Assessment and Evaluation 2018–2019

BS of Computer Science

Department of Computer Science

California State University, Fullerton

(incomplete initial draft)

Assessment Committee

Fall 2019
1. ABET Student Learning Outcomes Assessment Overview

1.1 Assessment Data Samples

The following is the data collection schedule; all core Undergraduate Computer Science Courses are covered. All sections of each course are required to submit the data. The total of 45 graduates completed the online exit survey. There is no bias in the assessment data sample collected.

<table>
<thead>
<tr>
<th>Semester</th>
<th>120</th>
<th>121</th>
<th>131</th>
<th>223</th>
<th>240</th>
<th>311</th>
<th>315</th>
<th>323</th>
<th>332</th>
<th>335</th>
<th>351</th>
<th>362</th>
<th>440</th>
<th>471</th>
<th>481</th>
<th>Exit survey</th>
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<td>Spring</td>
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<td>x</td>
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</table>

1.2 Student Outcome Assessment Criteria

The new ABET Student Outcomes (SO 1 – SO 6) are assessed.

A set of PIs (Performance Indicator) is assigned to each Student Outcome and the accumulative average of these PIs determines if the SO objectives are met or not. Some refinement and consolidation of PIs were made based on changes by ABET and feedback received.

There are two types of PIs, the Course PIs and Survey PIs. A Course PI has three possible outcomes: Satisfactory, Developing, and Unsatisfactory; and a Survey PI has two outcomes: correct or incorrect.

The following formula are used to assess the Student Outcomes:

1. No survey PIs are used in the Student Outcome.

   A SO Criteria is met if the total of SAT and DEV is bigger than or equal to 60%.

2. Survey PIs are used in the Student Outcome.

   A weighted system is used in which 80% is assigned to Course PIs and 20% is assigned to Survey PI. A SO criteria is met if \((SAT+DEV)*0.8 + Survey Correct%*0.2 \geq 60\)
2. Student Outcomes Assessment Results

Note that core courses and related PIs under each SO are listed, overall “Satisfactory” percentage, “Developing” percentage, and “Unsatisfactory” percentage of all PIs are calculated. The outcome result is also provided.

SO 1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.

131 ALTS, ALG
240 HW
332 REQ, SPEC
351 ALTS, HW
362 REQ, SPEC
440 ALTS, HW
471 HW

Satisfactory: 53%
Developing: 31%
Unsatisfactory: 16%
Sat + Dev = 84% > 60% (Criteria Met)

SO 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.

120 CODE
121 ACODE
131 ACODE
223 CODE, TEST
323 DESC
335 DESC
351 DESC
362 DESC, TEST

Satisfactory: 57%
Developing: 27%
Unsatisfactory: 16%
Sat + Dev = 84% > 60% (Criteria Met)
SO 3. Communicate effectively in a variety of professional contexts.

121 CMNT
240 CMNT
311 WRITE, SPEAK
315 WRITE
362 SPEAK

Satisfactory: 71%
Developing: 15%
Unsatisfactory: 14%
Sat + Dev = 86% > 60% (Criteria Met)

SO 4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.

315: ETH, IP, SECISS
Exit Survey: ETH (50%), IP (65%), SECISS (84%)

Course PI (80% weight):

Satisfactory: 72%
Developing: 20%
Unsatisfactory: 8%
Sat + Dev = 92%

Survey PI (20% weight): Ave Correct %: 66
Weighted outcome:
92%*0.8 + 66%*0.2 = 87% > 60% (Criteria Met)

SO 5. Function effectively as a member or leader of a team engaged in activities appropriate to the program’s discipline.

311: FDBK
323: COOP, FDBK
332: COOP, FDBK
362: PROC
Exit Survey: PROC (47%)

Course PI:

Satisfactory: 79%
Developing: 13%
Unsatisfactory: 8%
Sat + Dev = 92% > 60%
Survey PI: Ave Correct%: 47%
Weighted Outcome = 92%*0.8+47%*0.2 = 83% > 60% (Criteria Met)

SO 6. Apply computer science theory and software development fundamentals to produce computing-based solutions.
131: EFF
240: ALG
335: ALG, EFF
471: GRAPH
481: ALG

Satisfactory: 66%
Developing: 20%
Unsatisfactory: 14%
Sat + Dev = 86% > 60% (Criteria Met)

3. Assessment Results of Each Core Course and Exit Survey Conducted in Fall 2018 and Spring 2019

<table>
<thead>
<tr>
<th>COURSE</th>
<th>PI</th>
<th>SATISFACTORY</th>
<th>DEVELOPING</th>
<th>UNSATISFACTORY</th>
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Exit Survey Data (Spring 2019)

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Total: 168 participated in the survey
Correct %: 65% 38% 45% 48% 84% 84% 55% 55% 57% 62%

4. Evaluation of Assessment Results

4.1 Conclusion

The results show that BS program of Computer Science Department is still academically robust. The program performance is eminently satisfactory since all 6 ABET Student Outcomes meet or exceed the thresholds set for compliance.
4.2 Areas to Improve:

From Exit Survey:

Weak in Ethical Responsibility (improvement opportunity for 315)
Weak in Process (improvement opportunity for 362)

From Course Data:
The following improvement opportunities are observed:

- Relatively high UNSATISFACTORY rate in 120, 121, 131
- Relatively high UNSATISFACTORY rate in 335, 351, 440

The going improvement initiatives discussed in ABET retreat and provided in the 2017 – 2018 report will help us to better obtain the above six student outcomes.