Career and Professional Development

As students approach the final year of study in engineering, they will need to plan for the next stage of life, and there are indeed many options. Some will obtain additional education or training, while others will seek immediate employment. The College of Engineering, the university, and the engineering faculty and staff provide support for choosing options, seeking a job, and finding appropriate advanced study.

In addition to career development, students should consider the many aspects of professional and personal development. It is recommended that students begin early to connect with professional and technical societies that can provide a network for the future. During the undergraduate years, participation in student branches of professional and technical societies provides preparation for this next move. Obtaining legal recognition of commitment to engineering is also important. Students are encouraged to take the first steps toward professional engineering licensure during the senior year by taking the Fundamentals of Engineering exam.

Career and professional development decisions are among the most important of life's decisions. Students are encouraged to seek advice early during their years at Cornell and to give careful thought and attention to the process.

The following information is designed to assist students in their career and professional development.

Seeking Employment—Deciding on a Career

Deciding on a career path and finding employment is a process that takes effort and commitment—especially in the senior year. It is recommended that students plan for it, since it can take as much time and effort as an additional 3-credit course. The following resources can help with the process.

Cornell Career Services (Engineering Co-op and Career Services)

The Engineering Co-op and Career Services office, 201 Carpenter Hall (255-5006) assists students who are contemplating the next stage of their careers, whether that be employment (fulltime entry-level, co-op, and summer) or graduate study.

The office coordinates a large on-campus recruiting program that annually brings 200 employers to campus to conduct more than 5,000 interviews with engineering students for fulltime entry-level, co-op, and summer positions. Additionally, and in conjunction with Cornell Career Services in Barnes Hall, an extensive list of job postings is maintained on Cornell CornellTRAK. For more information, review the Cornell Career Services web site at www.career.cornell.edu.

The office coordinates seminars on job search and resume and interview preparation; counselors are available to discuss career-related issues individually. Students are encouraged to use these services in preparing for success in the job market.

Cooperative Education

Co-op provides an opportunity for engineering undergraduates to gain practical experience in employment settings nationwide for a total of 28 weeks. Co-op is a monitored work experience that has specific eligibility requirements. Please refer to the Engineering Cooperative Education Program listing in the Special Programs section of this handbook for

specific information.

Cornell Career Services

(Barnes Hall)

Cornell Career Services (CCS) educates students about the career planning and job search process and promotes linkages between students and employers or graduate and professional schools. CCS in 103 Barnes Hall (255-5296) offers a broad range of programs and services that complement those provided in Engineering Co-op and Career Services focusing on five major areas:

- Career development—career testing, counseling on decisions concerning majors and careers, and networking opportunities.
- Career information—career library with an extensive collection of print, electronic, audio, and video reference materials on careers and career decision-making; employment; internships; graduate and professional schools; fellowships; and international opportunities to assist students with job searches and applying to graduate and professional school.
- Job search strategies–job search seminars, employment career fairs, company information sessions, and on-campus interviews. A university-wide career fair is held each year in mid-September and offers students the opportunity to learn about positions with more than 200 employers (includes multiple divisions of same company name) over two days. The on-campus recruiting program brings to campus more than 180 employers (includes multiple divisions of same company) who conduct interviews for positions in the management consulting, financial services, retail, health care, and insurance industries.
- Employment services—up-to-the-minute information via the Internet on summer jobs, internships, and full-time jobs after Cornell.
- Graduate and professional school, including health careers and fellowships—advising and seminars on the application process, information resources, and Graduate and Professional School Days. A credentials service allows students and alumni to maintain confidential files of recommendation letters and personal data to be used in securing employment or in applying to graduate or professional school.

Cornell Career Services' home page at www.career.cornell.edu provides a calendar of events, hours of career offices, career resources, and links to Internet career sites.

Graduate Programs and Professional Study

Students who wish to continue with advanced study at Cornell or another institution should start planning early in the senior year. They should identify the course of advanced study they wish to pursue and the schools, colleges, and universities they wish to attend. Peterson's Graduate and Professional Programs is a useful tool for identifying potential institutions, with names and addresses of people to contact. Faculty can often give advice about appropriate schools to consider. If at all possible, students should visit the graduate and professional schools they are considering.

Graduate Programs in Engineering at Cornell

Information about Cornell engineering graduate programs is available through the engineering graduate faculty representatives, who may be contacted through the main office of the various schools and departments.

The three graduate degrees in engineering awarded at Cornell are the Master of Science (M.S.), the doctor of philosophy (Ph.D.), and the master of

engineering (M.Eng.).

The M.S. and Ph.D. Degree Programs

The M.S. and Ph.D. programs involve specialized, independent research and the completion of a thesis. Usually an M.S. degree can be earned in two years. Some students will continue to the Ph.D. with an additional three to four years of study. More details on these research degree programs can be obtained from the Graduate Center in Caldwell Hall and especially from individual graduate field offices.

