Cooperative Graduate Education

The P.C. Rossin College of Engineering and Applied Science permits graduate students to spend part of their research experience in industry, business, or a government agency. In general, the external research experience should be complementary to their graduate studies at Lehigh University and can count towards their degree program through ENGR 400 Engineering Co-op for Graduate Students (see Graduate tab). Permission of the department chair is required in order to participate in this program.

Subject to university/federal regulations, when enrolled in courses at Lehigh University, a student can work for a maximum of 20 hours at the company/laboratory (co-op partner). If not enrolled in courses other than ENGR 400, a student will be permitted to work full time at the co-op partner. Full time employment over the summer will also be permitted. Maintenance of full-time status, however, requires that during the semester students must be registered for the minimum number of credit hours as listed in R&P or meet the qualifications to be certified as a full-time student.

MS/MENG CO-OP PROGRAMS
• ENGR 400 can be taken for a maximum of 6 credits, with at most 3 credits in any registration period.
• Minimum of 18 course credit hours, excluding ENGR 400 and Thesis (ENGR 490) must be obtained through Lehigh University

PH.D. PROGRAM
• 9 credits of ENGR 400 can be taken throughout a student’s entire graduate study at Lehigh, with at most 3 credits in any registration period.

Courses

ENGR 400 Engineering Co-op for Graduate Students 1-3 Credits
Supervised cooperative work assignment to obtain practical experience in field of study. Requires consent of department chairperson. When on a cooperative assignment, the student must register for this course to maintain continuous student status. Limit to at most three credits per registration period. No more than six credits may be applied towards a master’s program and no more than nine credits may be used throughout a student’s entire graduate study at Lehigh.

Repeat Status: Course may be repeated.

ENGR 401 Teaching/Presentation Skills 1 Credit
Development of teaching and presentation skills for scientific professionals. Presentation effectiveness, teaching/presentation methodologies, classroom management, course development/content preparation, lecture/presentation development and lecture/presentation delivery. Individualized undergraduate course specific modules selected by student. Enrollment limited to Rossin Doctoral Fellows.

ENGR 402 Preparing for the Professoriate 1 Credit
Overview of the job search, research program development and service skills for graduate students entering academic careers. Transition from graduate student to faculty responsibilities, the post-doctoral experience, time management, CV/resume preparation, faculty search process, tenure and promotion, research leadership and program development, research proposal preparation and research sponsorship. Enrollment limited to Rossin Doctoral Fellows.

ENGR 452 (CHE 452) Mathematical Methods in Engineering 3 Credits
Analytical techniques are developed for the solution of engineering problems described by algebraic systems, and by ordinary and partial differential equations. Topics covered include: linear vector spaces; eigenvalues, eigen-vectors, and eigenfunctions. First and higher-order linear differential equations with initial and boundary conditions; Sturm-Louiville problems; Green’s functions. Special functions; Bessel, etc. Qualitative and quantitative methods for nonlinear ordinary differential equations; phase plane. Solutions of classical partial differential equations from the physical sciences; transform techniques; method of characteristics.