CRITERION 8. INSTITUTIONAL SUPPORT

A. Leadership

Prologue
Much of the friction between the department and the college results from the fact that there are both cultural and logistical differences between the Department of Computer Science and Engineering and the four engineering departments in the college, and yet there is both an inertia and a deep parochialism in the college and in its administration that endeavors to treat CSE the same as it treats the other departments¹. Only CSE has (and should have) extensive service courses for the rest of the campus taught largely by advanced graduate students. Only CSE begins its undergraduate curriculum with full coursework requirements in the freshman year. Only CSE, teaching what amounts to a standard science degree, accommodates Advanced Placement and extensive transfer-in. Only CSE has, across the state of South Carolina, more than 20 undergraduate programs to compare with, including nine ABET-accredited programs. (Except for The Citadel, which is both tiny and dedicated to a different mission, the only competition in engineering in the state is Clemson.) And only CSE has the intellectual and disciplinary churn of ideas that necessitate rapid curricular change. Dean Amiridis at one point remarked that it was disappointing to him to see no difference in curriculum from when he had been an undergraduate elsewhere decades earlier, and another observer compared the engineering curriculum to what that observer had experienced and taught in the 1940s. In sharp contrast to that is the need to maintain currency in the undergraduate computing curricula.

Leadership and management of the computer science program is the responsibility the Chair of the Department of Computer Science and Engineering. The usual department chair term is four or five years with an optional second term if such action is approved by the Faculty and the Dean of the College of Engineering and Computing. The responsibilities of the chair include: (1) ensure compliance with all University policies, (2) manage the department budget, (3) perform annual review of faculty, (4) make teaching assignments, (5) appoint and oversee departmental committees, (6) supervise departmental staff, and (7) serve as the departmental contact to the university, college, and external constituents, including the CSE Industry Advisory Board.

¹ We remark that there may be some change that accompanies the inclusion into the college of the Department of Integrated Information Technology; our discussion here is of the situation prior to Fall 2017.
Dr. Matt Thatcher has served as the Interim Chair of the department since Dean Haj-Hariri terminated Dr. Manton Matthews’ term as chair on November 21, 2016.

Financial Context
Under Dean Amiridis the College took advantage of a program supported by the SC state legislature and hired several “State-Chairs”--very high profile faculty in focused areas with the state funding a portion or all of the salary. The college was the beneficiary of several of these chairs, but since the state did not fund the start-up packages, that was done by Dean Amiridis’s committing the budget of his successor, Dean Ambler. In fact the College was in the red the entire time of Dean Ambler’s term. Among other things, this meant that no indirect came back to departments and faculty. Further, the focused areas for hiring these faculty were driven largely from the outside by priorities beyond the department level, and at no time has there been consideration of a focused area in computer science.

There have been a series of times since the last ABET visit when the dean and/or upper administration have been at best less than supportive to Computer Science and Engineering. Some of these events have made it clear that computer science is about the lowest priority of the college and that the administration does not care what we think.

New Space in Horizon
On the positive side, CSE is scheduled to move into 1.5 floors (22,500 sq. ft.) of Horizon II, the Bert Storey Innovation Center, during the fall semester. This will be an increase in space and it should be very nice. The Department will also retain some space, primarily teaching labs, in Swearingen. Although the new space will be larger than what is currently available, it will allow in the new building for zero faculty growth and will actually be less total space than was available to the department at the time computer science and computer engineering were merged into the current department. We have had for several semesters a number of teaching assistants, including instructors of record (actually teaching sections of courses) who either had no office space at all or had to time-share a desk. There is already a concern about how we will be able to seem attractive to faculty candidates when the brand-new space is already clearly fully utilized.

Summer School Profits
In Spring 2014 President Pastides presented the “On your time” program where students could take more in summer to allow them to finish early. Departments were encouraged to increase summer offerings and enrollment. The Chair (Matthews) was told by Dean Ambler and the Executive Committee that the executive committee voted in March 2014 that 80% of the profits would come back to the CSE Department and 20% would go to the College. With the new space in Horizon II we have a Cybersecurity lab that we were planning to fund out of these summer school profits.
In March 2016 at an executive committee Dean Haj-Hariri said we “should not be teaching in the summer unless it is for academic reasons.” He did not want faculty to teach in the summer and suggested paying faculty $6000 for a course.

