**College of Engineering & Computing**

# Blueprint for Academic Excellence

**March 2014**

## Vision Statement

*The College of Engineering & Computing will be, and recognized as being, pre-eminent in its teaching, research, and service to the State of South Carolina and the south east, and a leader in the nation.*

## Mission Statement

*The mission of the College of Engineering and Computing is to attract the best undergraduate and graduate students, and by attracting the best faculty will provide the State of South Carolina and the nation with an effective resource for industry, government and academia in economic and workforce development. This will be achieved by strong research in all engineering disciplines thus maintaining the attractiveness and viability of our degree programs (undergraduate and graduate), furthering the capability of both supporting State and national industry and providing the means to attract industry (manufacturing and knowledge generation) to South Carolina.*

## Section I. Executive Summary

The College of Engineering and Computing has made steps in all the key performance parameters listed in the Provost's Guidelines for the 2015 Blueprint for Academic Excellence; Teaching Excellence, Research/Scholarship Reputation and Productivity, Service to State/Community/Profession and University, and Sustainability of our mission fiscally and through effective actions.

The first three parameters are, of course, included in all assessments of faculty performance and especially at promotion and review time. However, steps have been taken to enhance and encourage faculty to higher achievement levels:

Teaching Excellence: It is gratifying to see the importance given by faculty in promotion reviews to teaching excellence, but the College is now able to give greater prominence to teaching quality through the award of six Faculty Teaching Fellows to faculty nominated by their respective departments for their dedication to teaching quality and excellence – this has been made available through income from the AT&T BellSouth Teaching Chair. Fellows are appointed for a three year period, renewable for one further period of three year and a salary supplement is awarded.

Research/Scholarship Reputation and Productivity: A greater prominence is being given to collaborative projects that has led to a bigger number of large collaborative proposals that also include other colleges and other universities. Wherever possible, CEC faculty are being encouraged to assume leadership positions in such proposals. As to *reputation*, the College is pursuing the creation of a number of national and state-oriented workshops/conferences that will highlight our strengths in certain areas, e.g. Aerospace, Materials, Energy, and cyber security.

Service to State/Community/Profession and University: The College and its faculty are increasingly being asked to collaborate with the Office of Economic Engagement and several economic development agencies in the state in attracting industry to the area. The College hosted its first Open Day which was meant to raise the profile of the College within the state to both industry and commerce, and the legislature. The College has hosted dedicated events for both the Speaker of the SC House, and to Secretary Hitt from the Office of Commerce. The McN*AIR*

center is organizing and arranging the next SC Aerospace Event as a 1-2 day exhibition and conference instead of the previous evening dinner.

Sustainability of the Mission: Throughout the past year the College has worked extensively with the university and its officers to create and improve the processes for fiscal responsibility. In doing so, many undocumented issues came to light which were both positive and negative. We are confident that the college is better set to move forward fiscally than it was previously and can do so with confidence. In addition, the College is creating new revenue generation programs.

## Section II. Academic Dashboard Measures

### 1. Total Undergraduate Enrollment

Our undergraduate enrollments increased by 50% from Fall 2008 to Fall 2013 – Freshmen enrollments increased by 30% in F2013 compared to F2012. We aggressively recruit undergraduate students. Three full-time staff are dedicated to outreach and recruitment, and administrators and faculty are also engaged. Outreach programs include Project Lead The Way, computer science and engineering summer camps, field study opportunities in College, and partnerships with other organizations. We participate in recruitment events at USC and in the primary regions served. We provide daily tours of the College and frequent "Big Fridays." Accepted students receive a letter from the Dean, email from an Associate Dean, and a phone call from a CEC student. We will continue the outreach and recruitment efforts described above. We are actively looking at making our degree programs more attractive through better marketing and by making more tracks and concentrations available. Note also the creation of the Applied Computing minor.

| Total UG Enrollment | Fall 2008 | Fall 2009 | Fall 2010 | Fall 2011 | Fall 2012 | Fall 2013 |
|---|---|---|---|---|---|---|
| Number of Undergrads | 1,454 | 1,584 | 1,698 | 1,849 | 1,971 | 2,188 |
| Number of UG applicants | | 1,935 | 2,111 | 2,525 | 2,940 | 3,191 |

### 2. Average SAT Score

Our freshmen average SAT score is the highest it has been for at least the past 5 years, and remains the highest on campus. This past academic year has seen the CEC have the largest number of freshmen in the Honors College. Each year, hundreds of CEC students receive college scholarships…we have changed scholarship processes to ensure that all available funds are awarded. Increasing the number and amount of scholarship funds is a priority for our development office, which currently includes three full-time staff. We plan to improve our partnerships with the South Carolina Honors College and the Capstone Scholars Program to bring in more top-quality students. The average ACT score has been 27 or 28since 2009. Improving SAT scores is also enabled by attracting a bigger pool of applicants.

| Freshman Profile | Fall 2009 | Fall 2010 | Fall 2011 | Fall 2012 | Fall 2013 | Fall 2014 |
|---|---|---|---|---|---|---|
| Number admitted | 1,327 | 1,493 | 1,687 | 1,958 | 2,275 | |
| Freshmen Class Size | 392 | 431 | 485 | 494 | 618 | -- |
| Average SAT | 1237 | 1217 | 1226 | 1226 | 1254 | -- |

### 3. Freshman-Sophomore Retention Rate

Our retention rates have been relatively flat, and remain the lowest on campus. Ongoing retention activities include a CEC living/learning community and a strong faculty advising system. The position of Associate Dean for Student Affairs was created in 2013 to better serve the academic needs of our students. An academic program manager position, whose responsibilities include retention, was hired in 2013. We have created space for the Student Success Center to add a satellite tutoring center in Swearingen. We will continue to improve these programs. We will also explore common advising of all freshmen. We are investigating differential (higher) admission standards for CEC undergraduate programs – this may mean creating pre-engineering & computing programs particularly for underprivileged students who nonetheless show academic potential.

See over…

| Fresh-Soph Retention Rates | Fall 2008 | Fall 2009 | Fall 2010 | Fall 2011 | Fall 2012 | Fall 2013 |
|---|---|---|---|---|---|---|
| in the College | 71.1% | 69.2% | 69.4% | 65.6% | 72.1% | -- |
| at USC | 82.3% | 86.3% | 84.0% | 79.9% | 84.8% | -- |

**4. Six-year Graduation Rate**

Our graduation rates have increased slightly, but generally remain the lowest on campus. Our faculty advising system has been our strongest tool to promoting timely graduation. Our Student Services Office also conducts degree audits for students at the ends of their sophomore and junior years (lower division and senior checks). Data indicates that poor performance in a student's first math class correlates with student attrition. This negatively affects overall GPA, and creates course sequencing problems. We will analyze student records to forecast course needs, and increase flexibility in course offerings when resources permit. Improved freshmen retention should also improve graduation rates.

| Six-Year Graduation Rate | Fall 2004 | Fall 2005 | Fall 2006 | Fall 2007 |
|---|---|---|---|---|
| from the College | 35.6% | 41.1% | 45.3% | 49.5% |
| from USC | 58.6% | 61.5% | 64.2% | 66.2% |

**5. Student to faculty ratio**

Student and faculty data for the previous five years are shown in the table below (Fall semester data). The UG student count excludes part-time students (typically less than 10% of the total), while the graduate student count shows both full-time and part-time students (Masters and PhD). The student-to-faculty ratios (a headcount ratio), however, include only full-time graduate students, not part-time. Note that student enrollments do not include the rather large service load of CSCE courses taught to non-majors.

| Year | 2009 | 2010 | 2011 | 2012 | 2013 |
|---|---|---|---|---|---|
| TT Fac Count | 94 | 102 | 106 | 114 | 112 |
| UG enrollment, FT | 1584 | 1698 | 1849 | 1971 | 2188 |
| FT Grad enroll | 283 | 325 | 327 | 322 | 350 |
| PT Grad Enroll | 90 | 103 | 122 | 125 | 166 |
| UG Stu/TT Fac | 16.9 | 16.6 | 17.4 | 17.3 | 18.3 |
| Total FT stu/TT Fac | 19.9 | 19.8 | 20.5 | 20.1 | 21.4 |

By comparison, for UT-Austin, student/faculty ratios were obtained from two sources: the ASEE on-line college profiles, and the UT-Austin statistical summary. For the former, we counted full-time students (BS, MS and PhD) divided by the reported number of faculty. For the latter, UT-Austin computes FTE students/FTE Faculty equivalents. The calculation based on FTEs is a more nuanced measure of how many student credit hours are being generated in the given program. For 2013, the ASEE/headcount calculation is 23.6 (considering only Biomedical, Chemical, Civil, Electrical, and Mechanical Engineering), while the FTE calculation is 16.49.

