Annual Report

2006-2007

Electrical and Computer Engineering

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Electrical and Computer Engineering

Overview

The ECE Department completed a successful year this year with many new initiatives set and goals reached this year. Faculty, staff and students provided a lot of input for program improvements this year. Among those accomplishments include:

a. Formalize the Engineering Entrepreneurs Program (EEP): Three regular courses, (ECE383, ECE482 and ECE483) are now in place.\

b. Upgrade of ECE200 to four hours, from the current 3 hours.

c. Formalize special topics courses: "Frontiers of Nanoelectronics" into ECE445, a regular numbered course with the same title.
Formalization of the special topics course "Embedded System Design" into ECE461, a regular numbered course with the same title.

d. Restructure the programming language courses: Restructuring of the programming language courses. Two new courses, ECE109 and ECE209 have been introduced (and replaced ECE206).

e. Introduction of a new laboratory course, ECE470, to address the "hands-on" needs in the networking area. The department bought 20 routers for this course, at an approximate cost of $12,000; Cisco has donated equipment to upgrade the lab facilities, so students can take the CCIE certification exam. This exam certifies the proficiency of a student in the "networking/IT" area. CCIE certification is viewed by prospective employers as a strong bullet in a graduate's resume.

f. DARPA Urban Challenge: The ECE department is the department within the college that serves as main support in terms of fundraising and marketing for the DARPA Grand Challenge Team. ECE oversees the financial account for this team and handles all financial transactions. The Director of Administration and support staff also serve as the "marketing team" for this major event. www.insightracing.org

g. Enhancements of a structured program for Research Experiences for Undergraduates (REU); departmental faculty have won an NSF REU grant to expand our present efforts in this space. The department also hosted the 2nd

Annual ECE Undergraduate Research Symposium.
http://www.ece.ncsu.edu/dept/news/article/5534

h. A "Sophomore Workshop" was offered for the first time by Dr. Michael Escuti.
http://www.ece.ncsu.edu/dept/news/article/4253

i. Development of a Career Listserv which provides the students and companies a more immediate approach to job openings. This has worked so well, students in all engineering department have subscribed. As a result, ECE has developed software so each department can also offer this service.

j. ECE Internal recruitment of students with companies has been a key success for both students and hiring companies. We partner with Career Services on this initiative that provides hiring companies a top service. As a result, corporate relations interactions have doubled from last year. We also created a strong corporate relations website:
http://www.ece.ncsu.edu/corporate/

k. Improving Outreach opportunities and Minority recruitment have been a focus for the last several years. The Outreach activities within ECE have grown dramatically. The department participates in all Spend a Day events and the numerous other tours the college asks us to assist with. The ECE Outreach committee was established and is working on a program to have a monthly hands-on activity for Hispanic middle school students that do not have home computers to introduce them to engineering and allow them to access computers for homework and other things. We have been meeting with the teachers who oversee this after school program and hope to have the first program in place early fall. Members of the ECE Outreach committee and graduate students have gone out to numerous elementary, middle and high schools this year to present hands-on activities about electrical and computer engineering. ECE has also offered many private tours to alumni and their children. ECE Administration is also working with minority students at local high schools to give them an opportunity to intern over the summer and rotate in the various labs working hands on with our faculty and students.

ECE sponsored the "Smackdown" event this year during National Engineers Week. Students were giving feedback that National Engineers week was not recognized by our college. ECE took that opportunity to recognize National Engineers Week and challenged other departments to a competition. The competition guidelines encouraged multi-disciplinary teams to work together and compete. The competition was a great success and feedback from all of the students who participated was very positive.

More information about this event can be found at: http://www.ece.ncsu.edu/smackdown/ . Pictures can be viewed at:

http://www.googlesyndicatedsearch.com/u/ecencsu?q=Smackdown

l. Continue working closely with the ECE Advisory board and building our program with the help of their feedback.

m. Coordinating meetings with ECE and some COE student organizations. With centralizing once a week meetings with these students organizations and the Director of Administration & External Relations, the companies are receiving one contact through the department. When one organization serves as the sponsor of the event, all other organizations promote the event and attendance is always very high as the result of this team collaboration within the student organizations. As a result, the Director of Administration & External Relations is now working with two other COE departments to assist them with establishing the same concept at their request. ECE's student organizations are viewed as being the most active within the college. Our Eta Kappa Nu (HKN) student group won outstanding chapter of the year for a second year in a row and the IEEE won most outstanding student branch as well. SHPE has been instrumental in coordinating the Outreach efforts with the hipanic middle school program we are working with.

    The Student organization annual reports for this year can be found at:

    GSA: http://students.engr.ncsu.edu/ecegsa/reports/06-07.pdf

n. Improving student communications in department has been a strong initiative this year. With the coordination of student organizations and department administration, ECE moved forward with suggestion boxes which are placed in each of the 3 building occupied by ECE. ECE also implemented surveys for feedback and awards. Many new awards in ECE were initiated by the students' suggestions.
http://www.ece.ncsu.edu/dept/news/article/5567 .
Several students suggested a student graduation speaker in addition to the guest speaker. This year we requested those that would like to be considered to send a draft for a speech. Joy Johnson, an African-American female, Park Scholar, was selected to deliver the student graduation speech for ECE.

Students also communicated they would like to see student generated artwork in EBII. As a result, a committee of students, faculty and staff was created and with the assistance from the College of Design, ECE sponsored

the 1st annual Art Contest. Three winners were chosen and their artwork will be displayed in EBII. http://www.ece.ncsu.edu/dept/news/article/5529 .

