Opportunities for...

Engineering Majors

What can I do with a Major in Engineering?

As this publication illustrates, you have many different career and internship options with an Engineering major, minor, or a related cluster. The possibilities outlined here are some of the more common ones that Engineering majors pursue after graduating from the University of Rochester. Are you interested in Research? Biotechnology? Computer Engineering? Biomedical Engineering? Chemical Engineering? Mechanical Engineering? How about Optical design or implementation? The first steps in attaining these goals are outlined in the following pages.

This publication identifies potential career fields, UR alumni, academic strategies, faculty interests, useful resources, action steps, and qualification statements designed to get Engineering students thinking about the future. Information presented facilitates your researching career options, talking to alumni, discussing current trends with faculty, or speaking with a career counselor about internship and post baccalaureate opportunities. Those who find rewarding internships and post-graduate employment set clear and realistic goals, clarifying what they do, where they want to do it, and the steps required to enter the field they have chosen.

Recognize that these are only some common internship and post graduate options for Engineering students. Many other possible career tracks exist! In fact, Engineering majors receive excellent training for a variety of different career fields: because they think analytically and understand research methodology. However, focus on a profession becomes important for Engineering students precisely because they can accomplish many different career goals.

Additional resources may assist you with gaining focus. Check out the Hyman J.V. Goldberg Career Library in the Career Center. Make and appointment with a counselor to critique your resume(s) or discuss your focus. Talk with your academic advisor about your coursework that will enhance your career objective. Finally, discuss your career choice with a faculty member who may be able to refer you to additional resources. These actions will lead to your success!
Biomedical

Employers
- Research universities
- National Institute of Health
- Healthcare Instrumentation companies
- State governmental agencies
- Pharmaceutical Sales
- Hospitals

Academic/Job Search Strategies
- Obtain internship opportunities in your field of interest
- Develop effective written and verbal skills
- Acquire capacity for detail
- Get involved in program/departmental research
- Develop effective team skills
- Develop interpersonal skills
- Consider graduate or professional degrees
- Inquire about specific course sequencing for your chosen concentration

Alumni
- Dr. Jessica Davis MD: Meliora Family Medicine PLLC
- Andrew Locke, Technical Director of TEE Services: Brigham & Women’s Hospital
- Rachelle O’Connell, Clinical Research Assistant: Duke University
- Dr. Joanne Wu MD, Unity Rehabilitation and Neurology Services

Neural Circuitry
- Stem Cell Research
- Research & Development
- U.S. Patents

Mechanical

Employers
- Automotive industry
- Aerospace industry
- Military
- Robotics firms
- Petro-chemical companies
- Plant operations
- Consulting engineering firms
- Manufacturing plants
- Equipment Design
- Utility companies

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Alumni
- Jeffrey Arndt, Manufacturing Process Engineer: Semrock
- John Johnston, Aerospace Engineer: NASA Gooddard Space Flight Center
- Susan Aurand, Engineer: Xerox Corp.
- Timothy Smith Product Development Engineer: Ford Motor Co

Systems Design
- Artificial Organs
- Diagnostic Devices
- Manufacturing

Electrical & Computer

Employers
- NASA
- Texas Instruments
- Information Technology firms
- Digital Design firms
- Federal, state, and local governments
- Educational institutions
- Public utilities
- Defense systems firms
- Automotive industry

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Alumni
- Christopher Brown, 3D Design Associate: Organic Motion, Inc.
- Haresh Kumar, Product Marketing Manager: Yahoo
- Yaowu Xu, Google, Inc.
- Anup Sharma, Strategic Silicon: Apple Computer

Digital Signal Processing
- Internet
- Microelectronics
- Control Systems
- Video Games
- Robotics

Use Career Networking Program to identify alumni • Do Informational Interviews with UR Alumni
### Academic Internships
- Pfizer
- Infinite Technology Solutions
- Bayer Corporation
- Strong Health
- URMC
- Stryker Orthopaedics
- Nike
- ALine, Inc.
- Johnson & Johnson
- Cardinal Health

### Summer Internships
- Johns Hopkins University
- New Jersey Institute of Technology BioMEMS Summer Bioengineering Institute
- Cornell University Nan Biotechnology Center
- National Institute of Health
- Allergan Inc.
- Johnson & Johnson Pharmaceutical Research and Development, LLC