Thus, comparing USC-Columbia to a top 10 (or top 5) public university shows that our headcount ratio is a little less than UT-Austin. CEC could indeed teach more undergraduate students if we had access to larger classrooms. Increasing the graduate student enrollment depends on availability of laboratories for research, and funds to support graduate students.

However, CEC has a graduate student 'mix' that is heavily weighted towards Ph.D. students – the College is looking to greatly increase MS graduate students through the creation of new programs aimed at industry, primarily within the state, and which will also be available through distance learning. The College is also marketing the availability of the *Accelerated Masters* degree more aggressively to its own students.

**6. Research expenditures**

Data for FY 2013, provided by the University, are given in Appendix E. Appendix E shows only award data, not research expenditures. CEC performed its own analysis of research expenditures, presented here. Data compiled for the annual ASEE survey are shown below, for the past five years. These expenditures do not reflect SmartState activity, for the most part. ASEE data most closely represent the real operation of the college. The last column shows the approximate percentage of TT faculty in the college with funding. This column is not exact, because some research faculty have grants, but are not counted in the denominator (total number of TT faculty). The last column shows the percentage of CEC TT faculty who have active grants, and is based on data provided by the VPR.

| Dept Research Expenditures, per ASEE Reports compiled and submitted by CEC | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **FY** | ECHE | ECIV | CSCE | ELCT | EMCH | Total | $/TT Fac | % TT PIs |
| **2009** | $6,145,949 | $1,842,248 | $1,336,086 | $5,116,797 | $4,224,200 | $18,665,280 | $198,564 | 59 |
| **2010** | $5,867,173 | $2,220,853 | $1,586,337 | $5,585,041 | $6,922,575 | $22,181,979 | $217,461 | 61 |
| **2011** | $6,971,268 | $2,001,181 | $1,948,763 | $5,932,043 | $11,266,895 | $28,120,150 | $265,283 | 75 |
| **2012** | $6,085,328 | $2,354,816 | $2,023,981 | $5,271,143 | $9,320,792 | $25,056,060 | $223,412 | 72 |
| **2013** | $5,057,885 | $2,520,411 | $2,097,241 | $4,727,947 | $7,081,486 | $21,484,970 | $194,764 | 77 |

Data from the annual NSF report on federal research expenditures are shown at right. Along with the expenditure data, we show how CEC total expenditures rank nationally against other colleges in the survey. These expenditures and rankings do not include expenditures in Computer Science. NSF expenditure data do not match ASEE data, because the categories of spending in the surveys are different. Nevertheless, the overall national ranking of the college should be relatively accurate.

| NSF Reported Expenditures, CEC | | |
|---|---|---|
| **Year** | $ k | Nat'l Rank |
| **2006** | 16,498 | 70 |
| **2007** | 16,453 | 71 |
| **2008** | 18,470 | 67 |
| **2009** | 20,501 | 65 |
| **2010** | 28,391 | 59 |
| **2011** | 23,448 | 76 |

**7. Faculty productivity**

Data are reported for calendar year 2013. Conferences, presentations, and proceedings are not reported for units where such activities are not traditionally viewed as high impact.

| | | | CEC Faculty Productivity | | |
|---|---|---|---|---|---|
| **Department** | TT Faculty Count, F 2013 | Refereed Articles | Articles per TT Faculty | Conferences, Presentations, Proceedings | Other |
| **Chemical** | 23 | 55 | 2.4 | | |
| **Civil & Environmental** | 18 | 73 | 4.1 | 34 | 1 book |
| **Computer Science/Eng** | 22 | 95 | 4.3 | | |
| **Electrical** | 18 | 56 | 3.1 | 61 | |
| **Mechanical** | 30 | 116 | 3.9 | | |

The data recently supplied by Academic Analytics – see Appendix * - for all departments is interesting in being reasonably consistent in showing that the departments (with the exception of Mechanical Engineering) are lacking in *honorific* awards. The College, working with the departments, needs to look into this issue as it directly impacts others perceptions of the departments, College, and University. The AA data shows Electrical Engineering as being particularly below average in conference publications – however this may be due to the sources for data collection, but worthy of further study.

**8. Doctoral degrees**

Doctoral degrees are shown below; other degrees are shown also. We also report Master's productivity and certificates, in keeping with activities (APOGEE, planned Executive Masters, Cyber Security Certificate) that are specific to our college. Data are reported for the college by academic year.

| CEC Degree Productivity | | | | |
|---|---|---|---|---|
| **AY** | **2009-2010** | **2010-2011** | **2011-2012** | **2012-2013** |
| **Baccalaureate** | 227 | 292 | 289 | 315 |
| **Masters** | 56 | 88 | 78 | 62 |
| **Doctorate** | 33 | 29 | 40 | 49 |
| **Certificates** | 0 | 1 | 1 | 0 |

## Section III. Goals, Progress and Plans Relative to University's Key Performance Parameters

### 2014-2015 Academic Year Goals

#### *AY Goal 1: Develop Distance Learning Masters Degrees*

Performance Parameters: X____teaching X____research/scholarship ____service X____sustainability

1.i *How does the Goal contribute to the Performance Parameters* – These new programs and delivery options will enhance our Masters degree enrollments and increase our interactions with industry and commerce in the state. We anticipate that this will also lead to research opportunities with sponsoring companies. The programs are being 'priced' to provide profitability to support other operations of the college.

1.ii *Describe progress, if the goal continues from previous years* – Engineering Management was initially programmed via Academic Partners – it was not a good fit. We are now marketing internally.

1.iii *Describe plans for the upcoming year* – We will utilize the Low Country Graduate Center in Charleston for the delivery of our programs (initially Engineering Management, then System Design) and collaborate with The Citadel and the College of Charleston by using some of their faculty to present some of our classes. We hope for a cooperative arrangement in Charleston. We would hope to be able to have enrollments in other parts of the state and use DMSB facilities in Greenville and Charlotte.

#### *AY Goal 2: Improve CEC Degree Offerings*

Performance Parameters: X____teaching X____research/scholarship ____service X____sustainability

2.i *How does the Goal contribute to the Performance Parameters* – We need to make better and more efficient use of our capabilities. We have a large number of courses available at both undergraduate and graduate level that we can utilize in different ways and create programs that would be attractive to students and industry. We also need to market our strengths in a better way. We are considering undergraduate and graduate degrees in energy, materials, and aerospace. If successful it will attract more students to want to study engineering and computing at 4 year college level and, hopefully convert these applications into more students turning up at USC CEC. We also have opportunity to enhance the BioMedical Engineering undergraduate degree with links to Law, Pharmacy, Nursing, Public Health.

2.ii *Describe progress, if the goal continues from previous years* – We have created the Engineering Management and system Design masters degrees, and are creating new tracks/concentrations in the undergraduate areas whilst considering full undergraduate degrees in Aerospace Engineering and in Energy Systems.

2.iii *Describe plans for the upcoming year* – Marketing of existing programs to Industry, and market surveys for potential new degrees.

### *AY Goal 3: Continue Marketing of College as a Pre-Eminent Engineering & Computing Resource*

Performance Parameters: X____teaching X_____research/scholarship X___service X____sustainability

3.i *How does the Goal contribute to the Performance Parameters* – The problem of lack of perceived strength of USC's Engineering & Computing capability continues and needs addressing.

3.ii *Describe progress, if the goal continues from previous years* – The University can certainly help, but much can be done by the College. We are upgrading our brochures and web presence, but higher profile events need developing. The College held its first Open Day during this academic year with the aim of raising awareness with industry and legislators in the state – we intend to improve and continue with this is future years. Plans to hold workshops on both energy and composites this year were put on hold because of sequestration effects – we have received encouragement to hold them in the later half of this year (2014). With McN*AIR* as organizers there will be an expansion of the annual Aviation SC dinner into a 1-2 event with exhibits and speakers.

3.iii *Describe plans for the upcoming year* – As above.

### *AY Goal 4: Continue to Press for More Space/New Building*

Performance Parameters: X____teaching X_____research/scholarship ____service X____sustainability

4.i *How does the Goal contribute to the Performance Parameters* – More space will enable us to accommodate more students both at graduate level and undergraduate. We will be able to accommodate larger equipment becoming more prevalent in much research, and accommodate our larger faculty numbers. Larger classrooms are needed so as to limit the numbers of multiple sections of classes. Applied Computing degree is slated to attract even more students than currently and will need more classroom and lab space. Some CEC space is seriously deficient.

4.ii *Describe progress, if the goal continues from previous years* – Working with university on various options – Horizon II, BioMass Plant. Looking at financial options for totally new building. Have just received a promise of $1M towards the building.

4.iii *Describe plans for the upcoming year* – As above.