He then decided to pay faculty 8.3% of 9-month salary per course and that the College should get all the profits and the Department should get nothing. When the chair asked the faculty who wanted to teach in the summer for 8.3%, none responded and so early November 2016 the chair submitted a summer schedule consisting of just CSCE 101, CSCE 102, CSCE 145 and CSCE 146 similar to but more than the schedule that CSE taught in Summer 2013, before the “On your time” initiative. The chair was terminated two weeks later. There was no discussion of the summer schedule from the Dean.

Termination of Chair

It is understood that the Chair serves at the pleasure of Dean, but there are established procedures at the University of South Carolina. ACAF 1.24 on Selection and Appointment of Department Chairs and School Directors states “the appointment of a department chair or school director may be terminated at any time by the dean after consultation with the faculty of the department and with the executive vice president for academic affairs and provost.” Only a very small portion of the faculty (<15%) was consulted before this action.

There is a sequence of email messages related to this in Appendix E:

- Email from Dean Haj-Hariri saying “excellent” to the traditional “State of the College” presentation to the IAB on October 7. This meeting was postponed when the University was closed due to a hurricane.
- Email in response to chair questioning that he does not want to make the traditional “State of the College” presentation to the CSE IAB, but wants to meets with the board alone.
- Email from the Dean to CSE faculty explaining that “This decision has the unanimous support of your board, and is informed by the input of the faculty who were consulted.”
- Email from Professor Valtorta providing details of a conversation he had with Chris Pierson, the Chair of the CSE IAB, “He said that the board did not discuss or support your replacement.” Professor (and former chair) Buell similarly consulted by telephone with three members of the IAB, none of whom could say that removal of the chair had been mentioned.
B. Program Budget and Financial Support

B.1 Process
At the University level only about 10.5% of the budget comes from state appropriations. The largest component of income is from tuition 48%. State appropriations is fourth on the list.

Before 2015-2016 the Budget process had been that every year the Department in the College would receive a budget including as shown below: Graduate Teaching Assistants, Adjuncts, GTA Tuition $10,000 for labs and $100,000 for operations. We note that the “operations” budget for departments in the College is based on the number of tenure-track faculty and has generally not taken into consideration either the instructors in the department or the CSCE 101/102 service load. Note that salary of faculty and staff is a separate budget but the Chair can recommend Pay-For-Performance (PFP) raises for superior performance by faculty and staff. Here is a sample budget the final one for the 2014-2015 Academic year.
B.2 Teaching Assistants

There has been a long history of problems for the Department of Computer Science and Engineering in the present college over funding teaching assistants. The department feels it has been very diligent in finding the balance between lecture size and teaching assistant allocation and the maintaining of a quality undergraduate program both in the majors and in the service courses. This has not always been understood by the various deans of the college. (One year, for example, Professor Buell as chair was given an ultimatum by Dean Amiridis either to let an instructor go or to eliminate the teaching assistants in the first year courses in the major, requiring regular faculty thus to staff both lecture and lab sections.)

Dean Haj-Hariri in his Blueprint of March 2016 proposes that “the distribution of the graduate student portion of assistants will not be solely in proportion to the credit hours taught, but also in proportion to the research activity of the department.” The proposed formula was to balance out the distribution of TA budget without concern for the teaching that the TAs were doing, and the formula did not consider the size of the faculty of the department.

Over the past few years the boom in enrollment has been met by maintaining waiting lists for students to get in courses and creating a new section when the number of students on the list justified creating a new section. We usually were able to accommodate almost all if not all of the requests by either finding a larger classroom or creating a new section. When a new section was created we found someone usually a Graduate Teaching Assistant (GTA) to teach the class. In such
cases there was a faculty already assigned to teach the class and the GTA would organize their class to follow the lead of the Professor. So our GTA budget, which is shown below, has usually been overspent in these boom years.

