

Document Type:	MINUTES		
Date of Meeting:	November 13, 2015	Time:	10:00 AM
Meeting Facilitator:	Dr. Roger Dougal	Location:	Swearingen Center room 3A75

IAB member Attendees			
Name	Company	E-mail	Phone
Tom Abrams	Santee Cooper	Tom.abrams@santeecooper.com	(843) 761-8000 ext 5200 (W)
Tracey Blackmon	Duke Energy	tracy.blackmon@duke-energy.com	704-607-1079 (M)
Al Emondi	SPAWAR Systems Center	al.emondi@navy.mil	(843) 218-5435
Tonia Morris	Intel Corporation	tonia.g.morris@intel.com	803-216-2712 (W)
Brian Parris	Intel Corporation	brian.w.parris@intel.com	803-941-7028
Bobby Scott	REI Automation	bscott@reiautomation.com	803-791-8550 (O)
Steve Tibrea	Savannah River National Lab	steven.tibrea@srs.gov	803-645-7432 (M)
Marty Wilson	Flextronics	marty.wilson@flextronics.com	803-413-2517 (M)
Lee Xanthakos	South Carolina Electric and Gas	pxanthakos@scana.com	803-217-1821 (M)

IAB members Absent			
Name	Company	E-mail	Phone
Bob Bush	Altron	bbush@altroninc.com	843-224-1191(M)
Jeff Cain		Jeffcain727@gmail.com	
Harry Weatherford ,Jr.	Nucor	Harry.WeatherfordJr@Nucor.com	843-3442497 (M)
Peter Zmolek	Continental	peter.zmolek@conti-na.com	704-583-8770

Faculty and Staff Attendees		
Name	Title	E-mail
Dr. Roger Dougal	Professor and Chair	dougal@cec.sc.edu
Dr. Seongtae Bae	Assistant Professor	bae4@cec.sc.edu
Dr. Yinchao Chen	Associate Professor	chenyin@cec.sc.edu
Dr. Krishna Mandal	Associate Professor	mandal@cec.ss.edu
Dr. David Matolak	Professor and T & P Chair	matolak@cec.sc.edu
Dr. Enrico Santi	Associate Professor	santi@cec.sc.edu
Dr. Grigory Simin	Professor and Undergraduate Director	simin@engr.sc.edu
Dr. Guoan Wang	Assistant Professor	gwang@cec.sc.edu
Dr. Bin Zhang	Assistant Professor	zhangbin@cec.sc.edu
Valuncha Paterson	Assistant to the Chair	valuncha@cec.sc.edu

Approval of Spring 2015 Meeting Minutes

The minutes were approved electronically.

Announcements

- **Welcome 2 new members –**
 - **Brian Parris, Engineering Manager, Intel Corporation.** He will replace Dr. Tonia Morris.
 - **Bobby Scott, Project Manager, REI Automation.** Mr. Scott and REI Automation will add to the IAB a new perspective in manufacturing industry.
- **CEC welcomes the new Dean –**
 - **Dr. Hossein Haj-Hariri beginning January 1, 2016**
 - Currently Chair of Mechanical & Aerospace Engineering at University of Virginia
- **USC welcomes the new Provost –**
 - **Dr. Joan Gabel, started August 24, 2015**
 - Formerly Dean of University of Missouri's Trulaske College of Business, succeeding Dr. Michael Amiridis
- **EE welcomes new Assistant Professor–**
 - **Dr. Seongtae Bae in Nanospintronics Materials and Devices**
 - Formerly Research Associate Professor at Seoul National University, College of Medicine, Department of Neurosurgery, Korea

Follow up on Recommendations from Last Meeting

- **Action items completed**
 - **Proposed revision of Program Education objective –** being reviewed by the Student Advisory Board for their input
 - **Proposed changes to EE Program submitted to USC Courses and Curriculum Committee for approval**
 - In sophomore year, students now have an option to take CSCE 146, EMCH 200, or PHYS 300 to increase their mathematics or physics skills.
 - Change in an entry level programming course from Java to C++, possibly in Fall 2016
 - The department of Computer Science and Engineering has verbally agreed to teach special section of CSCE 145 for EE using C++.
 - **Recommendation to add more IAB members**
 - Addressed by the addition of REI Automation

