Computing Science BS 2021-2022

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

ABET Assessment For 2021

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.

The following table provide a summary score for Fall 2021

Courses	SO1	SO2	SO3	SO4	SO5	SO6
3318	75.87	75.001	74.255	78.01		
3319	63.28	63.28		59.67		63.28
4318						
4319	90.55	91.43	90.91		91.58	91.43
4349	79.69		79.69	79.69		
Fall 21 Avg	77.3475	76.57033	81.61833	72.45667	91.58	77.355

As indicated in the above table (Fall 2021) the average scores on all ABET student learning outcomes were above 70%.

Findings Description:

ABET data were collected during fall and spring semester. For more information refer to the attached files for more details

Attached Files

Fall 2021 Average Score Report(1).xlsx
Exit_survey_ABET.xlsx
Springdata2021.7z

Falldata2021.zip

RELATED ITEM LEVEL 3

Action - ABET assessment for 2021

Action Description:

The department will continue assess the B.SC program in computer science based on using ABET assessment data. Average score for each ABET student learning outcomes computed using the course-based evaluation tool will be collected for two semesters.

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.

RELATED ITEM LEVEL 2

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.

The following table provide a summary score for Fall 2021

Courses	SO1	SO2	SO3	SO4	SO5	SO6
3318	75.87	75.001	74.255	78.01		
3319	63.28	63.28		59.67		63.28
4318						
4319	90.55	91.43	90.91		91.58	91.43
4349	79.69		79.69	79.69		
Fall 21 Avg	77.3475	76.57033	81.61833	72.45667	91.58	77.355

As indicated in the above table (Fall 2021) the average scores on all ABET student learning outcomes were above 70%.

Findings Description:

ABET data were collected during fall and spring semester. For more information refer to the attached files for more details

Attached Files

Fall 2021 Average Score Report(1).xlsx

Exit_survey_ABET.xlsx

Springdata2021.7z

Falldata2021.zip

RELATED ITEM LEVEL 3

Action - ABET assessment for 2021

Action Description:

The department will continue assess the B.SC program in computer science based on using ABET assessment data. Average score for each ABET student learning outcomes computed using the course-based evaluation tool will be collected for two semesters.

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.

Update of Progress to the Previous Cycle's PCI:

The UCC committee have shared ABET results with CS faculties for the last evaluation period. The following items were discussed during Fall 2021 meeting:

CAE discussion items:

- development of new CAE rubric
- development of CAE Program Level Learning Outcomes

Catalog/curriculum discussion items:

- Discuss the content of COSC 2347 (special topics/ Programming Languages)

BS in Cybersecurity curriculum:

- Discussed the possibility of removing DFSC 3320 (Digital Forensic Tool). DFSC 3320 is a pre-requisite of DFSC 4318 (Malware) but is not required in the degree plan.
- Discussed the need of having of DFSC 4318 (Malware) as pre-requisite of 4338 (Cyber Warfare)?
- Discussed the cyber security study plan: DFSC 2316 (DF and IA Fundamental II) and DFSC 3316 (Cryptography and Network Security) are suggested to take in spring of 3rd year, but DFSC 2316 is a pre-requisite of DFSC 3316

New Plan for Continuous Improvement Item

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 .