### CSE Teaching Assistant Expenditures

<table>
<thead>
<tr>
<th></th>
<th>Totals</th>
<th>Academic Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2013</td>
<td>$390,657</td>
<td></td>
</tr>
<tr>
<td>Spring 2014</td>
<td>$343,002</td>
<td>$733,659.00</td>
</tr>
<tr>
<td>Fall 2014</td>
<td>$414,553</td>
<td></td>
</tr>
<tr>
<td>Spring 2015</td>
<td>$419,063</td>
<td>$833,616.00</td>
</tr>
<tr>
<td>Fall 2015</td>
<td>$585,493</td>
<td></td>
</tr>
<tr>
<td>Spring 2016</td>
<td>$546,551</td>
<td>$1,132,044.00</td>
</tr>
<tr>
<td>Fall 2016</td>
<td>$690,000</td>
<td></td>
</tr>
</tbody>
</table>

Dean Ambler always said to schedule to “meet demand, not the budget.”

We note that for the fall semesters the tuition generated by CSCE courses shown below outstripped the costs tremendously. Although it is clear that times and finances are different now from what they were when Buell was chair and the university was operating on “Value Centered Management”, during that time the revenue to the college from one section of CSCE 101 or 102 was about 22 thousand dollars and the cost of one section was about 11 thousand dollars.

### Tuition Paid on CSCE Courses (assuming all in-state = lowest rate)

<table>
<thead>
<tr>
<th></th>
<th>Fall</th>
<th>FTE</th>
<th>Est Credit Hours</th>
<th>Est. Tuition if all in-state</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>438</td>
<td>6570</td>
<td>$2,956,500</td>
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</tr>
<tr>
<td>2014</td>
<td>545</td>
<td>8175</td>
<td>$3,678,750</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>660</td>
<td>9900</td>
<td>$4,455,000</td>
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</tr>
</tbody>
</table>

Note that the tuition received by the University (not the College) increased by approximately $1.5M for a cost of about $400,000 increase in TA expenditures.

In the College Blueprint of 2016 Dean Haj-Hariri noted that 33% of CSCE teaching was performed by TAs, and only 52% was by TTF and Instructors. The remaining portion was taught by Adjuncts. As can be seen by looking at the
record, for AY 2016-2017 roughly one-third of all course sections in courses in the CSE majors, at the freshman, sophomore, and junior levels, were taught by teaching assistants,

1. Even with the knowledge of a demand for instruction, institutional support to pay teachers to stand in front of classrooms of students has been hard to come by. Indeed, then-chair Matthews received on August 26, 2016, one week after the start of classes and after the Department had committed the $690,000 for the teaching assistant budget (GTAs (lecturers), GIAs (Lab instructors), Graduate Tuition, and undergraduate assistants) for the Fall 2016 semester, the Dean sent then-chair Matthews an email saying that the TA budget for the year was $560K (already overspent by $130K). In addition, a new formula was presented for allocating GTA funds within the college, and it was suggested that the TAs be paid less than in past years. The new allocation formula did not take into consideration the actual needed use of teaching assistants to teach classes and thus disproportionately favored larger, overstuffed, departments that did not have to use assistants to meet teaching needs.

B.3 Fee (tuition) Increases
One of the hallmarks of Dean Haj-Hariri’s interview plans were the imposition of differential tuition on students in the College of Engineering and Computing. This was implemented early in his tenure as dean. Beginning with Fall 2017, students in the college will pay $1500 per semester in “fees” that, for all students beyond the freshman year in CSE, represent new funds for the college. For AY 2017-2018, this represents approximately $1.6 million per year in new funds just from the students in CSE majors. Overall, the increase of $3000 per year is about a 17% increase over the costs of 2015-2016.

In a meeting with Provost Gabel on November 11, 2016, Provost Gabel said that the fee increase was justified to the Board of Trustees entirely for the purpose of enhancing research in the college, that the only way to get additional funds for the college was to increase what was paid by the undergraduate students, and that the undergraduate students would be pleased that the increased research prestige of the college had a trickle-down effect of enhanced prestige of their bachelor’s degrees.

