

ECE Advising News

Issue #8 Northeastern University's Electrical and Computer Engineering Dept.

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ECE advising Website. www.ece.neu.edu/ugrad/info_ugrad.html

LABORATORY FACILITIES UPDATED.

The undergraduate laboratories in 9 Hayden Hall underwent significant expansion and equipment upgrades during the summer. A new power and control lab facility has been constructed and equipped with all necessary equipment to serve the power electronics (ECEU684) and the control systems (ECEU580) courses.

In addition, the existing basic labs have been upgraded with new state-of-the-art equipment including powerful mixed-signal oscilloscopes (MSO's) and function arbitrary-wave generators. To offer among other useful capabilities, computer control of lab equipment (through an IEEE-bus, or GBIP connectivity), all workstations were augmented to include a PC. This will enhance the test and measurement capabilities for the following lab courses: the Intro to ECE lab (ECEU401), the electronics lab (ECEU403), the electronics design lab (ECEU601), and the EM fields lab (ECEU441).

With this recent development, the ECE labs have reached a milestone of PC connectivity for each lab workstation. The University's work on the necessary cabling for the networking of workstations is expected to be completed during this summer in readiness for the Fall 08 semester and the new academic year.

NU WIRELESS CLUB

Advisor: Dave Potter

Have you ever wanted to be able to experiment with electronics on your own, only to find that the labs are off limits except for classes? Do you want to have a place to try out some of the things you learned in class?

The Northeastern University Wireless Club has a fully equipped laboratory with test equipment and work space available whenever you want to use it. The club, which is the oldest student organization on campus, has expanded its focus from amateur radio to

electronics experimentation, everything from speaker systems for iPods to fuzz boxes for electric guitars. All you have to do is join - there are no dues - and you can have access to the club lab whenever you want.

If you are interested in radio, the club has a fully equipped ham radio station, including a 2 meter repeater, available for any licensed ham to use.

Check with Dave Potter, club advisor, in 403 DA, d.potter@neu.edu, about joining.

BIOMEDICAL INTEREST GROUP

Faculty advisor : Prof. Brooks

Are you interested in learning more about biomedical applications of electrical and computer engineering? Then you might be interested in our biomedical engineering minor. Check out the requirements: http://www.ece.neu.edu/ugrad/info_ugrad/biomed-minor.pdf.

A group of students has begun discussion on starting a student group for anyone interested in this area of study. There is also an email list for distributing information about both the group and relevant seminars and other activities at NU and in the Boston area. You don't have to be taking the minor to be part of either the group or the list---- just contact Prof. Dana Brooks at brooks@ece.neu.edu for more information .

ETA KAPPA NU – ECE Honor Society (HKN)

Eta Kappa Nu, the nationally recognized electrical and computer engineering honor society, offers tutoring to undergraduate ECE students. Tutoring is offered throughout the week on a walk-in basis by Juniors, Seniors, and Graduate students. A schedule will be posted at <http://www.hkn.neu.edu/> within the first few weeks of the semester. If you have any questions at all, please direct them to PresidentHKN@gmail.com

HKN Officers for 2008-2009:

- ❖ President: David Reed
- ❖ Vice President: Glenn Black
- ❖ Treasurer: Jon Sarafinas
- ❖ Secretary: Ian Smith/Katherine Toth

Faculty Advisor: Prof. DiMarzio

JOIN NU's IEEE Chapter:

(Institute of Electrical and Electronics Engineers)

- Build your own portable iPod speaker!
- Get involved with a team robotics project!
- Come to the weekly meetings and chow down on FREE PIZZA while learning about exciting new technology!