Updates from 2015 Southeast Electrical and Computer Engineering Department Head Associate (SECEDHA)

- **GA TECH's online MS in Computer Science –** only cost \$6600 to complete the degree, expect to grow from 100 to 10,000 students in a few years. Enrolled students are from all 50 states and over 100 countries. Faculty involved receives compensation for developing and delivering courses.
- **GT Teaching Model for EE for Non-majors –** Using short surveys to assess students' performance and adapt the pace and content significantly improved learning of the most difficult subjects.
- **ABET Criteria changes --** Number of criteria proposed to be reduced from 11 to 7. The criteria emphasize more on direct assessments of students' achievement. We are already well-along in implementing improved direct assessment changes.

- **Workshop on Future of EE** – Need someone to attend this workshop which is targeted to change the perception of Electrical Engineering from a tool maker/supporter to leader.

Review of 2020 Strategic Plan

Dr. Dougal presented the department's 2020 Strategic Plan, comprised of 6 goals, to the IAB members.

Objectives:

- Collect inputs from the board
 - The plan is important as a tool to move forward with the new Dean
 - The plan has been reviewed and commented by the Undergraduate Program Committee, Graduate Program Committee, and Faculty Development Committee.
- I. Goal #1 – Increase Research Funding to \$5m/yr**
- **Rationale** – increased funding will improve every other metric – i.e. graduate students, publications, reduced teaching load (course buy-out)
 - **Strategies** –
 - Free up time for the faculty to pursue large-scale research funding
 - Imitate discussion with other departments to collaborate on large-scale multidisciplinary research.
 - **Resources** –
 - 2 FT Instructional staff persons to cover 12 courses per year plus some outreach activities. \$200k (loaded salaries)
 - 30% of IDC returned to department - \$300k/yr – partial support of postdocs and research staff to help produce initial results and write proposals
 - Departmental Business manager to support the research activities
 - **Rationale for resources** –
 - To manage the minimum tasks and responsibility of teaching and services, 10 FTEs are required. By having full time instructional staffs will give the faculty time to advise graduate students, plan and develop substantial new activities.
- II. Goal #2 – Improve the strength of the faculty**
- **Rationale** –
 - Currently below critical mass, and inadequate to support growth of the student body (graduate and undergraduate)
 - Currently unable to pursue new initiatives because time is fully-committed to the basic needs.
 - **Strategic Plan** –
 - Increase faculty size to 20, in strategic technical areas
 - Identify strategic technical areas
 - Increase national recognitions of faculty (e.g. IEEE fellow)
 - Consider re-combining CE with EE to eliminate the gaping hole between Electrical and Computer Engineering, where virtually all electronic systems now fall!
 - **Resources** –

- Authorization to hire 2 tenure-track persons each year for the next 4 years.
 - Financial support for faculty search including advertising, candidate travel expenses, etc, \$15K per position
 - **Rationale for resources –**
 - Two hires per year nets only one person per year because of attrition
 - Department budget is inadequate to stand the cost of recruiting
 -
- III. Goal #3 – Support an increasing Number and Quality of Undergraduate Students**
- **Rationale –**
 - Student body is growing, but not fast enough in view of the intended faculty size
 - Average student quality in EE is lower than in other CEC departments
 - **Strategies –**
 - Raise funds and offer more and better scholarships to top students
 - Personal contact with top applicants
 - Identify and execute outreach activities that yield high quality and diverse students.
 - **Resources –**
 - Space for Senior Design studio – to accommodate wide variety of interdisciplinary projects. Could be shared college-wide.
 - 2 FT instructional staff covering 12 courses/academic years and assist in outreach
 - 1 FT Senior Design Project Coordinator – could be shared college-wide
 - 3-5 more classrooms with 70+ seats
 - Capital campaign to raise at least \$2M in new scholarship funds for EE.
 - **Rationale for resources –** Classroom and lab space currently impose constraints on numbers of students, schedule flexibility, and faculty time. Need additional sections of classes to accommodate larger enrollments.
- IV. Goal #4 -- Continually Improve the Quality of Undergraduate Program**
- **Rationale –** Self-explanatory, and required by ABET
 - **Strategies –**
 - Complete improvements to development, collection, and analysis of assessment data
 - Develop course improvements as indicated by the data
 - Complete revisions to course syllabi and prerequisite definitions
 - **Resources –** Part-time Assessment Coordinator – could be shared college-wide
 - **Rationale for resources –** Needs college-wide coordination
- V. Goal #5 – Regain Robustness of the Graduate Program**
- **Rationale –**
 - Support the flagship role of this university.
 - Strong research drives economic development and many other metrics
 - **Strategies –**
 - Increase numbers of enrolled graduate students to 60 PhD, 30 MS, 40 ME
 - Increase quality of admitted graduate students, including more domestic students
 - Offer nationally-competitive financial support (\$1600/mo) plus tuition
 - Fill out the MS in Systems Design program ready by Fall 2016
 - Offer and reuse more online classes