This statement is entirely at odds with the written justification given to the Board of Trustees, that all funds raised would be spent for undergraduate education, with offering more sections and reducing class size being the first goals listed. That written justification is identical to the text of the March 2016 Blueprint.

As can be inferred from the financial charts above, the $1.6 million in new funds to be generated for AY 2017-2018 and each year beyond that is comparable to the entire departmental budget from previous years. It seems clear, however, that funds available to the department are not approximately doubling. Indeed, in an
early planning of budget for Fall 2017, Interim Chair Thatcher was asked to consider reducing total instructional costs (outside TTF salary) by about 30%.

It is to be remarked that the department has already seen students—some of its best students—change majors. A student with a primary major in CS and a second major in Mathematics pays the fee. A student with a primary major in Math and a second major in CS does not pay the fee. So far, two of our excellent students have flipped their order of major, one saying, “I just can’t afford the increase.”

C. Staffing
The CSE staff provides quality support to the administrative, instructional, and technical components of our programs. The CSE staff members are respected as professionals by the faculty and are treated as valuable members of the educational and research mission of the department. They all are evaluated yearly, and promoted and given raises when appropriate and possible. Staff training is available through various University sponsored events, and time to attend such events is provided to the staff.

The Department has three administrative staff members to support the teaching and research missions of the department:

- Ms. Randi Baldwin, Office Manager/Assistant to the Chair
- Ms. Sri Satti, Administrative Assistant (Graduate Programs)
- Ms. Sarah Dyer, Administrative Assistant

At the time of the last visit we also had a Business Manager but this person was moved to the College level. This, along with the new PeopleSoft system and its installation pains, certainly has had a negative impact on the management of expenditures and the budget within the department.

The Department of Computer Science and Engineering has one full-time systems staff person, Mr. Ryan Austin, CSE Systems Manager, to manage the department’s network infrastructure, office computers, research laboratories, and UNIX and Linux servers. While this is barely adequate, there is no backup.

D. Faculty Hiring and Retention
Retention
For retention the Chair may recommend faculty for Pay for Performance (PFP) raises that address issues of compression and reward superior performance. We have made several of these in the last three years. In Fall 2016 three faculty were recommended for PFP raises as well as one staff member.

Compression Raises University-Wide
At the urging of the Faculty Senate the University agreed to try to address salary compression across the University. The plan was to identify faculty whose salary was less than 95% of the salary of faculty in their area in the Oklahoma State Survey of Faculty Salaries. Unfortunately, CSE faculty were not classified as Computer Science, not as Computer Engineering, but rather as “Engineering, General.” “Engineering, General” means not Electrical, not Chemical, not Civil, ... and generally seems to mean faculty at small places that teach a few engineering classes, but are not part of a degree program. The average salary of a Professor for “Engineering, General” was $117,000. All but two of our Professors were within 95% of that and thus not eligible for a compression raise. Associate Provost Lacy Ford said that this misclassification was done by our College (Dean Ambler) and they would not adjust the data at this late date. Our IAB’s first reaction was “to knowingly misclassify someone so as to penalize them with respect to salary was against Federal law.” Eventually, it worked out in that all of the faculty who should have received a raise did get the raise equal to what everybody who received the compression raise received. We note that the average Professor salary from the survey for Computer Science or for the four engineering disciplines in the college was in the $150-160 thousand range.

