B.S. Computer Science

Annual Program Report Template

Year:	2021-2022
Program:	BS Computer Science
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Summary of Continuous Improvement Efforts since Last Report

Provide a brief description of how assessment results have been used for program improvement. Point to a specific example of how an assessment provided the program with data it could use for improvement and what that improvement was, if possible, also show evidence of the improvement. You may look at data from the two previous academic years to support this case.

Respond here:

The department Assessment committee met November 14, 2022, after members had reviewed all assessment data collected for the previous year including the feedback from the annual spring department Advisory Board meeting. Meeting minutes are listed in Appendix J of the annual ABET report for the program dated Nov. 14, 2022.

The following improvement efforts have been made:

1. Revised and improved Computer Science undergraduate program catalog to show accurate program information.
2. Revised and improved Computer Science undergraduate course catalog to show accurate course descriptions.
3. Updated syllabi of undergraduate-level courses to increase rigor and show differences learning outcomes, objectives between 1000-level to 4000-level courses along the curricular ladder in association of SACSCOC requirements.
4. Develop and revised 6 undergraduate-level AP courses.

    These changes will take effect in the 2022-2023 academic year.

5. Since our assessment did not meet the direct target for criteria 1.4 (develop correct and efficient programs) we will reevaluate next year to see if any changes are needed since the data indicated less than 1% away from meeting the target goal. (See the Annual ABET report for the program dated Nov. 14, 2022)
6. Since our assessment did not meeting the direct target for criteria 2.3.4 (Demonstrate basic knowledge of equivalences and normal forms of logical formulas in propositional logic) we will notify the instructors of COSC 3308, 3302 and 2375 of the deficiency and request diligence in teaching equivalences and normal forms of logical formulas in propositional logic. (See the Annual ABET report for the program dated Nov. 14, 2022)

Program Highlights Since Last Report

Identify and briefly discuss any programmatic curriculum changes made since the last report (e.g. new courses, course changes, SLO changes, course deletions).

Respond here:

1. Develop new course content to improve COSC 1336 CS 1 online course for QM certification.
2. Develop new course content to improve COSC 1173 Programming Lab online course for QM certification
3. Developed new course contents for COSC 1336 CS 1 in-person course so that students can take this course in both synchronized online and in-person format due to COVID-19.
4. New AP courses were developed to enhance the AP curriculum.

Table 1. Assessment Results and Analyses for Current Cycle.

STAGE 1: PLAN				STAGE 2: DO		STAGE 3: STUDY
Departmental Student Learning Goal	Program Student Learning Outcome	Assessment	Assessment Method/Location	Benchmark Expectations	Data Results	Actions/Goals Based on Data Results* What do the data tell you? How will you use this data? How were data from the last cycle used to make changes during this cycle, and What were the results of those changes?
Graduates of the Computer Science Program will develop the professional skills and the necessary technical knowledge both in breadth and in-depth to prepare them for employment and advanced study in Computer Science.	• Graduates of the program will have an ability to analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions. • Graduates of the program will have an ability to design, implement, and evaluate a computing-based solution to meet a given set of	Instructor defined rubric for Semester Project in CPSC 4317 and COSC 4310 Selected Questions on Final Exam CPSC 4360 (All rubrics are defined by each instructor in their course.	Curriculum Outcomes 1, 2 and 3 /Department of Computer Science This is explained in Section 3 of the Annual ABET report for the program dated Nov. 14, 2022.	>80% Using the instructor defined assessment rubrics in each course/s which are the context for assessment of each of the above criteria, the average score of all students in all the	[1.1] score 86% [1.2] score 85% [1.3] score 87.17% [1.4] score 79.11% [1.5] score 82.67% [1.6] score 85% [1.7] score 90.67% [2.2.1] score 82.6% [2.2.2] score 84.78% [2.2.3] score 80.4% [2.2.4] score 82.6% [3.1] score 90.54% [3.2] score 87.35% [3.3] score 85.61% [3.4] score 86.75% This data is taken from Table G.2 in the Annual ABET report for the	14 out of 15 criteria met their direct assessment targets (>80%). Criterion 1.4 was only one that did not meet the target for direct assessment. However, it was less than 1 percentage point of meeting the goal of 80%. Overall, the data demonstrates that CS undergraduate students can develop professional skills and techniques for their future employment and advanced studies. The data will be used to analyze program development and