## 5-Year Academic Year Goals

### *5Y Goal 1: Student Recruitment and Retention*

Performance Parameters: X____teaching _____research/scholarship ____service X____sustainability

1.i *How does the Goal contribute to the Performance Parameters* – The College has the opportunity to grow its student numbers (undergraduate recruitment); in common with many engineering and computing programs we have a relatively low retention rate for admitted students. Recruitment is being addressed through increased and better marketing, PLTW, Edison Lecture Series, better use of existing scholarships, and creation of more 'interesting' programs. We need to be more pre-emptive with spotting 'at-risk' students and supporting them to get back on track; we can analyze freshman applicant

pool and historical data to predict needs in introductory courses – we already know that performance in freshman math classes is an indicator of future performance and dropout...we should consider placing some freshmen in MATH 115 instead of other classes…possible impact on sequencing of other classes. As we start to focus of recruiting from the Pee Dee this will become increasingly important. Need more scholarships.

1.ii *Describe progress, if the goal continues from previous years* – Marketing and outreach appear to have had 'some' impact with increasing numbers of applications and enrollments.

1.iii *Describe plans for the upcoming year* – begin data analysis of student performance as a measure of future problems. Look at implications of admitting students with certain backgrounds and possible implications for a 'starter' semester or year to bring up to speed. Continue development and marketing of new programs. Search for more scholarships.

### *5Y Goal 2: Collaboration Across Campus and other Universities/Colleges*

Performance Parameters: X____teaching X_____research/scholarship ____service X____sustainability

2.i *How does the Goal contribute to the Performance Parameters* – Through better utilization and exploitation of capabilities across campus for both teaching and research e.g. Engineering Management, Human Factors, System Design, Energy Leadership Institute.

2.ii *Describe progress, if the goal continues from previous years* – The creation of the Engineering Management program has been successful in bringing teaching material from across 4 colleges; Energy has 6 colleges and has already led to cross university large research proposals, including working with other universities – our subsequent perceived strength has enabled us to take on the role as PI which may not have been the case otherwise.

2.iii *Describe plans for the upcoming year* – as above.

### *5Y Goal 3: Increase Faculty Numbers*

Performance Parameters: X____teaching X_____research/scholarship ____service X____sustainability

3.i *How does the Goal contribute to the Performance Parameters* – This is joint goal with increasing student numbers at undergraduate and graduate levels. This would bring in more tuition and increase, hopefully, research and scholarship. Critical mass for a truly viable program is still an issue, especially with Electrical Engineering department.

3.ii *Describe progress, if the goal continues from previous years* – There has been a modest increase in faculty numbers, and a steadily growing number of students, particularly at undergraduate level. We have a goal to greatly increase graduate students, particularly at masters degree level, through executive and distance learning programs.

3.iii *Describe plans for the upcoming year* – as above.

### *5Y Goal 4: Greater Emphasis on Distance Learning*

Performance Parameters: X____teaching X_____research/scholarship X___service X____sustainability

5.i *How does the Goal contribute to the Performance Parameters* – There is a need for courses, and degrees, to be offered via distance learning technologies. The USC component institutions have asked us to provide some classes towards their two year programs (so that students might be better prepared if/when they transfer to USC Columbia campus), for executive masters degrees, but also for outreach programs to the community.

5.ii *Describe progress, if the goal continues from previous years* – APOGEE continues to provide a service, but needs expansion. Limited facilities are hindering the ability to expand, but recent appointment of AT&T BellSouth Teaching Fellows have a specific remit to identify technologies that can usefully be added to more classrooms to make this possible. Approximately $200K is available in the short term to make this possible.

5.iii *Describe plans for the upcoming year* – as above.

### *5Y Goal 5: Increase Faculty Awards*

Performance Parameters: X____teaching X_____research/scholarship X___service _____sustainability

5.i *How does the Goal contribute to the Performance Parameters* – An interesting outcome of the Academic Analytics data for each department is that for each department in the College (with the exception of Mechanical Engineering) honorific awards to faculty are below average for their topic areas. A big part of what we need to do is to raise the perception of what we do at USC CEC is this is one obvious way to improve the situation.

5.ii *Describe progress, if the goal continues from previous years* – We need to for committee(s) to look at what should be done.

5.iii *Describe plans for the upcoming year* – as above.

# Appendix A: Resources Needed

| Goal 1: | | | |
|---|---|---|---|
| Type of Resource | Existing | Additional: state source | Strategy |
| 10 TAs | | $200K | To support recitations sessions in 'difficult' classes – aim to increase success and retention |
| Goal 2: | | | |
| Type of Resource | Existing | Additional: state source | Strategy |
| ! Staff Member | | $55K | To focus on retention by analyzing student trends primarily in freshman and sophomore levels. |
| Goal 3: | | | |
| Type of Resource | Existing | Additional: state source | Strategy |
| | | | |
| Goal 4: | | | |
| Type of Resource | Existing | Additional: state source | Strategy |
| | | | |

# Appendix B: Benchmarking information

**Top 10 Public Colleges of Engineering**

Cal-Berkeley; Illinois; Texas; Minnesota; U. Washington; Georgia Tech; Purdue; Michigan; UCLA; UC-San Diego.

**Top five peer departments for CEC Departments and Programs**

| CSCE | ECHE | ECIV | ELCT | EMCH |
|---|---|---|---|---|
| Iowa | Florida | Florida | NC State | Kentucky |
| Tennessee | U Mass | Alabama | Clemson | Connecticut |
| Connecticut | Ohio State | Iowa State | UNC-Charlotte | Central Florida |
| Kansas | Oklahoma | Auburn | Arkansas | NC State |
| Washington State | Washington | Kentucky | Nebraska | Tennessee |

## Appendix C. Unit's Top Strengths and Important Accomplishments

1. Successful organization and running of first College Open Day.
2. Several top-level awards made to faculty this past year.
3. Increasing numbers of large collaborative research proposals being submitted (Energy, Aerospace, Materials).
4. Created Applied Computing minor undergraduate degree.
5. Biomedical Engineering undergraduate degree now second largest program in the College.
6. Freshman enrollments for Fall 2013 increased by 30% over previous year.
7. Approvals for masters degrees in Aerospace, Biomedical Engineering, Engineering Management, and System Design.
8. Engineering & Computing freshmen form largest group in Honors College.

## Appendix D: Unit's Weaknesses and Plans for Addressing Weaknesses

1. Insufficient TA/Grader support: With low faculty numbers and increasing undergraduate student numbers the provision of adequate support by way of TAs and Graders is essential to reduce the overall load on research faculty. Some departments already have the requirement for all graduate students to give 5 hours per week in TA/Grader work. Funds are sought for further graduate student support. The College has expanded on the use of peer tutoring, i.e. undergraduates who have already taken key/core classes will help those that are taking that course.
2. Inefficient use of faculty teaching. Better coordination of teaching, especially core courses (e.g. statistics), can lead to efficiencies to reduce overall teaching load – would also need larger classrooms, see below.
3. Insufficient space for research and teaching: As the college expands with recent faculty hiring and increased student numbers it becomes self-evident that space has become extremely limited…and is now critical! The College has a new space committee to identify wasted space in Swearingen and 300 Main and is in the process of extracting such space for reallocation. The SCANA/Catawba building is in a bad state, but is also badly utilized. In the absence of new/additional space being allocated to the College, this building could usefully be refurbished to provide much needed lab space particularly with Biomedical Engineering in mind. Nevertheless, even with the space plans in place, the availability of space for the College of Engineering and Computing is woefully inadequate and planning for a new building must be initiated. The delays in Horizon (I and II) are a significant problem and may hamper future recruitment and retention.
4. Staff support is varied across the college. A study has been performed and a re-organization has been proposed and already underway.
5. Marketing has a key role to play in developing and exploiting the capabilities of the College. Although inroads have been made by expanding what the College already does, much more can be done provided adequate resources are made available, chiefly manpower.
6. Biomedical Engineering undergraduate degree needs more and better facilities – more faculty and research leadership. Dr. Melissa Moss has been appointed as Director on the advice of Dr. Bayoumi. The search for the SmartState chair has been postponed by 2 years.