The Master of Engineering Program

M.Eng. degrees are offered in fifteen disciplines and are mostly correlated with undergraduate Majors. Design rather than research is emphasized. These professional degrees (analogous to the M.B.A., D.V.M., J.D., etc.) generally lead to employment in industry. They can, however, serve as a "stepping stone" toward the Ph.D. The program normally requires one year to complete and consists of 30 academic credits for advanced technical work, including a significant design project.

M.Eng. programs are offered in the following fifteen areas:

Aerospace Engineering
Agricultural and Biological Engineering
Biomedical Engineering
Chemical Engineering
Civil and Environmental Engineering
Computer Science
Electrical Engineering
Engineering Mechanics
Engineering Physics
Geological Sciences
Materials Science and Engineering
Mechanical Engineering
Nuclear Engineering
Operations Research and Industrial Engineering
Systems Engineering

In addition to these designated M. Eng. degrees options in engineering management, manufacturing, bioengineering, electronic packaging, and financial engineering are available. Students choosing these options earn a Dean's Certificate in addition to the university diploma conferring the master of engineering degree. This interdisciplinary program facilitates cooperative ventures between university and industry personnel.

The Early Decision Option. In their senior year, highly qualified engineering students may apply to the M.Eng. program with a request for an early decision. This is usually done in October, and applicants are notified of admission and awards (if any) in December. The early decision option is intended to encourage top engineering students to stay at Cornell for graduate work by letting them know, well in advance of their graduation, whether they have been accepted and whether they will receive financial aid.

The Early Admission Option. This option, not to be confused with the early decision option, makes it possible for students to begin work on their M.Eng. degrees even before they have finished working on their B.S. degrees. Application is made by petition to the Master of Engineering Committee of the College of Engineering. Applicants must meet the following qualifications:

1. They must have between 1 and 8 undergraduate credits remaining for the semester they are petitioning for early admissions status. This must be their last semester as an undergraduate student.
2. They must have an undergraduate GPA $\geq$ 2.7 at the time of the petition.
3. Their petition must be endorsed by the professional graduate engineering field.
4. They must submit a list of courses to be applied to the undergraduate program (in addition to the 30 cred-

its for the M.Eng. program).

5. They must show that they plan to spend at least one full semester registered in the Graduate School.

Students admitted early to the M.Eng. program will receive the B.S. when they have made up the 8 or fewer credits required for that degree. The undergraduate degree must be completed one full semester before the one in which the student plans to graduate from the Master of Engineering Program.

Graduate Engineering Minority (GEM) Program

The university participates in the national GEM Program, which provides financial assistance and academic support for minority students at the master's level. Graduate fellowships include tuition, a summer internship with pay, and a $6,000 stipend per academic year.

Students may apply during their junior or senior year. Completed applications must be submitted to the GEM consortium before December 1, and fellowship awards are announced by February 1. Additional information may be obtained in the Office of Research, Graduate Studies, and Professional Education, 222 Carpenter Hall.

Professional Development and Lifelong Learning

Professional and technical societies provide lifelong connections with colleagues and with the wider developments of the engineering profession and technology. Students are encouraged to join the student branches of these societies while engaged in the undergraduate program and to seek full professional membership as graduation approaches. (A complete list of Engineering undergraduate student organizations can be found later in this publication.)

Legal recognition of qualification to practice engineering is obtained through the licensing process. All engineers who offer their services to the public are required to have a valid license to practice. Licensing requirements vary from state to state for the Professional Engineer (P.E.) license. However, obtaining the P.E. license is a multi-state process that has a common first step across the nation of passing the Fundamentals of Engineering exam. Students are eligible for the first step as they near graduation from an accredited engineering degree program. After passing the first exam engineers are required to complete several years of practice with increasing responsibility to later qualify for the P.E. exam in the state(s) of their choice. Passing the P.E. exam gives an engineer full legal right to public practice. For most employment of engineers, the P.E. license is not required; however, the P.E. license provides mobility to private or consulting firm employment that would not otherwise be available. Procedures for seeking licensing are indicated below.

Professional Engineer Licensing

To obtain the Professional Engineer (P.E.) license, a candidate must pass an Intern Engineer Examination, Fundamentals of Engineering, have a prescribed amount of experience in engineering practice, and pass the Professional Engineer Examination. Licensing for the P.E. is by individual state agency for the state in which the student wishes to practice. In New York, it is the New York State Board for Engineering and Land Surveying. Applications and other details are available from

Engineering Unit
Division of Professional Licensing Services
State Education Department
Cultural Education Center
Albany, NY 12230
Telephone: 518-474-3846

Applications and informational brochures are available from the Office of Undergraduate Programs (167 Olin Hall). Seniors graduating in May are eligible to take the Fundamentals of Engineering exam in April. When students complete an application, the college forwards it to Albany, certifying that they are "within 20 credits of graduation from an accredited engineering curriculum." The examinations are given in various locations throughout the state. Syracuse is the test location closet to Ithaca. All applications must be sent to Albany at least sixty days before the examination. Thus, the filing deadline for the April examination is early February. To meet this deadline, students are urged to begin preparing their materials in December.