ABET
Computing Accreditation Commission

FINAL STATEMENT

to

UNIVERSITY OF KANSAS
Lawrence, KS

Dates of Visit: November 8-11, 2009

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UNIVERSITY OF KANSAS

FINAL STATEMENT

This is a confidential statement from the Computing Accreditation Commission to the institution. It is intended for internal use only and is not for release except as allowed by policies of ABET, Inc.

I. INTRODUCTION

The University of Kansas is located in Lawrence, Kansas and was opened in 1866. The university has approximately 26,800 students at its Lawrence and Edwards campuses. This student population is supported by 1,579 faculty members.

The following program at the institution was evaluated during the 2009-10 cycle for possible accreditation under the CAC/ABET “Criteria for Accrediting Computing Programs” (Criteria) dated November 1, 2008:

- BS Degree in computer science, evaluated under the Computer Science Program Criteria (previously evaluated in the 2003-04 cycle and accredited at that time);

II. REPORT OF FINDINGS

The Criteria is composed of the General Criteria and Program Criteria. Each criterion provides the underlying principles that each program must meet. A program must meet both the General Criteria and all applicable Program Criteria to be accredited.

This section contains the findings from the time of the visit. It also includes an evaluation of any information provided by the program during the due process response. CAC considers the following comments to relate directly to its accreditation actions.

A program’s accreditation action will be based upon the findings summarized in this statement. Actions will depend on the program’s range of compliance or non-compliance with the criteria. This can be determined from the following terminology:

- Deficiency: A deficiency indicates that a criterion, policy, or procedure is not satisfied. Therefore, the program is not in compliance with the criteria.

- Weakness: A weakness indicates that a program lacks the strength of compliance with a criterion, policy, or procedure to ensure that the quality of the program will not be compromised. Therefore, remedial action is required to strengthen compliance with the criterion, policy, or procedure prior to the next evaluation.
- Concern: A concern indicates that a program currently satisfies a criterion, policy, or procedure; however, the potential exists for the situation to change such that the criterion, policy, or procedure may not be satisfied.

- Observation: An observation is a comment or suggestion that does not relate directly to the accreditation action but is offered to assist the institution in its continuing efforts to improve its programs.
Computer Science Program

The Computer Science program is housed in the Department of Electrical Engineering & Computer Science in the School of Engineering. The School of Engineering offers nine EAC accredited programs. The Department of Electrical Engineering & Computer Science also supports BS degrees in electrical engineering and computer engineering. All degrees are properly differentiated in university publications including the department’s web pages, student handbooks, and transcripts. The department also offers MS degrees in computer science, computer engineering, electrical engineering, and information technology and PhD degrees in computer science and electrical engineering. The department has a total of 35 faculty members, of which 18 are primarily responsible for delivery of the computer science and computer engineering programs. There are 378 undergraduate students in the department, of which 159 are computer science majors. In the 2008-09 academic year there were 30 BS degrees in computer science granted.

Program Strengths

1. The Department of Electrical Engineering & Computer Science is housed in Eaton Hall which opened in 2003 and provides excellent computing facilities for its students. It is also supported by a strong technology staff. Numerous labs are populated with a combination of Linux and Windows PCs that are updated on a regular 3-year cycle. The clean, inviting facilities, 24 hour accessibility, and rapid response of the staff to technical issues make these facilities exceptional. These labs provide excellent support for their instruction as well as serving as a positive incentive for recruitment of new students.

2. A common theme in the discussions with the EECS faculty is the high level of collegiality among faculty members in the three programs within the department. In particular, there is a tremendous appreciation for and confidence in the department chair. It is rare that a department enthusiastically supports its chair as much as this one does. This facilitates the management of the department and its various activities, including the processes in place for accreditation. It also facilitates the sharing of courses and resources among the programs.

3. The department has been highly successful in its recruiting efforts. The new faculty members in the department are stellar. For example, three of the new faculty members have received NSF Career awards. Students are excited about the new upper-division course offerings related to their research. The combination of strong research and the integration of research and teaching into the program can only improve the program in the long term.

4. The Department offers a broad and continuous mentorship to its untenured faculty. The mentoring process is exceptional in that it addresses comprehensively both teaching and research. This has contributed to attracting and retaining a group of highly motivated, enthusiastic untenured faculty, which, in the long run, is likely to be very successful professionally.
Status of Shortcomings from the Previous Review

Program Concerns

1. (Standard VII-1) At the time of the visit, the library staff attached to the computer science program was not well connected to the program or aware of its needs and expectations. A new Library Committee has been created to improve communications between the department and the library, but at this time it is not possible to evaluate the effectiveness of the new Library Committee in addressing the needs of the faculty and students with respect to library resources. This is a concern.

Status: This is no longer a concern.

2. (Standard VII-2) The library collection for computing remains split between the Science and Engineering libraries. The addition of information about the split to the undergraduate handbook is a good step but its effectiveness in making the collections accessible and used by students cannot be judged at this time. This is a concern.

Status: This is no longer a concern.

3. (Standard VII-4) Some classrooms are not adequately equipped for demonstrations and projection and the program cannot control, where its classes are scheduled. Giving preference to the department and the College of Engineering faculty in scheduling rooms that are properly equipped for teaching will help but it is not possible to judge whether the needs of faculty for suitably equipped classrooms will be met by this adjustment. This is a concern.