## Appendix E: Unit Statistical Profile

| 2014 Appendix E: Unit Statistical Profile (See draft following Appendix C)Blueprint Appendix E.1 Freshman class size and average SAT scores | | | | | |
|---|---|---|---|---|---|
| **Freshman Profile** | **Fall 2009** | **Fall 2010** | **Fall 2011** | **Fall 2012** | **Fall 2013** |
| **Freshmen Class Size** | 392 | 431 | 485 | 494 | 618 |
| **Average SAT** | 1237 | 1217 | 1226 | 1226 | 1254 |

| 2014 Blueprint Appendix E.2 Freshman-Sophomore retention rate | | | | | |
|---|---|---|---|---|---|
| **Fresh-Soph Retention Rates** | **Fall 2008** | **Fall 2009** | **Fall 2010** | **Fall 2011** | **Fall 2012** |
| **in the College** | 71.1% | 69.2% | 69.4% | 65.6% | 72.1% |
| **at USC** | 82.3% | 86.3% | 84.0% | 79.9% | 84.8% |

| 2014 Blueprint Appendix E.4 Number of Majors Enrolled (Fall semester count) | | | | | |
|---|---|---|---|---|---|
| **Year** | **2009** | **2010** | **2011** | **2012** | **2013** |
| **TT Fac Count** | 94 | 102 | 106 | 114 | 112 |
| **UG enrollment, FT** | 1584 | 1698 | 1849 | 1971 | 2188 |
| **Masters** | 164 | 195 | 192 | 164 | 178 |
| **Doctoral** | 289 | 328 | 343 | 370 | 338 |
| **FT Grad enroll** | 283 | 325 | 327 | 322 | 350 |
| **PT Grad Enroll** | 90 | 103 | 122 | 125 | 166 |
| **UG Stu/TT Fac** | 16.9 | 16.6 | 17.4 | 17.3 | 18.3 |
| **Total FT stu/TT Fac** | 19.9 | 19.8 | 20.5 | 20.1 | 21.4 |

| 2014 Blueprint Appendix E.5 Number of entering first professional and graduate studies students (Note: Nuclear and Biomedical Engineering students counted separately from Chemical and Mechanical students. | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | CHE | CEE | CSE | EE | ME | NE | AE | BME |
| Applications M+D | 130 | 57 | 127 | 92 | 68 | 11 | 5 | 27 |
| Acceptances M+D | 20 | 39 | 77 | 19 | 12 | 6 | 3 | 12 |
| Enrolled M+D | 13 | 7 | 28 | 15 | 12 | 6 | 3 | 9 |
| UG GPA – Masters | | | 3.82 | 3.4 | 3.43 | 3.05 | 3.42 | 3.49 |
| number of applicants | | | 6 | 5 | 7 | 5 | 3 | 5 |
| UG GPA - Doctoral | 3.6 | 3.36 | 3.28 | 3.21 | 3.64 | 3.13 | | 3.36 |
| number of applicants | 11 | 4 | 2 | 7 | 5 | 1 | | 4 |
| Verbal GRE - M | | | 154.4 | 154 | 150 | 151 | 157 | 147.4 |
| Verbal GRE - D | 155 | 145 | 150 | 144 | 149 | | | 160 |
| Quant GRE - M | | | 160 | 155 | 154 | 158 | 160 | 154 |
| Quant GRE - D | 161 | 161 | 162.2 | 161 | 160 | | | 157 |
| Anal Writing GRE - M | | | 3.81 | 3.8 | 3.29 | 3.5 | 4.33 | 3.8 |
| Anal Writing GRE - D | 3.6 | 2.5 | 3.3 | 3.1 | 3.4 | | | 4.25 |

| 2014 Blueprint Appendix E.7. Degree Productivity | | | | |
|---|---|---|---|---|
| AY | 2009-2010 | 2010-2011 | 2011-2012 | 2012-2013 |
| Baccalaureate | 227 | 292 | 289 | 315 |
| Masters | 56 | 88 | 78 | 62 |
| Doctorate | 33 | 29 | 40 | 49 |
| Certificates | 0 | 1 | 1 | 0 |

| 2014 Blueprint Appendix E. 7. 6-Year Graduation Rates | | | | |
|---|---|---|---|---|
| Six-Year Graduation Rate | Fall 2004 | Fall 2005 | Fall 2006 | Fall 2007 |
| from the College | 35.6% | 41.1% | 45.3% | 49.5% |
| from USC | 58.6% | 61.5% | 64.2% | 66.2% |

| 2014 Blueprint Appendix E.8. Total Credit Hours Generated | | | | | |
|---|---|---|---|---|---|
| | Fall 2011 | Fall 2012 | Spring 2013 | Summ 2013 | Fall 2013 |
| Undergraduate | 12,475 | 16,229 | 15,842 | 684 | 16,555 |
| Masters | 1,038 | 899 | 968 | 185 | 999 |
| Doctoral | 1,872 | 1,721 | 1,647 | 451 | 1,446 |
| Total | 15,385 | 18,849 | 18,457 | 1,320 | 19,000 |

| 2014 Blueprint Appendices E.9 and E. 10 . Percentage of UG Credit Hours Taught by faculty with a PhD (Highest terminal degree). Fall 2013 Semester | | | | | |
|---|---|---|---|---|---|
| Program | Total UG Cr Hours | UG Hrs Taught by Faculty with PhD | Percentage taught by PhD | UG Hrs Taught by FT CEC | Percentage taught by FT CEC |
| BMEN | 1010 | 884 | 87.5% | 734 | 72.7% |
| CSCE | 5875 | 2365 | 40.3% | 2365 | 40.3% |
| ECHE | 1465 | 1449 | 98.9% | 1311 | 89.5% |
| ECIV | 2096 | 1859 | 88.7% | 1532 | 73.1% |
| ELCT | 1683 | 1656 | 98.4% | 1656 | 98.4% |
| EMCH | 4007 | 3518 | 87.8% | 2312 | 57.7% |
| ENCP | 678 | 678 | 100.0% | 678 | 100.0% |

**Note for Appendices E.9 and E.10:** All Assistant, Associate, and Full Professors, as well as Clinical and Adjunct faculty, hold the Ph.D. FT CEC faculty excluded adjunct faculty who may hold full-time appointments in other USC Colleges (particularly, the School of Medicine).

| 2014 Blueprint Appendix E.11 Faculty count by rank and department | | | | | | |
|---|---|---|---|---|---|---|
| Source: ASEE On-line tables | | | | | | |
| | | Full | Assoc | Assist | FT Instr | PT Instr |
| Chemical | 2010 | 12 | 4 | 4 | 0 | 1 |
| | 2011 | 12 | 4 | 6 | 0 | 1 |
| | 2012 | 13 | 4 | 7 | 2 | 0 |
| | 2013 | 12 | 4 | 7 | 0 | 2 |
| Civil | 2010 | 3 | 10 | 6 | 0 | 3 |
| | 2011 | 3 | 9 | 7 | 0 | 3 |
| | 2012 | 3 | 9 | 8 | 0 | 4 |
| | 2013 | 4 | 8 | 6 | 4 | 4 |
| Computer | 2010 | 5 | 11 | 5 | 1 | 2 |
| | 2011 | 4 | 12 | 5 | 1 | 2 |
| | 2012 | 5 | 12 | 6 | 0 | 0 |
| | 2013 | 6 | 13 | 3 | 1 | 3 |
| Electrical | 2010 | 4 | 8 | 3 | 1 | 1 |
| | 2011 | 6 | 8 | 2 | 1 | 1 |
| | 2012 | 6 | 7 | 4 | 1 | 0 |
| | 2013 | 7 | 6 | 4 | 0 | 0 |
| Mechanical | 2010 | 11 | 5 | 11 | 0 | 5 |
| | 2011 | 11 | 7 | 10 | 0 | 3 |
| | 2012 | 12 | 7 | 11 | 0 | 4 |
| | 2013 | 13 | 7 | 10 | 3 | 4 |

| 2014 Blueprint Appendix 12. Under-represented minority faculty members in CEC | | | |
|---|---|---|---|
| | Fall 2012 | Fall 2013 | Change |
| Hispanic | 3 | 3 | 0 |
| African-American | 1 | 1 | 0 |
| Native American | 0 | 0 | 0 |
| Pacific Islander | 0 | 0 | 0 |