An ECE/CSC gameroom was dedicated with the support of Cisco: http://www.ece.ncsu.edu/dept/news/article/5723

o. The ECE Webteam has developed several applications for reporting efficiency that has been shared with the other departments and administrative units within the college.

p. Improve graduate admissions standards for Fall 2007. This was achieved as our acceptance rate was about 49% for Fall 2007, compared with 65% for fall 2006. Our enrollment remained about 500 graduate students for the year 2006-7. We expect the enrollment to decrease slightly for Fall 2007 but the overall quality of the incoming students should improve.

q. Continued Annual Graduate Student and Faculty Surveys – over 200 students responded, all faculty participated.

r. The department held half-day Graduate Ethics seminar in Fall for Graduate students – 70 attended.

s. Improve GradWatch database access. We worked with the ECE IT group (Wolftech) to improve the database program. This program will continue to improve. Demonstrations of the program were given to several departments and the graduate school, which expressed interest in supporting expansion of the program to allow university-wide access.

Undergraduate and Graduate Enrollment Numbers

Fall 2006 Enrollment numbers

Time	Total	FR	SO	JR	SR	MR	DR
Full-Time	1,266	235	182	180	286	221	162
Part-Time	263	8	8	31	82	66	68
Total	1,529	243	190	211	368	287	230

Degrees Awarded

BS degrees:

EE: 188 + 13 applied for June

CPE: 129 + 6 applied for June

Spring 2007 Enrollment numbers

Time	Total	FR	SO	JR	SR	MR	DR
Full-Time	1,102	149	168	183	273	176	153
Part-Time	263	4	9	33	71	77	69
Total	1,365	153	177	216	344	253	222

Undergraduate Program

The following ECE students received scholarships and awards this year:

- Ryan Michael Field, Electrical and Computer Engineering, received scholarship, Astronaut Scholarship Foundation (ASF) and 2007 National Science Foundation (NSF) Graduate Research Fellowship Award: http://www.ece.ncsu.edu/dept/news/article/3755
- Saket Vora Receives Outstanding Engineering Entrepreneurship Student Award http://www.ece.ncsu.edu/dept/news/article/5616
- Greg Mulholland, Electrical and Computer Engineering, Gates-Cambridge Fellowship finalist http://www.ece.ncsu.edu/dept/news/article/5442
- Matthew Lenzo was awarded The Major General Robert E. Sadler, USAF Honor Award. http://www.ece.ncsu.edu/dept/news/article/5532
- Ryan Going receives scholarship from Astronaut Scholarship Foundation http://www.ece.ncsu.edu/dept/news/article/5600
- Jared Everett Wins Senior Award for Humanities http://www.ece.ncsu.edu/dept/news/article/5554
- Amit Lakhani Wins Senior Award for Scholarly Achievement http://www.ece.ncsu.edu/dept/news/article/5553
- ECE Student Alan Rogers Receives 2006 Phi Kappa Phi Fellowship http://www.ece.ncsu.edu/dept/news/article/3286

Student organizations: HKN Wins National Outstanding Chapter Award:

http://www.ece.ncsu.edu/dept/news/article/1636

Career placement: The Career listserv has proven to be most effective with placing our students with companies. This year proved to show a higher demand for ECE students in the job market than in several years past.

Graduate program

Degrees conferred:

The total Graduates for ECE for 2006 = 181

PhD - 49

MS EE - 63

MS CPE - 46

MS CNE - 23

BREAKDOWN AS FOLLOWS:

August 2006 (36)

PHD -14

MS EE - 16

MS CPE - 4

MS CNE - 2

December 2006 (72)

PHD - 18

MS EE - 21

MS CPE - 20

MS CNE - 13

May 2007 (73)

PHD - 17

MS EE - 26

MS CPE - 22

MS CNE – 8

The following graduate students received fellowships and awards this year.

- Bob Callaway, Electrical and Computer Engineering, IBM Ph.D. Fellowship Award
  http://www.ece.ncsu.edu/dept/news/article/5255

- Carlos Cela, Electrical and Computer Engineering, Department of Energy Office of Science (DOE-SC) to attend meeting of the Nobel Laureates.
  http://www.ece.ncsu.edu/dept/news/article/5319

- Yueying Liu Makes IEEE IMS Competition Finals
  http://www.ece.ncsu.edu/dept/news/article/5280
- Rashmi Jha receives MRS Graduate Student Award
  http://www.ece.ncsu.edu/about/news/article/3111

- Ming Zhao wins Best Paper Award at IEEE GLOBECOM
  http://www.ece.ncsu.edu/dept/news/article/4316

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Faculty and Staff Activities and Awards

- Rhett Davis Receives NSF Career Award
  http://www.ece.ncsu.edu/dept/news/article/5590
- Ioannis Viniotis, IBM Faculty Award, IBM
- Robert Trew, Editor-in-Chief for the IEEE Proceedings
- Gianluca Lazzi, the H.A. Wheeler Applications Prize Paper Award, Institute of Electrical and Electronics Engineers (IEEE) Antennas and Propagation Society (APS); Editor-in-Chief for the IEEE Antennas and Propagation Letters
- Do Young Eun, IBM Faculty Award, IBM
- Mihail Devetsikiotis, IBM Faculty Award, IBM
- Mo-Yuen Chow, Fellow, Institute of Electrical and Electronics Engineers (IEEE)
- Alexandra Duel-Hallen Recognized in NSF's FY 2006 Performance and Accountability Report
- Tom Conte elected to IFIP 10.2
- Yannis Viniotis appointed as ECE Associate Head

More information about departmental seminars can be found at:
http://www.ece.ncsu.edu/calendar/month/6/year/2006/total/12/