### Related Websites
- BME Jobs
  - [www.tech-interns.com](http://www.tech-interns.com)
- BME Society Joblist
  - [www.bmenet.org/BMENET](http://www.bmenet.org/BMENET)
- International Society of Biomechanics
  - [www.isbweb.org/jobs](http://www.isbweb.org/jobs)
- Biomedical Information
  - [http://www.bmn.com/general/BMN.html](http://www.bmn.com/general/BMN.html)
- New York Biomedical Association
  - [www.nyba.org](http://www.nyba.org)

### Academic Internships
- Ford Motor Company
- Applied Mechanics
- General Dynamics
- Mercer Engineering
- Northrop Grumman
- ME Engineers
- Sam Schwartz Engineering, PLLC
- Hunter Robert’s Construction
- Metro-North Railroad

### Summer Internships
- Federal Transportation Administration
- Lockheed-Martin
- NYS Department of Transportaitc
- FAA
- Con Edison
- Northrop Grumman
- MTA New York Transit
- NYC School Construction Author

### Related Websites
- Mechanical Engineering Jobs
  - [www.mechanicalengineer.com](http://www.mechanicalengineer.com)
- American Society of Mechanical Engineers
  - [www.asme.org](http://www.asme.org)
- Mechanical Engineering Careers
  - [www.engineerjobs.com/](http://www.engineerjobs.com/)
- Job Search for Mechanical Engineers
  - [www.interec.net/](http://www.interec.net/)

### Academic Internships
- Eastman Kodak Company
- Xerox Corporation
- Paetec Communications
- Paychex, Inc.
- Yahoo!
- Electronics Arts
- Expedia, Inc
- CNET Networks
- Conexant Systems, Inc.

### Summer Internships
- Texas Instruments
- Agilent Technologies
- Inter Corporation
- ETS
- Broadcom
- Google
- Comcast
- National Security Agency
- The MathWorks
- Lime Wire LLC
- CodeStreet, LLC

### Related Websites
- Electrical Engineer Jobs
  - [www.electricalengineer.com](http://www.electricalengineer.com)
- Institute of Electrical and Electronics Engineers
  - [www.ieee.org](http://www.ieee.org)
- International Engineering Consortium
  - [www.iec.org](http://www.iec.org)
- Software Engineer
  - [www.softwareengineer.com](http://www.softwareengineer.com)
### Geomechanics

**Employers**
- Environmental Protection Agency
- Greenpeace
- Parks and Recreation agencies
- Public utilities
- Local water authority
- National Geological Survey
- State and local governmental agencies
- Peace Corps

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**Alumni**
- Laura Civiletti, Site Team Leader: Sear-Brown
- Laurie Cronin, Engineering Manager: Rolls Royce Corp.
- Glenn Edelstein, Owner, All Shredding Corporation
- Dr. Elisa Bergslien, Buffalo State Associate Professor of Earth Science

### Optics

**Employers**
- Research universities
- Neurology centers
- Information technology
- Digital imaging firms
- Medical optics
- Optoelectronics companies
- Astrological research agencies

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**Alumni**
- Holly Bender, NASA
- Mark Lesniak, Data Technical Coordinator: Verizon Wireless
- Joshua Cobb, Optical Engineer: Corning Tropel Corporation
- Ng Baldwin, Senior Product Manager: Microsoft corporation

### Chemical

**Employers**
- Pharmaceutical companies
- Research university
- Plastics companies
- Energy suppliers
- Public utilities
- Nanotechnology firms
- Research and development firms

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**Alumni**
- Homer Dingman, Engineer: Exxon Mobile Corp.
- Alexis Wachtel, Materials Engineer: U.S. Government
- Scott Peters, Senior Process Engineer: General Motors Fuel Cell Activities
- Patrick Hsieh, Project Engineer: AMEC Geomatrix, Inc.
- Alison Palmatier, Chemical Engineer: General Electric Global Research

Visit the Study Abroad Office to learn more about international internships.
### Academic Internships
- Advanced Construction Techniques LTD
- Forrester Construction
- National Geological Survey
- NYS Office of Parks, Recreation, and Historic Preservation
- City of Portland
- HydroQual, Inc.