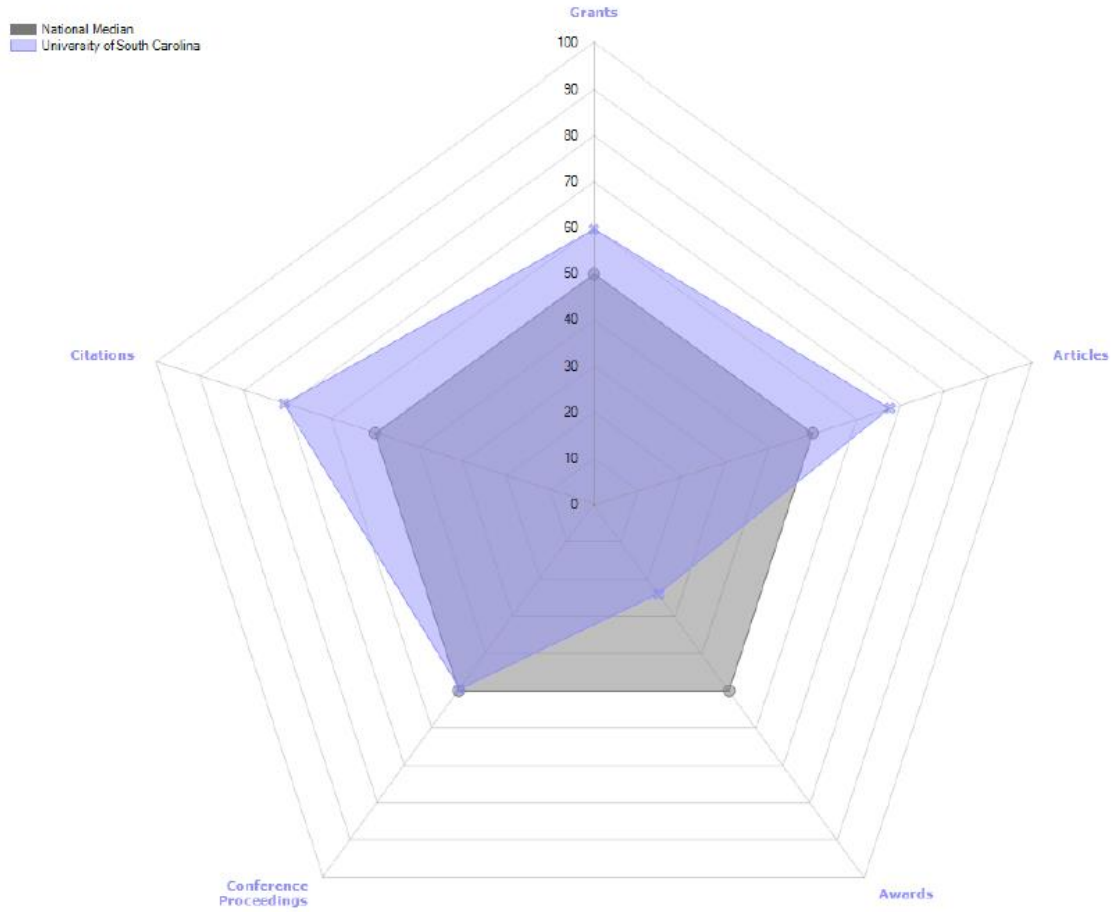
# Appendix F – Faculty Productivity

ACADEMIC ANALYTICS

## Productivity Radar

### Chemical Engineering, Department of | Chemical Engineering
### Department Radar - All Variables Summary

**University of South Carolina | Chemical Engineering, Department of**

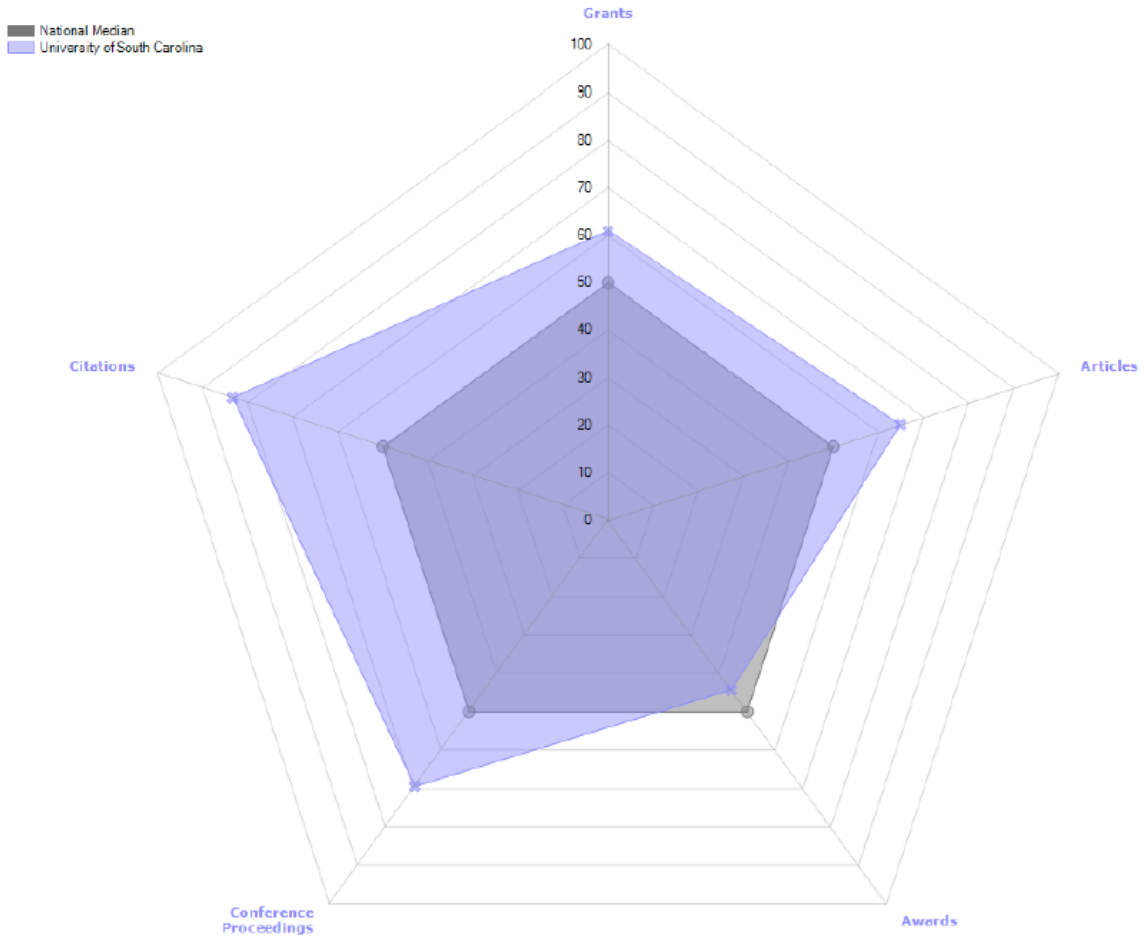


# Productivity Radar

## Civil and Environmental Engineering, Department of | Civil Engineering (145 Departments)

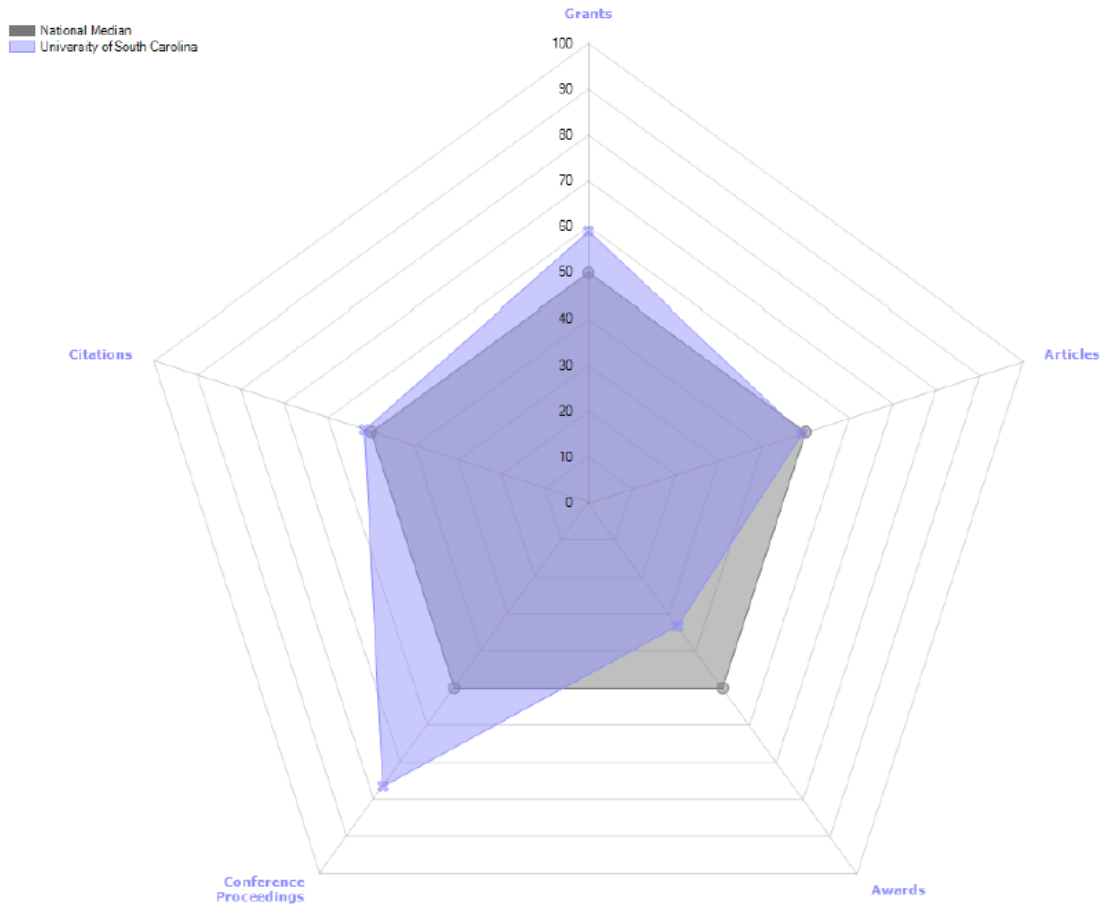
## Department Radar - All Variables Summary

