TO: The Academic Senate
FROM: The Committee on Academic Planning Review (CAPR)
SUBJECT: 18-19 CAPR 11: CAPR analysis of Computer Science 5-year program review

PURPOSE: For Action by the Academic Senate

ACTION REQUESTED: Acceptance of the Five-Year Program Review of the Department of Computer Science; it is recommended that the program continues without modification.

BACKGROUND:
At its meeting on February 21, 2019, CAPR members unanimously approved the Computer Science 5-year program review. This approval was based on conversations with the lead writer of the report and Dr. Kevin Brown via conversations with the CAPR liaison. The summary document provided was reviewed and approved by the Dr. Brown and his peers. The summary of the five-year review is attached to this memo. It is recommended that the program continues without modification.

Following approval of this memo by the Senate, the Provost will review the summary and meet with members of the Department of Computer Science and the CAPR chair at a time mutually agreeable during the Spring 2019 term to devise a clear 5-year plan moving forward. The Provost will then create a Memorandum of Understanding (MOU) with the Department of Computer Science and return that MOU to the Senate as an information item as soon as possible (completion of a MOU may require extension into the following Fall semester given scheduling timelines).
1.0: Background

Briefly describe the program(s), number of students served, faculty and refer to five-year reports for additional information. Can be copied and inserted from the 5-year review.

The Department addressed all the goals set in the last Five Year Plan. Some goals were met with great success, e.g., growing the program, while other attempts were less successful, e.g., hiring new faculty. Those goals and actions are summarized in detail in the 5-year review. Several new courses to address new fields or changes in existing fields were added to both undergraduate and graduate programs. A number of goals, including modifying the curriculum towards future accreditation, updates to the introductory programming sequence, integrating the M.S. Networks degree into the M.S. Computer Science degree, and simplifying the Master's degree program requirements have been addressed as part of program transformation for the semester-based system.

The program grew from 420 students in Fall 2012 to 828 in Fall 2017 and is still growing. In fact, due to program growth and difficulties in hiring faculty, the Department no longer has the capacity to serve the number of students that wish to enroll. The Department has taken steps in the last year to decrease the size of the graduate program to adjust the total number of students in the major programs to one which may be successfully served. The Department also worked to address the need for more formal advising for the students. An Undergraduate Coordinator position was created providing a single point of contact for advising for students. The undergraduate adviser is a first contact for students who want to plan their computer science schedules, receive transfer credit evaluation, request job/internship/graduate school recommendations, and review graduation requirements. The undergraduate advisor contacts and counsels students who have low GPA’s in their Computer Science courses and meets with students who have been cited for academic dishonesty. The Department believes this added advising will lead to a shorter time to graduation for students, and improve the student experience. The primary goal regarding Faculty was to hire more faculty members to replace a large number of retiring faculty, and to support the large growth in the department. Despite being granted one to two searches a year throughout most of the five-year review period, the Department was successful in hiring only three faculty members. Enrollment demands require at least three more members. Two searches are currently underway this year, but despite extensive outreach, few applications were submitted for the positions, and only perhaps one will be filled. Based on discussions with past candidates who have declined the CSUEB offers of employment, the searches have failed due to inadequate salary offers. A second large change is the separation of the combined Department of Mathematics and Computer Science into two individual departments. The great size of the combined department (nearly 30 faculty), and the large differences in the programs made it difficult to manage, and difficult for standard departmental policies to be developed. As a result, a request was made to separate the programs into two departments.

2.0: Checklist of documents submitted with the 5-year review.

- Self Study – present in 5 year review
- Five-year plan – present in 5 year review
- External reviewer’s report – present in 5 year review
- Program response to the external reviewer’s report – there is a summary of goals and trends and future steps to be taken based on the external reviewers’ comments.
- Accreditation documents (if applicable)- links to accreditation and thorough data tables listing ILO, PLO and SLO assessment strategies are provided in the 5-year review.
3.0: CAPR Analysis

An executive summary and recommendation for program continuation is proposed. It should be no more than 1-2 pages and should be written by the CAPR liaison in partnership with the department/program chair.