### Summer Internships
- Environmental Protection Agency
- Greenpeace
- Schlumberger
- U.S. Department of Energy
- Naval Oceanographic Office
- First Environment, Inc.
- Susquehanna International Group, LLP
- Con Edison
- ROUX Associates

### Related Websites
- **Non-Profit Jobs**
  [www.nonprofitjobs.org](http://www.nonprofitjobs.org)
- **American Society of Civil Engineers**
  [www.asce.org](http://www.asce.org)
- **Engineers without Borders**
  [www.ewb-usa.org](http://www.ewb-usa.org)

### Academic Internships
- NASA
- Eastman Kodak Company
- Xerox Corporation
- U.S. Department of Energy
- Corning Incorporated
- T-Mobile USA, Inc.
- Lucent Technologies
- Epoch Microelectronics

### Summer Internships
- Eastman Kodak Company
- Xerox Corporation
- Trumpf Phototronics
- QED Technologies, Inc.
- LLNL
- Digital Optics Corporation
- Brown & Caldwell
- Microsoft Corporation

### Related Websites
- **Rochester Institute of Optics**
  [www.optics.rochester.edu](http://www.optics.rochester.edu)
- **SPIE Works**
  [www.spieworks.com/employment/](http://www.spieworks.com/employment/)
- **Optical Society of America**
  [www.osa.org](http://www.osa.org)
- **Optical Engineer**
  [www.opticalengineer.com/](http://www.opticalengineer.com/)

### Academic Internships
- ExxonMobil
- Shell
- Liz Claiborne
- Dupont Chemical
- Duron Paints
- Dow Corning
- CH2M Hill
- Brookhaven National Laboratory, IAEA
- BASF, The Chemical Company

### Summer Internships
- National Institute of Health
- Coca-Cola Company
- Baker-Hughes
- Univar
- Eisenberg Summer Internship
- Lux Research, Inc.
- Scientific Design Company, Inc.
- U.S. Nuclear Regulatory Commission
- Constellation Energy Commodities Group

### Related Websites
- **U of R Summer Internships**
  [http://www.che.rochester.edu/employment.htm](http://www.che.rochester.edu/employment.htm)
- **American Institute of Chemical Engineers**
  [www.aiche.org](http://www.aiche.org)
- **Why Not ChemE?**
  [www.whynotchemeng.com](http://www.whynotchemeng.com)
- **Careers for Chemical Engineers**
  [www.aiche.org/careerservices/](http://www.aiche.org/careerservices/)
### Suggested Academic Strategies
(In addition to or instead of a major in Engineering).

These are suggested academic supplements and clusters related to your academic program and career interests. For more information on any of these programs or for individual assistance, please see your academic advisor.

#### Chemical Engineering
- Clusters in:
  - Chemistry and Life Science
  - Chemistry and the History of Science
  - Chemistry and the Environment
  - Chemistry and Reason

#### Biomedical Engineering
- Consider a certificate in Actuarial Studies
- Clusters in:
  - Biology and Behavior
  - Neurobiology
  - Mind, Brain, and Development

#### Biomedical Engineering
- Clusters in:
  - Biology and Behavior
  - Neurobiology
  - Mind, Brain, and Development

#### Electrical and Computer Engineering
- Clusters in:
  - Computing for the Social Sciences
  - Computer Science and Art
  - Electronics and Programming for Music

#### Mechanical Engineering
- Clusters in:
  - Physics in Seafaring
  - Design with Materials
  - Modern Technology
  - Force and Motion

#### Geomechanics
- Clusters in:
  - Earth and the Environment
  - Earth Resources
  - Global Environmental Change
  - Green Engineering

#### Optics
- Clusters in:
  - Energy and Power
  - Force and Motion
  - The Science of Light and Sound

#### Mechanical Engineering
- Clusters in:
  - Physics in Seafaring
  - Design with Materials
  - Modern Technology
  - Force and Motion

#### Geomechanics
- Clusters in:
  - Earth and the Environment
  - Earth Resources
  - Global Environmental Change
  - Green Engineering

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Utilize the cluster search engine - [http://www.rochester.edu/College/CCAS/clusters/cluster_search7.html](http://www.rochester.edu/College/CCAS/clusters/cluster_search7.html)
Selected faculty from: The School of Engineering and Applied Sciences