**University of South Carolina | Civil and Environmental Engineering, Department of**



# Computer Science and Engineering, Department of | Computer Engineering (159 Departments)Department Radar - All Variables Summary

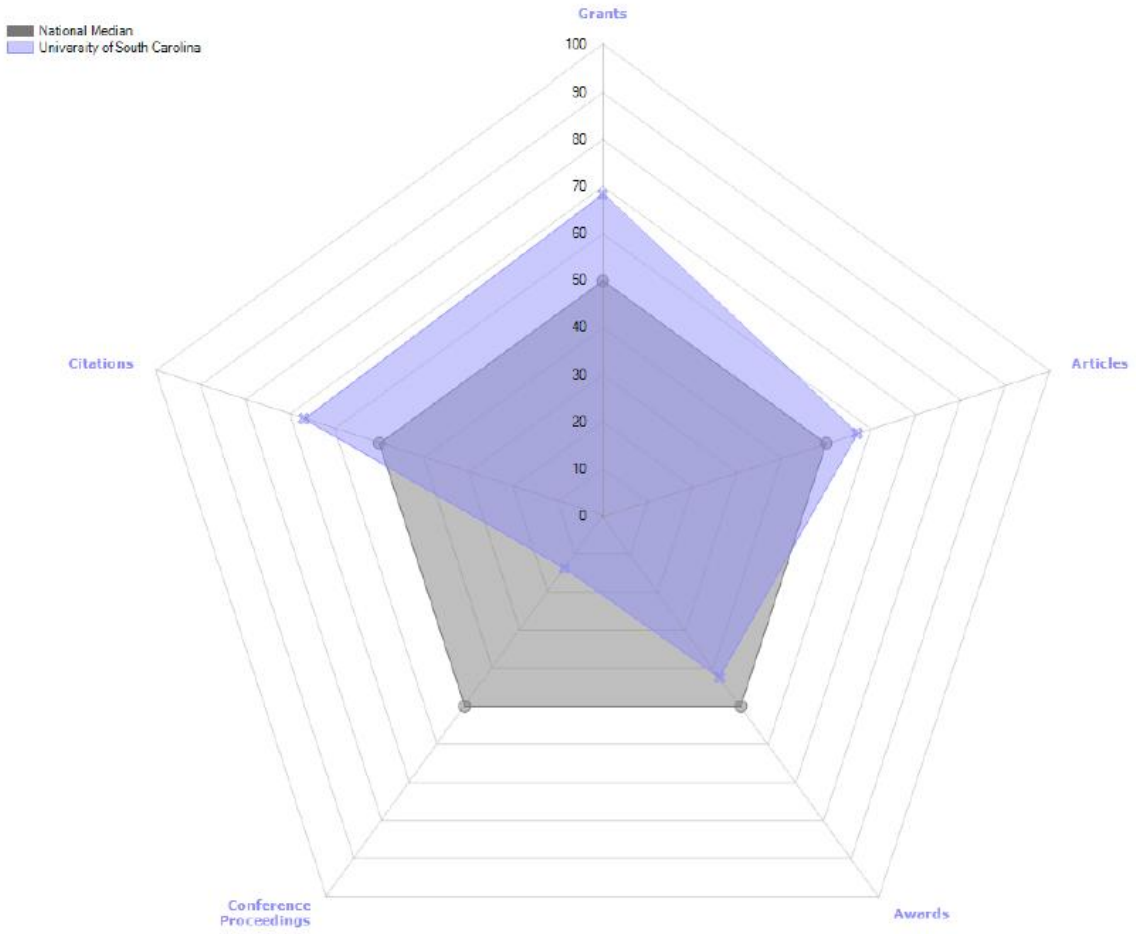
**University of South Carolina | Computer Science and Engineering, Department of**



# Productivity Radar

## Electrical Engineering, Department of | Electrical Engineering
## Department Radar - All Variables Summary

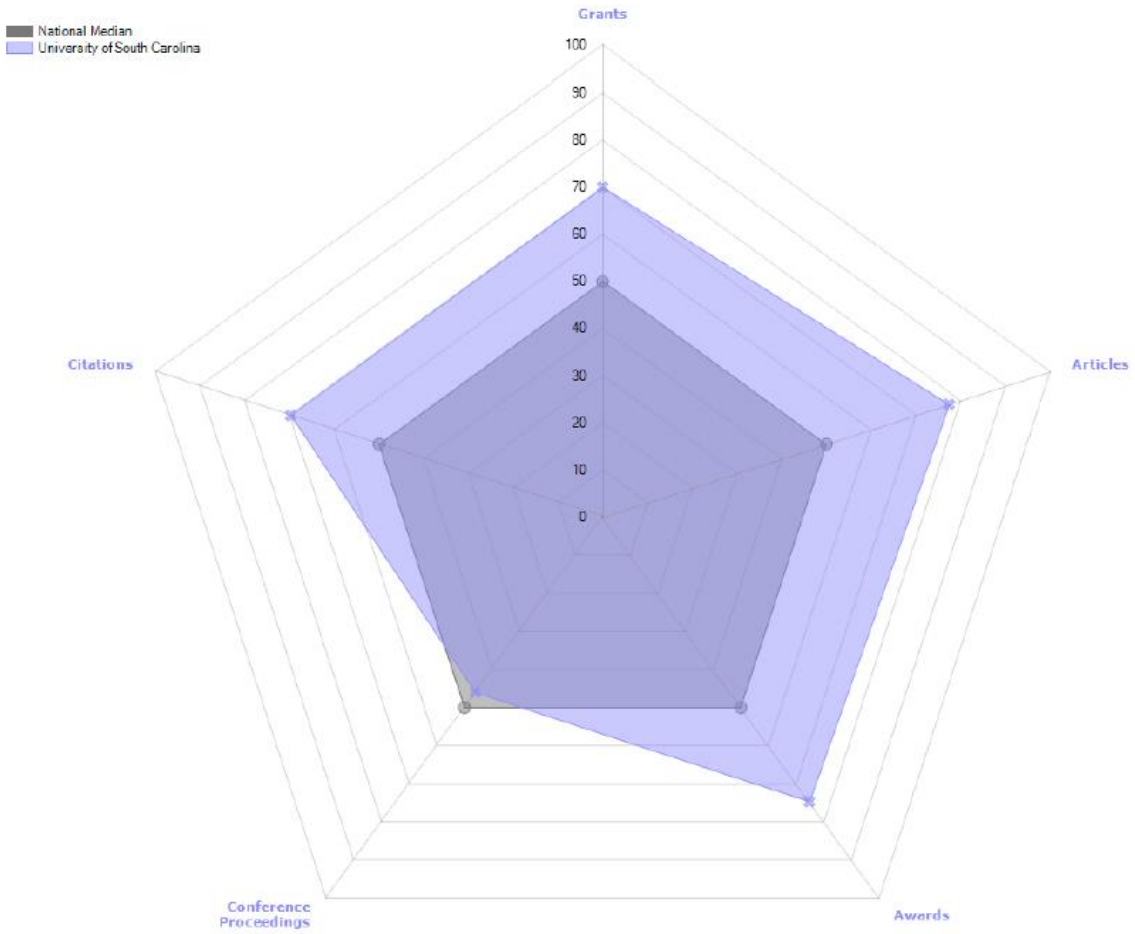
**University of South Carolina | Electrical Engineering, Department of**



# Productivity Radar

## Mechanical Engineering, Department of | Mechanical Engineering
## Department Radar - All Variables Summary

**University of South Carolina | Mechanical Engineering, Department of**



# College of Engineering & Computing

## Externally Sponsored Proposals

## #1 - Blueprint Data

| Home Department | *Total Amt - 1st Y* | *Total Count* | Commercial - ( | Federal - (FED) | Local Gov- (LC | Other - (OTH | Non-Profit | State - (STA) |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |
| Chemical Engineering | ***13,405,157*** | ***78*** | 6 | 65 | 1 | 2 | 4 | |
| Engineering | ***5,670,800*** | ***53*** | 5 | 43 | | 2 | 2 | 1 |
| Engineering | ***4,536,558*** | ***34*** | 3 | 30 | | | | 1 |
| Electrical Engineering | ***4,309,688*** | ***52*** | 4 | 46 | | | 2 | |
| Engineering & Computing, College of | ***402,779*** | ***2*** | | 2 | | | | |
| Mechanical Engineering | ***16,228,815*** | ***115*** | 5 | 104 | | 3 | 2 | 1 |
| **Total Requested 1st Year** | **44,553,797** | | **1,238,455** | **42,624,055** | **25,000** | **236,802** | **372,616** | **56,869** |
| **Total Submissions** | | **334** | **23** | **290** | **1** | **7** | **10** | **3** |