- **Resources –**
 - IDC return to department and faculty as flywheel/bank for the research enterprise
 - Additional graduate fellowships
- **Rationale for resources –** With no IDC the faculty has no “banked” money to jump start or carry-over graduate students, to maintain equipment, or to start new initiatives.

VI. Goal #6 – Departmental autonomy – would like to receive more top-down definition of, or concurrence in, goals and performance incentives and more authority to make decisions or allocate resources to achieve those goals.

Feedbacks and Recommendations from IAB

- **Overall view of the plan**
 - The board agrees that the university and the college need to make investment to support our strategic plan.
 - The board agrees that by hiring additional instructional staffs and more administrative staffs, particularly a Business Manager, will provide faculty more time to focus on research.
 - Reorganize the flow of the strategic plan and make a better argument by focusing on the fact that our productivity is currently resource constrained which is causing the research funding to decrease. There has to be a stronger argument in requesting more resources due to the lower ratio of undergraduate students per faculty.
 - Combine the goals into a higher level strategic plan to focus on the over view of the plan. Possibly try to align our plan to the higher level office like the university or the government. Goal #6 is viewed as a consideration but not an actual goal.
 - Focus on one new faculty per year, plus one replacement.
 - Continue developing the MS in System Design into a mature program to increase the graduate program population.
- **Combined Electrical and Computer Engineering**
 - The board supports the plan to branding the department as Electrical and Computer Engineering, even if Computer Engineering is still with Computer Science. It is critical to restore our program to where it was before to ensure we cover both technical areas.
 - Conduct a business case analysis on how Computer Engineering will fit into our plan so we can decide how to conduct the merger and how it would give us the most value.
- **Research focuses**
 - Identify top three areas we would like to be known for and focus on that by hiring new faculty into those areas.
 - As the department of Electrical and Computer Engineering the board recommends that we can focus on number of areas, such as, cybersecurity, embedded systems, sensor development and integration, datalinks and advanced communication system, as these topics have become increasingly important. It doesn't only involve “cyber” aspect, but also the physical aspect. We should focus on both physical and data security, e.g. critical infrastructure design in power electronics area.
- **Research Funding**
 - Increase interdisciplinary collaboration to focus on large-scale research projects. For example, we can collaborate with Biomedical and Aerospace Engineering program.
 - Increase collaboration with industry through the office of Economic Development

Action Items		
Action	Assignee	Due Date
Send meeting requests to put the next two meetings on calendars	Dr. Dougal	12/01/2015
Send the draft November 2015 meeting minutes for approval	Dr. Dougal	12/01/2015
Send an updated draft of the EE Strategic Plan	Dr. Dougal	12/18/2015
Send one page summary of the Capstone Design Projects one week prior to the Spring meeting	Dr. Dougal	4/15/2016
Send the draft Spring meeting agenda	Dr. Dougal	3/21/2016

Next Meetings		
Term	Date	Confirmation status
Spring 2016	April 22, 2016	Confirmed
Fall 2016	November 4, 2016	Tentative

Meeting adjourned at 3:40 PM.