This section highlights the research and academic interests of the School of Engineering and Applied Science faculty members. The Career Center staff encourages you to interact with faculty members and to consult them when considering research projects, graduate schools, and career opportunities. For faculty office hours and location please check the website: www.seas.rochester.edu/SEAS/

Biomedical Engineering:

Kevin Davis, PhD, Auditory neurophysiology, neural circuitry & information processing, and computational neuroscience

Richard E. Waugh, PhD, Mechanical and thermodynamic properties of biological membranes; cellular mechanics and function of cytoskeletal proteins

Amy L. Lerner, PhD, Orthopaedic biomechanics, bone growth and development, cartilage mechanics, medical image-based finite element modeling, knee biomechanics

Chemical Engineering:

Ching W. Tang, PhD, Development of flat-panel display technology based on organic light emitting diodes.

Matthew Z. Yates, PhD, Colloids and Interfaces, Materials Synthesis in Microemulsions, Nanoparticle/Polymer Composites, Supercritical Fluids, Microencapsulation


Electrical and Computer Engineering:

Mark F. Bocko, PhD, Critical Phenomena, Statistical Mechanics of Fluids and Computer-Aided Design

Stephen J. Burns, PhD, Fracture Mechanics and Slitting, Deformation Kinetics, Electronic Phase Transformations in High Temperature Superconductors

Mechanical Engineering:

Riccardo Betti, PhD, physics of plasmas in thermonuclear regimes

Paul D. Funkenbusch, PhD, relationships among the microstructure, properties, and processing of materials. Quantification of microstructure

Optics:

Govind P. Agrawal, PhD, Quantum electronics, nonlinear optics, and laser physics

Andrew J. Berger, PhD, Raman spectroscopy of biological fluids such as urine, removal of fluorescence from Raman spectra, identification of different bacterial strains in the oral cavity

Robert W. Boyd, PhD, optical physics, nonlinear optical interactions, nonlinear optical properties of materials, and applications of nonlinear optics including quantum and nonlinear optical imaging
Next Steps…

1. **Set and articulate Goals.** Can you state what you want to do and where you want to obtain your internship or employment? This involves research of fields and functions. Stop by the Hyman J.V. Goldberg Library in the career center to learn more about careers for those interested in Engineering. The career library has excellent resources for Engineering including a wide variety of books related to teaching, non-profits and specialties. If you are still unsure about your goals, make an appointment with a counselor to discuss your options including participating in the Values, Interests, Personality and Skills (VIPS) program designed to help students articulate their goals through self-assessment and research.

2. **Discuss your options with others.** Visit your academic advisor in Academic Support (5-2354) Discuss possibilities with faculty members associated with the School of Engineering and Applied Science (see a list of faculty members on page 7).

3. **Develop Job Search Tools.** Resumes cover letters, and follow-up correspondence – project goals and qualifications via well-written job search documents. The career center has computers (both Mac and PC) to assist you with the production of job search correspondences. In addition, the career center library staff is available to assist you in any stage of resume writing and an appointment with a career counselor can help fine tune any resume.

4. **Seek out opportunities for experience including internships and volunteer experiences.** Have you developed a “hit list” of potential employers using directories and other printed and on-line resources to develop a list of places you would like to work? Initially, phone communications can identify the nature of jobs and internships within organizations, the availability of opportunities, the people to contact, and the procedures to follow. As always, the career center has many resources to aid in the search for potential employers including the Books of Lists, The Internship Bible and many more. Skilled professionals are available in the library and by appointment.

Qualification Statements…

(Used on resumes of those interested in Engineering)

• Abilities to critically evaluate key issues related to mechanical systems flow concerns in a theoretical and applied setting. (Mechanical)
• Experience working with physicians, health care professionals and patients in a medical environment (Biomedical)
• Capacities to analyze data and predict outcomes from specific academic research experience. (Optical)
• Capacities to work with senior management to develop, implement, and develop teamwork through academic group projects. (Chemical)
• Research, writing, and presentation skills nurtured as a research/lab assistant. (Electrical and Computer)

Credits

• University of Tennessee at Knoxville Career Choices
• New Jersey Institute of Technology Career Center
• University of Rochester Career Center website
• University of Rochester SEAS website

Make an appointment with a career counselor to discuss your resume • Good Luck!