				courses for both fall and spring semesters, our department target is 80% of students will demonstrate a working understanding of the specified criteria. All criteria are specified as learning objectives in Table E.1 of the Annual ABET report for the program dated Nov. 14, 2022.	program dated Nov. 14, 2022.	support further improvement. The department Assessment Committee meets each summer to review the previous year's assessment results and formulate plans for continuous improvement as needed for learning objectives (criteria) that did not meet the desired targets. Committee meeting minutes are listed in Appendix J of the Annual ABET report for the program dated Nov. 14, 2022.
	computing requirements in the context of the program's discipline. • Graduates of the program will have an ability to apply computer science theory and software development fundamentals to produce computing-based solutions.					
Graduates of the Computer Science Program will have sufficient awareness of the local and global societal impact of technology and of the related legal and ethical issues in computer science to make decisions	Graduates of the program will have an ability to recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.	Exam Questions COSC 3325, CPSC 4317 COSC 4360 Each instructor used their own scoring methodology for exam questions in their courses.	Curriculum Outcomes 4 and 5 /Department of Computer Science This is explained in Section 3 of the Annual ABET report for the	>80% Using the instructor defined assessment rubrics in each course/s which are the context for assessment	[4.1] score 97% [4.2] score 97% [4.3] score 97.28% [4.4] score 96% [5.1] score 96% [5.2] score 85% [5.3] score 96% [5.4] score 96% [5.5] score 96%	All criteria met their direct assessment targets. The data demonstrates that CS undergraduate students are able to recognize professional responsibilities and legal and ethical principles. The data will be used to analyze program development and support further improvement.

regarding their personal and professional responsibilities.			program dated Nov. 14, 2022.	of each of the above criteria, the average score of all students in all the courses for both fall and spring semesters, our department target is 80% of students will demonstrate a working understanding of the specified criteria. All criteria are specified as learning objectives in Table E.1 of the Annual ABET report for the program dated Nov. 14, 2022.	This data is taken from Table G.2 in the Annual ABET report for the program dated Nov. 14, 2022.	The department Assessment Committee meets each summer to review the previous year's assessment results and formulate plans for continuous improvement as needed for learning objectives (criteria) that did not meet the desired targets. Committee meeting minutes are listed in Appendix J of the Annual ABET report for the program dated Nov. 14, 2022.
Graduates of the Computer Science Program will have the critical thinking, communication,	• Graduates of the program will have an ability to communicate effectively in a	Rubrics CPSC 4340, CPSC 4360, Rubrics COSC 3325 COSC 4272	Curriculum Outcomes 6, 7 and 8. /Department of	>80% Using the instructor defined	[6.1] score 95% [6.2] score 91.97% [6.3] score 92.27% [6.4] score 92.27%	All criteria met their direct assessment targets. The data demonstrates that CS undergraduate students