# College of Engineering & Computing

## Externally Sponsored Awards by Source and Rank

## #2 - Blueprint Data

| PI_HM_DE | PI_NA | Rank | Tenure / TT | otal Of TOT_ | mmercial - (CO | Federal - (FED) | ocal Gov. - (LO | Other - (OTH) | on-Profit - (PH | State - (STA) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | |
| Chemical E | Amiridis, M | Professor | Tenured | 490,454 | -596,449 | 1,086,903 | | | | |
| Chemical E | Blanchette, | Asst. Professor | | 113,260 | | 113,260 | | | | |
| Chemical E | Gonzalez, Francisco | | | 19,180 | | 19,180 | | | | |
| Chemical E | Hattrick-Sim | Asst. Professor | | 34,386 | 31,386 | 3,000 | | | | |
| Chemical E | Heyden, An | Asst. Professor | | 1,007,000 | | 1,007,000 | | | | |
| Chemical E | Jabbari, Esm | Assoc. Professor | Tenured | 40,000 | | 40,000 | | | | |
| Chemical E | Jabbarzadeh | Asst. Professor | | 60,000 | | 60,000 | | | | |
| Chemical E | Lauterbach, | Professor | Tenured | 1,119,666 | 1,094,666 | | | | 25,000 | |
| Chemical E | Matthews, | Professor | Tenured | 25,000 | | | | | 25,000 | |
| Chemical E | Monnier, Jo | Research Professor | | 190,630 | 190,630 | | | | | |
| Chemical E | Moss, Melis | Assoc. Professor | Tenured | 211,819 | | 211,819 | | | | |
| Chemical E | Padak, Bihte | Asst. Professor | | 272,000 | | 272,000 | | | | |
| Chemical E | Ploehn, Har | Professor | Tenured | 30,400 | 0 | 30,400 | | | | |
| Chemical E | Popov, Bran | Professor | Tenured | 280,000 | 30,000 | 250,000 | | | | |
| Chemical E | Regalbuto, J | Professor | Tenured | 477,927 | | 477,927 | | | | |
| Chemical E | Ritter, Jame | Professor | Tenured | 1,360,000 | | 1,335,000 | | 25,000 | | |
| Chemical E | Shimpalee, | Research Assoc. Prof. | | 178,664 | | 178,664 | | | | |
| Chemical E | Weidner, Jo | Professor | Tenured | 409,026 | 0 | 409,026 | | | | |
| Chemical E | White, Ralp | Professor | Tenured | 314,882 | | 314,882 | | | | |
| Chemical E | Williams, Ch | Professor | Tenured | 120,000 | | 120,000 | | | | |
| Chemical E | Yu, Miao | Asst. Professor | | 240,000 | | 240,000 | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Chemical E | Zhou, Xiao-I | Assoc. Professor | | 120,000 | | 120,000 | | | | |
| Civil & Env | Caicedo, Jua | Assoc. Professor | Tenured | 95,857 | | 88,543 | | | 7,314 | |
| Civil & Env | Chaudhry, M | Professor | Tenured | 85,000 | | | | | | 85,000 |
| Civil & Env | Gassman, Sa | Assoc. Professor | Tenured | 256,431 | 15,960 | 240,471 | | | | |
| Civil & Env | Goodall, Jon | Assoc. Professor | | 542,297 | | 542,297 | | | | |
| Civil & Env | Huynh, Nath | Asst. Professor | | 479,770 | | 429,770 | | | | 50,000 |
| Civil & Env | Imran, Jasim | Professor | Tenured | 182,399 | 182,399 | | | | | |
| Civil & Env | Matta, Fabio | Asst. Professor | | 236,834 | 93,696 | 143,138 | | | | |
| Civil & Env | Pierce, Char | Assoc. Professor | Tenured | 16,129 | | | | | 16,129 | |
| Civil & Env | Rizos, Dimit | Assoc. Professor | Tenured | 6,572 | 6,572 | | | | | |
| Civil & Env | Saleh, Navid | Asst. Professor | | 115,927 | | 115,927 | | | | |
| Civil & Env | Song, Jeong | Asst. Professor | | 135,778 | | 135,778 | | | | |
| Civil & Env | Viparelli, En | Asst. Professor | | 100,619 | | 100,619 | | | | |
| Civil & Env | Yoon, Yeom | Assoc. Professor | | 150,000 | | | | 150,000 | | |
| Civil & Env | Ziehl, Paul | Professor | Tenured | 251,979 | | 251,979 | | | | |
| Computer | Alekseyev, M | Asst. Professor | | 549,529 | | 549,529 | | | | |
| Computer | Bakos, Jason | Assoc. Professor | Tenured | 74,905 | | 74,905 | | | | |
| Computer | Buell, Dunca | Professor | Tenured | 26,457 | | 26,457 | | | | |
| Computer | Huhns, Mich | Professor | Tenured | 53,288 | 48,038 | 5,250 | | | | |
| Computer | Nelakuditi, S | Assoc. Professor | Tenured | 16,000 | | 16,000 | | | | |
| Computer | Tang, Jijun | Assoc. Professor | Tenured | 444,303 | | 444,303 | | | | |
| Computer | Tong, Yan | Asst. Professor | | 15,500 | | 15,500 | | | | |
| Computer | Valafar, Hor | Assoc. Professor | Tenured | 86,000 | | 86,000 | | | | |
| Computer | Vidal, Jose | Assoc. Professor | Tenured | 283,850 | | 283,850 | | | | |
| Computer | Wang, Song | Assoc. Professor | Tenured | 353,403 | | 353,403 | | | | |
| Computer | Xu, Wenyua | Assoc. Professor | Tenured | 110,765 | | 110,765 | | | | |
| Electrical E | Ali, Moham | Professor | Tenured | 565,512 | | 565,512 | | | | |
| Electrical E | Brice, Charl | Assoc. Professor | Tenured | 45,000 | 45,000 | | | | | |
| Electrical E | Chandrashe | Asst. Professor | | 325,968 | | 325,968 | | | | |
| Electrical E | Dougal, Rog | Professor | Tenured | 1,790,005 | 32,556 | 1,757,449 | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Electrical E | Ginn, Herbe | Assoc. Professor | Tenured | 252,242 | 93,093 | 159,149 | | | | |
| Electrical E | Huray, Paul | Professor | Tenured | 68,186 | 68,186 | | | | | |
| Electrical E | Khan, Asif | Professor | Tenured | 130,000 | | 130,000 | | | | |
| Electrical E | Koley, Gout | Assoc. Professor | Tenured | 196,488 | | 196,488 | | | | |
| Electrical E | Mandal, Kri | Assoc. Professor | | 60,000 | | 60,000 | | | | |
| Electrical E | Matolak, Da | Professor | Tenured | 291,574 | | 291,574 | | | | |
| Electrical E | Santi, Enric | Assoc. Professor | Tenured | 117,972 | 20,204 | 97,768 | | | | |
| Electrical E | Shin, Yong-J | Visiting Professor | | -66,334 | 642 | -66,976 | | | | |
| Electrical E | Simin, Grigo | Professor | Tenured | 106,777 | | 16,000 | | | 90,777 | |
| Electrical E | Sudarshan, | Professor | Tenured | 100,000 | | 100,000 | | | | |
| Electrical E | Wang, Guoa | Asst. Professor | | 400,000 | | 400,000 | | | | |
| Engineerin | Boccanfuso, | Program Director | | 294,593 | | 294,593 | | | | |
| Engineerin | Gurdal, Zafe | Professor | Tenured | 10,000,000 | | | | | 10,000,000 | |
| Mechanica | Bayoumi, Al | Professor | Tenured | 570,382 | | 570,382 | | | | |
| Mechanica | Cacuci, Dan | | | 412,500 | | 412,500 | | | | |
| Mechanica | Chen, Fangl | Assoc. Professor | Tenured | 626,797 | | 626,797 | | | | |
| Mechanica | Deng, Xiaon | Professor | Tenured | 200,000 | | 200,000 | | | | |
| Mechanica | Farouk, Tan | Asst. Professor | | 217,000 | | 217,000 | | | | |
| Mechanica | Giurgiutiu, V | Professor | Tenured | 476,771 | | 470,250 | | 6,521 | | |
| Mechanica | Huang, Kevi | Assoc. Professor | | 100,000 | | 100,000 | | | | |
| Mechanica | Huang, Xiny | Asst. Professor | | 225,000 | 200,000 | | | | 25,000 | |
| Mechanica | Kaoumi, Dja | Asst. Professor | | 80,661 | | 80,661 | | | | |
| Mechanica | Kidane, Add | Asst. Professor | | 34,000 | | 34,000 | | | | |
| Mechanica | Knight, Trav | Assoc. Professor | Tenured | 74,166 | 31,000 | 18,166 | | | 25,000 | |
| Mechanica | Li, Chen | Asst. Professor | | 50,000 | | 50,000 | | | | |
| Mechanica | Majumdar, | Asst. Professor | | 238,190 | | 238,190 | | | | |
| Mechanica | Reifsnider, I | Professor | Tenured | 1,700,797 | | 1,680,797 | | | | 20,000 |
| Mechanica | Reynolds, A | Professor | Tenured | 307,394 | 57,394 | 250,000 | | | | |
| Mechanica | Shazly, Tare | Asst. Professor | | 60,000 | | 60,000 | | | | |
| Mechanica | Sutton, Mic | Professor | Tenured | 150,000 | 100,000 | 50,000 | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Mechanica | Tarbutton, J | Asst. Professor | | 84,007 | | 84,007 | | | | |
| Mechanica | Wang, Guire | Assoc. Professor | Tenured | 130,816 | | 30,825 | | 99,991 | | |
| Mechanica | Xue, Xingjia | Asst. Professor | | 101,704 | | 101,704 | | | | |
| Mechanica | Yang, Jinkyu | | | 326,000 | | 326,000 | | | | |
| Mechanica | Yu, Lingyu | Asst. Professor | | 66,976 | | 66,976 | | | | |
| | | | | | | | | | | |
| **TOTALS** | | | | **32,695,030** | **1,744,973** | **20,299,325** | **0** | **281,512** | **10,214,220** | **155,000** |