<table>
<thead>
<tr>
<th>Professor</th>
<th>USC</th>
<th>Clemson</th>
<th>Difference</th>
<th>Associa te</th>
<th>USC</th>
<th>Clemson</th>
<th>Difference</th>
<th>Assistant</th>
<th>USC</th>
<th>Clemson</th>
<th>Difference</th>
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</thead>
<tbody>
<tr>
<td>2010</td>
<td>$110,129</td>
<td>$122,361</td>
<td>$12,233</td>
<td>$94,995</td>
<td>$93,027</td>
<td>-$1,968</td>
<td>$82,959</td>
<td>$87,998</td>
<td>$5,039</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>$118,752</td>
<td>$129,512</td>
<td>$10,760</td>
<td>$92,601</td>
<td>$95,493</td>
<td>$2,892</td>
<td>$82,589</td>
<td>$90,017</td>
<td>$7,428</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>$114,773</td>
<td>$144,660</td>
<td>$29,887</td>
<td>$99,552</td>
<td>$105,349</td>
<td>$5,797</td>
<td>$85,066</td>
<td>$92,091</td>
<td>$7,025</td>
<td></td>
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</tr>
<tr>
<td>2013</td>
<td>$123,494</td>
<td>$152,133</td>
<td>$28,639</td>
<td>$97,671</td>
<td>$107,556</td>
<td>$9,885</td>
<td>$84,803</td>
<td>$92,947</td>
<td>$8,144</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>$115,957</td>
<td>$153,932</td>
<td>$37,975</td>
<td>$90,349</td>
<td>$107,021</td>
<td>$16,672</td>
<td>$87,659</td>
<td>$97,787</td>
<td>$10,127</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Salary comparison to Clemson**

As result of the issues in the compression raises program, we investigated salaries at Clemson University, the other large state university in South Carolina and our major competition. As part of the discussion of the
compression raises, then-chair Matthews raised this issue with Associate Provost Lacy Ford; his summarization was “this was a clearly a competitive disadvantage” and that after the compression raise the matter should be brought up with the Provost. We note that salaries for Business, History, and Mechanical Engineering (at least) were higher at USC than at Clemson. It is also the case that Electrical Engineering at USC is paid much less than at Clemson, but the difference is not as extreme as that for Professors of Computer Science. It was most interesting to see the Assistant Professors’ reactions to this data and their possible futures here.

**Salary Comparison CS Professors USC vs Clemson**

![Salary Comparison Chart]

When this was discussed with the Dean Haj-Hariri and Provost Gabel there was not much in support of how to address this.

**Faculty searches**

The paramount issue for any department, especially for a department experiencing rapid growth in teaching load, than faculty hiring. When Professor Buell arrived as Chair in 2000, faculty strength stood at 20 (or 21), with 688 undergraduate majors. For Fall 2017, faculty strength will be 23, and we project have 913 majors in an early Fall 2017 headcount in addition to a doctoral enrollment much larger than in 2000. In spite of retirements (Bowles, Eastman, Huhns, with Matthews scheduled for 2018), hiring has been sparse. The only specific hire for several years into the department for Fall 2016 or earlier that had not been targeted as an add-on to some other initiative was Dr. Gay.
Of somewhat greater concern is that fact that the department has been told that all new TTF faculty hires will be done for the purpose of enhancing the research mission of the department. Both Dean Haj-Hariri and Provost Gabel have said repeatedly that no TTF hires will result from a need to teach undergraduates. The department appreciates the desire to enhance research prestige. However, the increased UG enrollment creates a demand for seats in the 500-level elective courses in the major, if nowhere else, and we believe it to be misguided in a rapidly changing discipline like computing not to be able to hire faculty who can teach new upper-level electives in newly developing areas of computing. Indeed, we remark that the newest hire, Dr. Gay, is unable to teach his software engineering courses at the undergraduate level because his one-course-per-semester load must cover the required graduate courses for the Master’s degree in Software Engineering. After Dr. Matthews retires, with Dr. Gay the only person teaching the 700 level software engineering courses, it will be impossible for a student to take the five required 700 level courses in fewer than five semesters.

At the time that Dean Ambler’s departure was announced, Dr. Bakos was really the only person teaching in the Computer Engineering curriculum. There was a vacancy for the department for a hire in computer engineering, but it was frozen pending the appointment of a new dean, and the search has not been restarted.

Prior to 2016-2017, the processor for conducting searches for new faculty was that the department got approval to hire, formed a committee, placed advertisements, interviewed and evaluated candidates, and presented to the dean (as hiring authority) the terms of an offer negotiated by the chair and candidate with the ongoing involvement of the dean.

In AY 2016-2017 most of the searches were college level searches, which meant that there was a college committee deciding whom to interview and making recommendations of hiring of CSE faculty. The Department also was allowed to rank candidates and provide recommendations and rankings of candidates to the Dean.

