting a new textbook, replacing MIP architecture with ARM architecture, and utilizing a new ARM assembler simulating toolset for coding.
 - We are proposing to update the course's requirements/prerequisites for COSC 4349. Based on the current course requirements, only senior level students are able to register for the course. The main objective of relaxing COSC 4349 course's requirements is to allow junior level students to get into the course.
 - We are proposing the replacement of COSC 4340 special topic course by a new course. The new course will be related to hardware design and implementation. it will be offered during each Fall semester.