teamwork, and leadership skills necessary to function productively and professionally.	variety of professional contexts. • Graduates of the program will have an ability to function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.	Rubrics CPSC 4360, COSC 4302 All rubrics are defined by each instructor in their course.	Computer Science This is explained in Section 3 of the Annual ABET report for the program dated Nov. 14, 2022.	assessment rubrics in each course/s which are the context for assessment of each of the above criteria, the average score of all students in all the courses for both fall and spring semesters, our department target is 80% of students will demonstrate a working understanding of the specified criteria. All criteria are specified as learning objectives in Table E.1 of the Annual ABET report for the program dated Nov. 14, 2022.	[7.1] score 96.51% [7.2] score 96.51% [7.3] score 95.48% [7.4] score 96.51% [8.1] score 92.16% [8.2] score 94.58% [8.3] score 86.75% [8.4] score 94.58% [8.5] score 94.58% This data is taken from Table G.2 in the Annual ABET report for the program dated Nov. 14, 2022.	can communicate effectively and work individually or in a team. The data will be used to analyze program development and support further improvement. The department Assessment Committee meets each summer to review the previous year's assessment results and formulate plans for continuous improvement as needed for learning objectives (criteria) that did not meet the desired targets. Committee meeting minutes are listed in Appendix J of the Annual ABET report for the program dated Nov. 14, 2022.

Graduates of the Computer Science Program will be able to demonstrate intellectual curiosity and the independent study skills necessary for life-long learning.	Graduates of the program will have an ability to independently acquire new computing related skills and knowledge to pursue either further formal or informal learning after graduation.	Rubrics COSC 3325 and COSC 4272

All rubrics are defined by each instructor in their course. | Curriculum Outcome 9 /Department of Computer Science

This is explained in Section 3 of the Annual ABET report for the program dated Nov. 14, 2022. | >80%

Using the instructor defined assessment rubrics in each course/s which are the context for assessment of each of the above criteria, the average score of all students in all the courses for both fall and spring semesters, our department target is 80% of students will demonstrate a working understanding of the specified criteria. All criteria are specified as learning objectives in | [9.1] score 97% [9.2] score 95.31% [9.3] score 97%

This data is taken from Table G.2 in the Annual ABET report for the program dated Nov. 14, 2022. | All criteria met their direct assessment targets.

The data demonstrates that CS undergraduate students can learn new skills and knowledge independently after graduation. The data will be used to analyze program development and support further improvement.
The department Assessment Committee meets each summer to review the previous year's assessment results and formulate plans for continuous improvement as needed for learning objectives (criteria) that did not meet the desired targets.

Committee meeting minutes are listed in Appendix J of the Annual ABET report for the program dated Nov. 14, 2022. |

				Table E.1 of the Annual ABET report for the program dated Nov. 14, 2022.		

Table 2. Continuous Improvement Results Since Last Report

Stage 4: ACT		
Actions/Goals Based on Data Results *Copy last cycle's actions/goals and report on progress toward continuous improvement on those here.*	**Status** *C=Complete* *P=Progressing* *N=No Action Taken*	**Discussion of Status** *If C, describe efforts that led to accomplishment of actions/goals.* *If P, provide update on progress made toward accomplishing actions/goals and what tasks remain* *If N, discuss why action toward accomplishing actions/goals has been delayed and what work will be initiated toward accomplishment.*
Enhance the BSCS program by adding new content and teaching materials to CS undergraduate-level courses.	P	The new course content has been developed to improve COSC 1336 CS I online course and COSC 1173 Programming Lab online course for QM certification. More course content showing cutting-edge knowledge will be added continuously.
Develop new AP courses to strengthen the AP curriculum and increase the enrollment of AP students.	P	New AP courses have been developed in response to the growing popularity and demand for computer science areas such as Game Development and Cybersecurity. These specialized fields have witnessed a significant rise in their importance and relevance due to emerging technologies and evolving societal needs. More new AP courses will be developed.

Encourage faculty members to actively engage in mentoring undergraduate students in their research endeavors. Faculty involvement provides crucial guidance, expertise, and mentorship. Foster a supportive culture that encourages faculty to invest in undergraduate research.	P	Undergraduate students played an active role in numerous research projects, including those supported by the NSF MRI grant, which provided Research Experiences for Undergraduates (REU) students with valuable opportunities to engage in hands-on research using state-of-the-art equipment. More research opportunities will be provided to students to enhance their competitiveness for future careers