

University of Puerto Rico at Bayamón

Implementation of Recommendations
For the Computer Science and
Information Systems Programs

For Cycle 2013-2016

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Overview

This report is prepared at the end of each cycle by the Accreditation and Assessment Coordinator (AAC) to provide an insight of how to implement changes to our Computer Science and Information Systems programs. The AAC analyzes and summarizes recommendations for improvements for each criterion that are evaluated by the accreditation agency. This document, also, aims to capture the status of each and every criterion at the closure of the cycle.

Criterion 1: Students

All of the following recommendations will impact students directly.

Criterion 2: Program Educational Objectives

During this cycle there were no changes to the PEOs. The PEOs are the same for both programs. The PEOs are broader statements that apply to a professional that have graduated from each of the programs.

Criterion 3: Student Outcomes

Performance Indicators and Student Outcomes

The performance indicators (PI) changed during this cycle. The changes were presented in the document drafted after the performance indicators were revised. However, based on the results there will be changes to the performance indicators. The AAC decided to revised the importance, wording and pertinence of each PI. Therefore, PIs and student outcomes were classified by the members of the External Advisory Board (EAB) after their last meeting.

The AAC recommends a revision of the performance indicators in terms of pertinence to each program.

New Performance Indicators

The AAC recommends that two new PIs be added to student outcome (e). These PIs are:

(e.4) Evaluate the consequences when breaking the law.

(e.5) Understand the vulnerabilities of a system to guarantee a high level of security of the data that needs to be secured.

For PI (e.4) : We know that students analyze case studies during the course. As a recommendation from the External Advisory Board (EAB), students analyze topics on fair use and laws related to the profession. However, this is not measured neither on the post-test, nor on the course, since, no PI was available to measure it.

For PI (e.5) : Students take the course COTI 4260 Information Security and we know we can measure this PI on this course. However, there is no PI that measures the security aspects of this outcome. This course have been included as part of the CS program on the 2016 curriculum. However, is a topic that must also be covered in courses of the IS program.

Syllabi

Syllabi in English

All Syllabi should be in English. We are encouraging that all professors have English versions of their syllabus. This task have been an ongoing one, however, we have not achieved the goal of having each and every one in English. The AAC envisions that this task should be accomplished by the end of the next cycle.

Performance Indicators on Syllabus

Syllabi were updated to include the performance indicators that can be measured in each and every course.

Criterion 4: Continuous Improvement

Continuous Improvement Process

The continuous improvement process is not monolithic and therefore, it is subjected to change. However, we need to improve even more our way of implementing it. Our plan was off schedule and did not ended as the time we envision it. We have to stick to the deadlines we have impose to ourselves. Moreover, the impact caused by the student strike and the aftermath of two hurricanes contributed to be off-scheduled even more.

Strengthen of the Student Outcomes

The AAC proposed adding new PIs to outcome (e) as was mentioned earlier in Criterion 3. However, there are some PIs that need to be strengthen. PIs:

(a.2) Analyze the asymptotic running time of algorithms using big-O notation (Cog-Analysis)

This PI should be strengthened for the Computer Science program on the next cycle. The AAC identify the courses in which this outcome should be strengthen. The courses that covered them are:

- SICI 4036 Data Structures
- COTI 4255 Intro. Analysis of Algorithms

The AAC is currently analyzing if this PI could be different for the IS program. The AAC have consulted the External Advisory Board (EAB) on the pertinence of each PI and student outcome. The AAC envision that based on the “preliminary overview” of the results obtained it will. However, further analysis will be done on Stage/Phase 1 of the next cycle.

(a.3) Apply mathematical concepts in the solution of a given problem

Faculty have been focusing on this topic lately. It is known that it affects not only the attainment level of outcome (a), but also our retention and graduation rates. The department have organized an ad hoc committee to deal with the low passing rate on the Mathematics Department courses (mostly Calculus). Also, studies have been done by Dr. Elio Lozano and Dr. Filiberto Arniella related to the IGS and the success on these courses. This initiative aims to increase the achievement level of PI (a.3) and also increase our graduation and retention rates. A meeting have been schedule with the department of mathematics in early December 2018 to address it.

Also, the AAC have decided to strengthen the following courses:

- SICI 4036 Data Structures
- SICI 4037 Data Communications
- COTI 4150 Information Systems Programming.
- COTI 4255 Intro. Analysis of Algorithms

(j.4-CS) Appraise whether a given problem has a computational solution

This is a PI that applies only for the Computer Science program. The AAC identify the courses in which this outcome should be strengthen. The courses that covered them are:

- COTI 4255 Intro. Analysis of Algorithms
- COTI 4250 Intro. to the Theory of Computing

Post Test Revision

Some of the questions related to the PIs should be revised. However, if the AAC determines that some of these questions do not require a change, then, the AAC should reconsider strengthen the PI in the courses that cover them. This event should be presented in the document called Post-Test Revision Report on the next cycle.

The revision for the CS program is composed of:

- Questions related to PI (a.2)
- Questions related to PI (a.3) - (based on the findings with math)
- Include new questions for PIs (e.4) and (e.5)
- Review the drafting of questions related to PI (j.2) and (j.4)

The revision for the IS program is composed of:

- Questions related to PI (a.2)¹
- Questions related to PI (a.3) - (based on the findings of the ad hoc committee)
- Review the drafting of questions related to PI (b.1) (are they appropriate for IS?)
- Include new questions for PIs (e.4) and (e.5)
- Questions related to PI (j.2)

¹ If this PI change for IS, new questions should replace the old ones

Our Post-Test does not include questions about the courses on Business Administration for our IS program. A meeting was held with the Business Administration department head to discuss this issue and to include questions in the Post-Test that pertain to the cohesive body of knowledge in business.

Unit and System Testing

Unit testing was introduced after this cycle began. Therefore, some students did not have a direct experience with an emphasis in unit testing. JUnit was introduced in the Data Structures course in 2015, therefore, we plan to obtain better results after analyzing the data for PI (c.3) during next cycle.

Criterion 5: Curriculum

Changes to our pre-requisite structure or new courses were not introduced as part of this assessment cycle. However, we have analyze ABET CAC Criteria Version 2.0 for accrediting computing programs. We know that in the future we have to include an experience using parallel processing. This could be added as part of a course or as a new course instead. We need to act quickly about this issue to address it early in the next cycle.

Changes have been proposed in Criterion 3 and Criterion 4 that also strengthen our curriculum.

Criterion 6: Faculty

As expected, Miguel Velez obtained its Ph.D. He now is the current Chancellor of our college. Dr. Elio Lozano is studying a second bachelor degree in Electrical Engineering at the Polytechnic University of Puerto Rico. Dr. Nelliud Torres is studying a Graduate Certificate in Information Assurance also at the Polytechnic University of Puerto Rico. Also, some of our faculty have participated in workshops during the semester and during the summer.

Criterion 7: Facilities

We have move our courses to our new building in the Science and Technology Complex (CCT in Spanish). However, after hurricane Irma and Maria we had to lend one of our laboratories to the Physics department (A107). Our offices on Academic Building I suffered some damage on hurricane Maria's aftermath. Water keeps leaking into the building and some tiles have been removed and repaired. The administration have begun working on sealing the roofs but there is work to be done.