Check it out: www.ieee.neu.edu

For more information, contact Ian at :
ismith@coe.neu.edu

IEEE – Officers for 2008-2009

(DIVISION N)

- ❖ President: Ian Smith
- ❖ Vice President: Sean Mayo
- ❖ Treasurer: Gregory Shimonov
- ❖ Secretary: Daniel Iannotti
- ❖ Public Relations: Nay Pwint
- ❖ Webmaster: Jeff Geisperger

**Faculty Advisors: Prof. Brooks
Prof. Basagni**

OPPORTUNITIES TO STUDY ABROAD

Students can choose to study abroad at a number of different universities throughout the world through an NU-sponsored study abroad program (<http://www.northeastern.edu/oisp/>).

This experience can be for either a semester or could even be a short-term, faculty-led program (http://www.northeastern.edu/oisp/step1/programs/short_term_facultyled/).

Past students have studied engineering at such schools as Queens College in Belfast, Ireland (http://www.northeastern.edu/oisp/step1/programs/traditional/uk_northern_ireland/) and Swinburne University in Melbourne Australia

(http://www.northeastern.edu/oisp/step1/programs/traditional/swinburne_university/) where we have developed a specific curriculum plan for our Engineering students.

Another university-sponsored study abroad program for NU engineering students is the Global Engineering Education Exchange (Global E3 Program) (<http://www.iie.org/programs/global-e3/>). Students are able to choose to study engineering in one of 17 countries overseas. Our engineering students have studied at such GE3 universities in Denmark, Singapore, England and Spain.

For ECE students who can speak Spanish, Northeastern University has a formal exchange program with the Technical University of Catalonia (UPC in Spanish, see <http://www.upc.edu/> and click on English (or Español if you prefer) towards the upper right of the screen).

If you think you might be interested, please consult Prof. Kaeli (kaeli@ece.neu.edu) or Prof. Brooks (brooks@ece.neu.edu) to talk about your interest and how a semester at UPC might fit into your academic program.

Informational programs are offered to all NU students in the Study Abroad Office which is now located in the Colonnade Building at the Christian Science Center complex.

All first year engineering students are oriented to study abroad opportunities in their GEU100 Introduction to Engineering course in their first semester. Engineering students who wish to pursue study abroad should speak with Joy Erb (j.erb@neu.edu) in Engineering Student Services in 220 SN in their freshman or sophomore year so that they can plan their program of study.

GENERAL INFORMATION:

❖ NOTICE FOR REGISTRATION:

FALL registration is still ongoing. Please take the time to complete your fall schedules as soon as possible. If you need any assistance, just send me an email or stop by 404 Dana. Room assignments are based on enrollments so we do need everyone to sign up now.

❖ I AM HERE:

Remember, even though you have registered for classes, you must participate in "I Am Here" registration, or the University will assume that you are not taking classes and will drop all your courses.

Online: “I Am Here” registration for returning students for Fall Semester 2008 will be held September 4–9.

Online “I Am Here” is accessed via the [myNEU Web Portal](#).

In-person: “I Am Here” registration for students for Fall Semester 2008 will be held September 8 and 9.

❖ **SPRING REGISTRATION:**

- November 3, 2008

❖ **ACADEMIC CALENDARS –**

<http://www.neu.edu/registrar/calendars.html>

❖ **ADVISING MATERIALS ONLINE –**

www.ece.neu.edu

- ✓ Click on Undergraduate
- ✓ Click on Advising

- All Majors/Years Curriculum Guides
- 2009-2011 General Education Electives
- 2012 – Arts/Humanities and Social/Sciences Level 1 Electives
- Other Materials for Advising Assistance

ELECTIVES EXPLAINED...

Class of 2009, 2010, and 2011:

General Education Elective requirement:

- historical elective
- social/cultural elective
- social/science humanities elective.

Class of 2012:

NU core electives:

- Arts and Humanities Level 1
- Social Sciences Level 1

All majors also have technical elective and general elective requirements as indicated on the curriculum guides.

Please see me directly for any questions related to your electives.

❖ **ADVISING CHECK UP:**

TAKE A MOMENT TO BE SURE YOU HAVE TAKEN CARE OF THESE ISSUES IF THEY APPLY TO YOU.