Summary:

- Discuss the strengths and assets of the program with respect to faculty, student success, curriculum, program enhancement, assessment plans as well as notable accomplishments: The Department of Computer Science has a clear set of outcomes and goals for faculty and students, have revised, assessed and sustained newly developed curriculum and have collaborated with ITS at CSUEB to create some effective changes in access to digital learning spaces.

- Describe the key issues and/or concerns that were central to the five-year year review process and how the department/program plans to address them: The Department of Computer Science has noted they will continue to assess ILOs and PLOs to monitor the progress of new program and curricular structures. With the conversion to semesters, the Program has noted that they will continue to adapt curriculum to meet the needs of students. They also noted workload and need for lecturers is a challenge to maintain in order to serve such a growing program.

- Note the program’s vision for the next five years and what the program hopes to accomplish (see steps below).

- Provide concrete steps on how the program plans to achieve its vision in the next five years. Below is a list of concrete goals laid out in the 5-year review. Details on the strategies for each can be found in the complete 5-year document.
  - Evaluate B.S. curriculum in light of possible decision to seek accreditation from Accreditation Board for Engineering and Technology (ABET) which provides accreditation for Computer Science programs.
  - Implement a more formal assessment plan for all programs.
  - Closing the loop: Instructors redesigning their courses for semesters have been encouraged to include more algorithm design, program development, testing, and tool use in their courses. High impact teaching practices such as think, pair share, jigsaws, explorative learning, collaborative projects, and flipped classroom techniques have also been encouraged.

4.0: CAPR Recommendation(s) for Continuation of the Program – *please refer to the CAPR policy document as needed https://www.csueastbay.edu/faculty/senate/files/docs/policies/12-13-new-policy-page/capr-academic-program-review-16-17capr7-and-17-18capr5-prez-approved-5-9-18.pdf

Based on an elaborate and thorough 5-year review submitted by the faculty representing the BS/ MS in Computer Science, CAPR recommends this program continue without modification. This program has provided thorough evidence for the achievement of all components listed in the description of continuation without modification (see below)

- Continuation without modification (from page 4, of capr-academic-program-review-16-17)
o responsive to previous five-year review, including progress towards goals identified in the previous plan and external reviewer recommendations;

o a strategic plan for the next five years;

o on-going and consistent assessment of program learning outcomes;

o act on assessment results, i.e. has an iterative assessment process;

o discusses data and its implications for the program;

o closes the loop on assessment;

o program is addressing any achievement gaps;

o five-year reviews and annual reports are completed in a timely fashion;

o program is effectively meeting demand for majors and providing service courses (where applicable);

o program is maintaining an appropriate density of tenure-track faculty;

o program is continuing to graduate students regularly.

5.0 Summary:

In 2012, CAPR proposed that the Department’s Five Year Review be approved with the recommendation that the programs continue with specific modification. Specifically, each program was required to submit evidence of direct and indirect assessment of at least one Program Learning Outcome (PLO) each year in the Department’s annual report. In addition, each program was asked to note actions taken to use the assessment results for program improvement. The Department has complied with the CAPR recommendations, and has made significant progress towards many of the goals in the plan. That progress was thoroughly addressed in the 5-year review submitted in the Spring of 2018.

As part of the executive summary as of 2019, the CAPR liaison, Dr. Michele Korb, recommends this program, BS/MS in Computer Science, for continuation without modification based on thorough evidence for all requirements of this recommendation. What CAPR does recommend is continued attention to monitor, review and assess the goals listed in the CAPR policy documents related to 5 year reviews.

This CAPR review was approved by: (Computer Science Chair, CAPR, February, 2019).
The next 5-year review for Computer Science is due in the Spring of the 2022-23 academic year.