Status: This is no longer a concern.

Findings from the Current Review

Program Weakness

1. Criterion 4. Continuous Improvement. The following factors contribute to this weakness.
   a. The Continuous Improvement Criterion requires that the program use relevant data to regularly assess its educational objectives and the extent to which they are being met. The extent to which program educational objectives are achieved is regularly assessed through alumni and employer surveys. However, the decisions as to whether achievement levels are met are done on an ad hoc basis, with no a priori establishment of targets for achievement levels. This means that decisions as to whether the desired achievement level is reached can be inconsistent from one assessment cycle to the next.
   b. The Continuous Improvement Criterion also requires that the program use relevant data to regularly assess its outcomes and the extent to which they are being met. The program regularly assesses its outcomes through course surveys that are completed by course instructors each semester. The course outcomes are mapped to program outcomes, and a
level of achievement of 70% is used to indicate satisfactory performance. The program uses the (a)-(i) attributes of Criterion 3 along with the Computer Science Program Criteria attributes (j) and (k) as its program outcomes. However, the program did not present any assessment data with respect to program outcomes (d), (e), (g), and (h). Although the curriculum supports the students being able to achieve these outcomes, without assessment data relative to these program outcomes, the program has no information to allow it to determine whether students are actually achieving these program outcomes. Without this information the program could be graduating students who do not achieve these program outcomes.

Due-process response: The program has adopted a criterion that 70% of responses in the very good or excellent categories on its employer and alumni surveys will constitute achievement of the objective being assessed. In addition, the program has indicated that it uses the EBI exit survey as well as their own senior survey to measure student achievement of outcomes (d), (e), (g), and (h). Additional direct measures for each of these outcomes have been defined by the program that will reasonably assess student achievement of these outcomes. Assessment data was presented at the end of the Spring 2010 semester showing that these outcomes have been assessed and the assessment data has been used by their assessment committee to evaluate students’ achievements of these outcomes.

Due-process evaluation: The weakness is resolved. The shortcoming with respect to the establishment of targets for assessing achievement of objectives has been removed with the establishment of criterion to determine whether or not the objectives have been met. The assessment data and evaluation presented on outcomes (d), (e), (g), and (h) supports the fact that these outcomes are now being assessed.

Program Concerns

1. Criterion 1. Students. The Students Criterion requires that students are offered timely advising by qualified individuals about the program’s requirements and the students’ career alternatives. Every entering student is assigned a faculty advisor, with whom the student must meet every semester. However, the student survey responses have repeatedly indicated that the quality of advising varies significantly, including instances of advisors that are not prepared or not effective in advising. This indication was reinforced by the feedback received during the meeting with students. This increases the likelihood that students do not complete the program in a timely manner.

Due-process response: The program reiterated the steps that they had taken to improve the advising within the department. These include discussing the importance of advising at faculty retreats, tutorials for faculty on undergraduate advising and untenured faculty mentoring to train junior faculty in advising.

Due-process evaluation: The concern remains unresolved. Until follow-on assessment indicates that advising in the department has been improved by these measures this remains as a concern.
2. **Criterion 6. Faculty.** The Faculty Criterion requires that collectively, the faculty members have the technical breadth and depth necessary to support the program. In the area of computer architecture, some of the course material does not appear to be at a sufficient level of depth and rigor. Due to recent faculty losses, the department does not have a faculty member current in computer architecture. Without addressing the need for faculty members who are current in this area, the rapid change in computing architectures may render the curriculum in this area obsolete.

Due-process response: The program has hired a new faculty member in the computer architecture area for the fall 2010 semester.

Due-process evaluation: The concern is resolved.

3. **Criterion 8. Support.** The Support Criterion requires that the institution’s support for the program be sufficient to provide an environment in which the program can achieve its educational objectives and outcomes. The criterion further requires that support and resources are sufficient to ensure that the program will retain its strength throughout the period of accreditation. There have been significant reductions in departmental budgets in the current fiscal year, including budgets for faculty travel. This impacts the ability of some of the faculty to travel to conferences and workshops, which is necessary for faculty to stay current in the areas in which they teach. This may impact the ability of all teaching faculty in the program to remain current over the accreditation period.

Due-process response: The budget situation has improved somewhat in the current fiscal year and the School of Engineering and the department has been able to restore the faculty travel program to its previous level.

Due-process evaluation: The concern has been resolved. With the restoration of funds the resources for faculty to travel to stay current is no longer an issue.

The program satisfies the General Criteria and the Computer Science Program Criteria except as noted above.

**Program Observation**

1. The recent retirement of the philosophy professor teaching PHIL 375, Moral Issues in Computer Technology, has created an issue for the computer science students needing to take this course as a part of their curriculum. Philosophy has offered a PhD student to teach this course. Some accommodation to allow this course to be offered or to be replaced with a course covering similar social and ethical issues in computing is important to allow students to complete the program in a timely manner and to enable the students to achieve the program’s outcomes (particularly outcomes e & g).
III. SUMMARY

The following is a summary of this evaluation for the institution during the 2009-10 cycle:

Computer Science Program

Concern:
- Criterion 1, Students
  The quality of advising is mixed with some advisors not being effective in advising students.