1. Does your record show all of your AP or transfer credit hours? If not, please contact me (Ellen Zierk) as soon as possible. Your hours are listed on your record and the details of the credit are posted on the Degree Audit Program.
2. Is your major code listed correctly on your record?
 - 030 – Electrical Engineering
 - 035 – Computer Engineering
 - 036 – Dual EE and Physics
 - 038- Dual ECE major
3. Are you missing any grades on your transcript? Are you missing any grades for your coop terms?

Are you entering your sophomore year in the Fall? Here are some tips from an upperclass ECE student.

- Intelligently manage your time. This cannot be stressed enough.
- Get in the routine of putting work before anything else Monday through Thursday. This will generally free up Friday through Sunday for your own personal time. (this may vary from student to student)
- Find a place where you can do your work, and associate this place with meaningful work, without distraction.
- Be honest with yourself about how long an assignment will take, and effectively plan out your week. This includes intelligently proportioning your time: Don't spend 8 hours on a lab report for a 1 credit lab when you should study for an exam in a 4 credit core course.
- By setting up a schedule and managing your time wisely, you will be able to enjoy outside interests and excel in your studies.
- Make a point of learning the material in each course when it is presented to you. Almost everything in engineering builds on past ideas,

so not understanding something will spell disaster later.

- Cramming is your enemy.
- Keep every handout and homework you get in class. Professors love to see who's organized by bringing back that information.
- Buy a small notepad and write everything down. This is a good way to stay organized. Find what works for you.
- Technical electives let you choose what you're interested in. If you find yourself frustrated with required courses, try to tough it out: you'll get your chance to take the electives you like.
- Acquire as many skills as you can. Branch out and use the resources available to you. Experience a variety of jobs through coop.
- There is an extremely robust engineering community that will help with the majority of assignments given to you. Learn to use Wikipedia as a starting point in any intellectual search.
- If you have a problem with a professor, or anything Northeastern-related, talk to Ellen Zierk or someone in the department. Their job is to help, and you are the customer. Northeastern tends to listen to you when you're paying the bills.
- Relax and trust that *most* (there will always be exceptions) professors understand the plight of students taking a variety of intellectually challenging classes. If 3 tests fall on the same day, talk to them and they'll most likely reschedule. They want you to do well as much as you want to do well.
- Intelligently manage your time.

Make the most of your time here – Most people don't plan to fail but fail to plan.

Interested in pursuing a minor?

The Undergraduate Catalog has a complete listing of minors available to students.

<http://www.registrar.neu.edu/catsugd.html>

If you are considering taking a minor, it is important to plan this out early in your program to make sure you have enough time to complete the requirements. Feel free to make an appointment with me to review minor requirements.

Class of 2010: Juniors

I will be meeting with all of you starting in the Fall semester to do a pre-senior clearance. We like to review requirements prior to the last coop period. I will send an email out when I am ready to schedule these appointments.

Class of 2009: Seniors

You may notice that there has been a new division assigned to anyone in the Class of 2009 who was listed as division N. You will now be in division B. This is for administrative purposes only and does not change your program or schedule in anyway. I sent out an email earlier explaining this change.

Considering graduate school- Juniors & Seniors?

If you are thinking about graduate school, it is not too early or too late to begin investigating your options. For some basic information and guidelines go to:

<http://www.petersons.com/>

The ECE graduate coordinator in our department is Ms. Faith Crisley – f.crisley@neu.edu – 617-373-5281. You can contact her if you are considering applying for NU's ECE graduate programs.

Faculty members are also good resources and can offer you some advice regarding graduate school/programs.

Career Services also provides resources and has updated their website to include more helpful information.

www.careerservices.neu.edu

Contact:

Jessica A. Noonan, Associate Director
Liaison to College of Engineering
Department of Career Services
Northeastern University
(617) 373-4116 / j.noonan@neu.edu

CAREER FAIR

The next Career Fair will be held on October 2, 2008 from 2-6pm.