# College of Engineering & Computing

## Externally Sponsored Awards by Source per Tenured /TT

## #3 - Blueprint Data

| PI_HM_DEPT_DESC | PI_NA | Rank | Tenure / TT | Total Of TOT_SP | Commercial - (COM) | Federal - (FED) | Local Gov. - (LOC) | Other - (OTH) | Non-Profit - (PHI) | State - (STA) |
|---|---|---|---|---|---|---|---|---|---|---|
| Chemical Enginee | Amiridis, Micha | Professor | Tenured | 490,454 | -596,449 | 1,086,903 | | | | |
| Chemical Enginee | Jabbari, Esmaie | Professor | Tenured | 40,000 | | 40,000 | | | | |
| Chemical Enginee | Lauterbach, Joc | Professor | Tenured | 1,119,666 | 1,094,666 | | | | 25,000 | |
| Chemical Enginee | Matthews, Mich | Professor | Tenured | 25,000 | | | | | 25,000 | |
| Chemical Enginee | Moss, Melissa | Professor | Tenured | 211,819 | | 211,819 | | | | |
| Chemical Enginee | Ploehn, Harry | Professor | Tenured | 30,400 | 0 | 30,400 | | | | |
| Chemical Enginee | Popov, Branko | Professor | Tenured | 280,000 | 30,000 | 250,000 | | | | |
| Chemical Enginee | Regalbuto, John | Professor | Tenured | 477,927 | | 477,927 | | | | |
| Chemical Enginee | Ritter, James | Professor | Tenured | 1,360,000 | | 1,335,000 | | 25,000 | | |
| Chemical Enginee | Weidner, John | Professor | Tenured | 409,026 | 0 | 409,026 | | | | |
| Chemical Enginee | White, Ralph | Professor | Tenured | 314,882 | | 314,882 | | | | |
| Chemical Enginee | Williams, Christ | Professor | Tenured | 120,000 | | 120,000 | | | | |
| Civil & Environme | Caicedo, Juan | Professor | Tenured | 95,857 | | 88,543 | | | 7,314 | |
| Civil & Environme | Chaudhry, M. | Professor | Tenured | 85,000 | | | | | | 85,000 |
| Civil & Environme | Gassman, Sarah | Professor | Tenured | 256,431 | 15,960 | 240,471 | | | | |
| Civil & Environme | Imran, Jasim | Professor | Tenured | 182,399 | 182,399 | | | | | |
| Civil & Environme | Pierce, Charles | Professor | Tenured | 16,129 | | | | | 16,129 | |
| Civil & Environme | Rizos, Dimitris | Professor | Tenured | 6,572 | 6,572 | | | | | |
| Civil & Environme | Ziehl, Paul | Professor | Tenured | 251,979 | | 251,979 | | | | |
| Computer Science | Bakos, Jason | Professor | Tenured | 74,905 | | 74,905 | | | | |
| Computer Science | Buell, Duncan | Professor | Tenured | 26,457 | | 26,457 | | | | |
| Computer Science | Huhns, Michael | Professor | Tenured | 53,288 | 48,038 | 5,250 | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Computer Science | Nelakuditi, Srih | Professor | Tenured | 16,000 | | 16,000 | | | | |
| Computer Science | Tang, Jijun | Professor | Tenured | 444,303 | | 444,303 | | | | |
| Computer Science | Valafar, Homay | Professor | Tenured | 86,000 | | 86,000 | | | | |
| Computer Science | Vidal, Jose | Professor | Tenured | 283,850 | | 283,850 | | | | |
| Computer Science | Wang, Song | Professor | Tenured | 353,403 | | 353,403 | | | | |
| Computer Science | Xu, Wenyuan | Professor | Tenured | 110,765 | | 110,765 | | | | |
| Electrical Enginee | Ali, Mohammoc | Professor | Tenured | 565,512 | | 565,512 | | | | |
| Electrical Enginee | Brice, Charles | Professor | Tenured | 45,000 | 45,000 | | | | | |
| Electrical Enginee | Dougal, Roger | Professor | Tenured | 1,790,005 | 32,556 | 1,757,449 | | | | |
| Electrical Enginee | Ginn, Herbert | Professor | Tenured | 252,242 | 93,093 | 159,149 | | | | |
| Electrical Enginee | Huray, Paul | Professor | Tenured | 68,186 | 68,186 | | | | | |
| Electrical Enginee | Khan, Asif | Professor | Tenured | 130,000 | | 130,000 | | | | |
| Electrical Enginee | Koley, Goutam | Professor | Tenured | 196,488 | | 196,488 | | | | |
| Electrical Enginee | Matolak, David | Professor | Tenured | 291,574 | | 291,574 | | | | |
| Electrical Enginee | Santi, Enrico | Professor | Tenured | 117,972 | 20,204 | 97,768 | | | | |
| Electrical Enginee | Simin, Grigory | Professor | Tenured | 106,777 | | 16,000 | | | 90,777 | |
| Electrical Enginee | Sudarshan, Tan | Professor | Tenured | 100,000 | | 100,000 | | | | |
| Engineering & Co | Gurdal, Zafer | Professor | Tenured | 10,000,000 | | | | | 10,000,000 | |
| Mechanical Engin | Bayoumi, Abdel | Professor | Tenured | 570,382 | | 570,382 | | | | |
| Mechanical Engin | Chen, Fanglin | Professor | Tenured | 626,797 | | 626,797 | | | | |
| Mechanical Engin | Deng, Xiaomin | Professor | Tenured | 200,000 | | 200,000 | | | | |
| Mechanical Engin | Giurgiutiu, Victo | Professor | Tenured | 476,771 | | 470,250 | | 6,521 | | |
| Mechanical Engin | Knight, Travis | Professor | Tenured | 74,166 | 31,000 | 18,166 | | | 25,000 | |
| Mechanical Engin | Reifsnider, Ken | Professor | Tenured | 1,700,797 | | 1,680,797 | | | | 20,000 |
| Mechanical Engin | Reynolds, Anth | Professor | Tenured | 307,394 | 57,394 | 250,000 | | | | |
| Mechanical Engin | Sutton, Michae | Professor | Tenured | 150,000 | 100,000 | 50,000 | | | | |
| Mechanical Engin | Wang, Guiren | Professor | Tenured | 130,816 | | 30,825 | | 99,991 | | |
| **TOTALS** | | | | **25,123,391** | **1,228,619** | **13,469,040** | **0** | **131,512** | **10,189,220** | **105,000** |

# College of Engineering & Computing

## Technology Commercialization

## #4 - Blueprint Data

| College | Invention Disclosures | Provisional patent applications | Non-Provisional patent applications | Issued patents |
|---|---|---|---|---|
| **Engineering & Computing** | **19** | **28** | **17** | **15** |
| *Breakdown* | *Civil & Environmental 1*<br>*Chem Eng 7*<br>*Mech Eng 3*<br>*EE 8*<br><br>*SmartState :*<br>*Solid Oxide Fuel Cells 3*<br>*Renewable Fuels 2*<br>*SAGE 3* | *Chem Eng 10*<br>*Mech Eng 11*<br>*EE 7*<br><br><br><br>*SmartState :*<br>*Solid Oxide Fuel Cells 9*<br>*Renewable Fuels 3*<br>*SAGE 1* | *Civil & Environmental 2*<br>*Chem Eng 3*<br>*Mech Eng 9*<br>*EE 3*<br><br>*Smart State:*<br>*Solid oxide fuel cells 5*<br>*SAGE 2* | *Chem Eng 4*<br>*Mech Eng 4*<br>*EE 7* |

**FY2013 - Licensing Agreements**

1 – Electrical Engineering
1 – Mechanical Engineering