Despite being reminded repeatedly by then-chair Matthews and other chairs in the college, Dean Haj-Hariri delayed and delayed. In our (CSE) previous search in fall 2014 we had already had phone interviews and visits scheduled by early December. In this past cycle, the process was largely opaque, and interviews did not begin to be scheduled until the end of January or the beginning of February. We suspect the best candidates in our two focus areas (cybersecurity and data science, also probably the focus areas for nearly all departments across the country) had already booked up their visit schedule before we even placed ads.
We feel the Department of Computer Science and Engineering has done an excellent job in hiring Assistant Professors with 74% of those hired 1999-2013 having received NSF CAREER Awards. We also feel that the department and its computing discipline is qualitatively quite different from the four engineering departments, and thus that searches for CSE generally must focus on priorities and directions in computing and not in engineering. However, Dean Haj-Hariri in AY 2016-2017 insisted that most of the searches had to be College committees. One result of this is that, of the two positions in computer security that Provost Amiridis promised to CSE and Provost Gabel reaffirmed, one had a search committee, for a faculty member in a CSE position, but with only two CSE faculty. The other four members represented the other departments of the college. The Department then ranked the candidates and the search committee ranked the candidates and sent all this to the Dean, who then decided to whom offers would be made.

Similarly, the data science committee had two members from CSE and four others from the College. It was telling that the chair of that committee, from a different department in the College, admitted that he didn’t really know anything about data science. In the case of this committee the CSE members of the committee were outvoted and the search committee recommended different rankings for people to be hired as faculty for CSE. This committee ended up hiring one person in CSE and one person in Mechanical Engineering as “data science” faculty. The evaluation of one of the data science faculty members in CSE was that none of the interviewed applicants were data science researchers anyway. Nonetheless, for a hire in CSE, we had a search committee outvote CSE in their recommendations to the Dean who made the decision.

It is also necessary to point out that the undergraduate BS in CS faculty staffing is constrained by other requirements in the department. As of Fall 2017, the department will be administering three undergraduate degrees (ABET Computer Science, Computer Engineering, and Information Systems), as well as Master’s degrees in Information Security and in Software Engineering, and Master’s and Ph.D. degrees in Computer Science and in Computer Engineering. The constraint this places on the undergraduate programs can be seen from looking at the Software Engineering Master’s degree, which has five required graduate level courses. The department has one (assistant) professor with a specialty in SE, teaching one graduate course per semester as a newly-hired assistant professor. This means that as of Matthews’s retirement, the required courses in the degree cannot all be completed in a two-year Master’s program, and thus that no teaching capability exists at the undergraduate level by faculty with a specialty in SE. A similar situation, though not quite as dire, exists in computer engineering, and yet the department was not permitted to conduct faculty searches in either SE or CE during AY 2016-2017.
E. Support of Faculty Professional Development

The College and Department supports new faculty with a reduced teaching load and generous start-up packages. There are University orientation programs for new faculty for a few days before the start of the semester and then met monthly providing support during the first year. The Center for Teaching Excellence (CTE) has regular programs covering innovational topics such as class inversion.

The University policies, as stated in the Faculty Handbook, encourage faculty sabbatical leave. During sabbatical leave, the University provides financial support for one semester at full pay or two semesters at half pay. This sabbatical leave program, plus the facilitation of faculty summer fellowships in industry and government, has been used to keep our faculty technically and educationally “fresh” and “current”. During the last five years, several faculty members have used sabbatical leaves to further their academic development.

The CSE faculty are encouraged to attend national and international meetings. Most faculty members attend at least one national or international conference, workshop, seminar, panel, or other technical meeting a year. The Department has been willing to support this if appropriate research funds are not available.

The Department of course has a number of seminars, most of which are organized around our graduate seminar course CSCE 791.

APPENDIX E – INSTITUTIONAL SUPPORT DOCUMENTS

1. Email from Dean Haj-Hariri “Unanimous support from board”
2. Email for Valtorta quoting Chris Pierson “Which board?”