NOTES FROM COOP:

Check out the Class of 2008 Graduating Senior Employment Survey. Here are the responses to the salary question for ECE students.

10. Having secured a full-time job, what will be your annual starting salary?

29 respondents from the ECE department:

Mean: \$63,993
Median: \$63,000
Minimum: \$44,000
Maximum: \$100,000

If you would like to see the results for other colleges and majors, just email me for the full document.

All Upper-class students should plan to meet with your co-op advisor early in September to return and discuss your evaluation forms. At that time you should be prepared to discuss your future plans. If you need the forms, they are on our website (www.ece.neu.edu/coop).

In addition, if you are interested in future co-op positions outside of the Boston area, please identify that to us as soon as possible. There will be positions available in California (Apple, NVidia, VMWare, Moto and others) and if you are interested in any of these please plan to meet with Prof. Kent as soon as you return to school.

For those students planning for a new co-op, you should plan to have your new resume ready to discuss with your advisor when you meet.

MORE DETAILED COURSE DESCRIPTIONS:

Some faculty have sent me more detailed course descriptions for technical electives offered in the Fall.

ECEU646 - Optics for Engineers:
Prof. Charles DiMarzio

The student will learn how to use the fundamentals of optics in applications to remote sensing, illumination, infrared imaging, communication, microscopy, medical imaging and even to better understanding of the "greenhouse effect." We will cover geometric optics, polarized light, interference, diffraction, and radiometry, with enough rigor to be able to begin to solve realistic problems that would be encountered in industry or in a university research laboratory. Occasional visits to Prof. DiMarzio's research lab will supplement the lectures.

ECE U638: Computer Engineering Algorithms
Professor Waleed Meleis

Covers classical and modern algorithms that efficiently solve computer engineering problems. Examples of these types of problems include parallel scheduling, shortest paths, traveling salesman, minimum spanning trees, optimal matching, graph partitioning, graph coloring, vertex covers, and knapsack.

Covers the fundamentals of algorithm analysis and complexity theory, and then surveys a wide range of combinatorial optimization techniques, including exhaustive algorithms, greedy algorithms, integer and linear programming, branch and bound, simulated annealing, and genetic algorithms. Considers the efficient generation of optimal solutions, the development and evaluation of heuristics, and the computation of tight upper and lower bounds. Students get experience in implementing and evaluating these algorithms.

Prerequisite: successful completion of ECE U326 (Optimization Methods) or the equivalent. Students should be familiar with a high-level programming language such as C, C++ or Java.

ECE U694 - Numerical Methods and Computer Applications
Professor Dana Brooks

Want to learn how to verify Kepler's Laws and simulate planet motion on NASA data, visualize 3-dimensional data volumes, predict option futures prices, simulate electronics circuits, calculate and draw trajectories with wind resistance, optimize non-linear functions, solve very large systems of equations, or find edges in images? These are all projects carried out by students in this course last year. Want to learn and practice a lot more Matlab and in particular how to use it to efficiently solve practical numerical problems?

This course covers topics like how computer programs draw smooth curves between points, numerically approximate integrals and derivatives, efficiently solve linear systems of equations, solve non-linear equations computationally, and so on. It discusses how you can turn the theory from linear systems, electronics, and electromagnetics, for example, into numerical procedures. We talk about how to trade off numerical precision and computational accuracy. We look at questions such as these in a practical, problem- and project-oriented fashion.

Students will have considerable opportunity to apply the methods we learn to topics of their particular interest, including a major course project on a topic of their choosing. The syllabus for this past fall is available at <http://www.ece.neu.edu/courses/eceu694/2007fa/syllabus.html>

Ellen Zierk – 404 Dana
Office Hours – Monday – Friday 10:30-4:30

Feel free to stop by at anytime or email me for an appointment – ezierk@ece.neu.edu.