

WHAT CAN I DO WITH MY MAJOR IN

ELECTRICAL ENGINEERING

OVERVIEW OF MAJOR

Concordia University's Department of Electrical and Computer Engineering offers a BEng in Electrical Engineering. An Electrical Engineering Co-op program is also available. At the graduate level, Concordia offers a Master of/Magisteriate in Applied Science (Electrical & Computer Engineering) and offers a Master of/Magisteriate in Engineering (Electrical & Computer Engineering). It also offers a Doctor of/Doctorate in Philosophy (Electrical & Computer Engineering). For the latest information on programs, go to the Department of Electrical and Computer Engineering's website at <http://www.ece.concordia.ca>

Electrical engineering is often referred to as the largest of all engineering disciplines; its professionals work in all industries. Major branches of the field include: communications, control systems, power engineering and electronics. Working in Quebec normally requires registration with l'Ordre des ingénieurs du Québec (<http://www.oiq.qc.ca>), the professional corporation. Check with Engineers Canada at <http://www.engineerscanada.ca> for requirements in other provinces.

**EXAMPLES OF JOBS ACQUIRED BY
CONCORDIA GRADUATES**

The following job titles are representative of the types of entry-level positions for which Concordia University students are qualified upon graduation. Note that the numbers following each job title refer to Canada's National Occupational Classification (NOC) code. For details on these titles go to <http://www5.hrsdc.gc.ca/NOC/>

- Application Associate
- Controls Technician
- Industrial Sales Representative
- Internship (Digital Technology)
- Junior Electrical Engineer (2133)
- Junior Electronics Engineer (2133)
- Junior Project Engineer
- Navigational Systems Engineer
- Research Engineer
- Retrofit Technician (Lighting Resource Center)
- Software Intern
- Software Validation (Cockpit Integration)
- System Support Analyst
- Technical Writer (5121)
- Telecommunications Technician (7246)
- Test Technician (2241)

CELEBRATED ELECTRICAL ENGINEERS

William Hewlett. Co-Founder of Hewlett-Packard.

Marc Garneau. Canadian Astronaut.

Arthur Nielsen. Nielsen Ratings Developer.

Alexander Graham Bell. Bell Telephone Company.

Reginald A. Fessenden. Canadian. Wireless Communication.

Elizabeth Muriel Gregory. Canadian. Production of Hawker Hurricane Fighter Aircraft

- Process Control Engineer (2133)
- Professor (4121)
- Program Manager
- Project Engineer
- Public Utility Consultant
- Quality Assurance Engineer (2141)
- Research Engineer
- Roadway Lighting Design Engineer (2133)
- Robotics Engineer (2132)
- Sales Occupations
- Strategic Planning Consultant
- Supervising Engineer
- Systems Engineer (2141)
- Technician
- Television Systems Engineer (2133)

MORE JOB TITLES

Most electrical engineers work as electrical and electronics engineers. Many move into supervisory positions after attaining experience in the field. There are more than 30 divisions of electrical engineering. The titles below are not meant to be exhaustive but are representative of fields which electrical engineers pursue. Keep in mind that some occupations require further education (e.g., a higher degree, second degree, diploma). Note that the numbers following each job title refer to Canada's National Occupational Classification (NOC) code.

For details on these titles go to

<http://www5.hrsdc.gc.ca/NOC/>

- Aeronautical Engineer (2146)
- Aerospace Engineer (2146)
- Air Force, Army and Navy Officer
- Astronautical Engineer
- Avionics Technician (2244)
- Circuit Designer
- Communications Engineer
- Computer Engineer (2147)
- Computer Programmer (2174)
- Control Systems Engineer (2133)
- Design Engineer (2133)
- Distribution Planning
- Engineer (2133)
- Electrical Engineer (2133)
- Electrical Network Engineer (2133)
- Electrical Systems Engineer
- Electrician (7241)
- Electronics Engineer (2133)
- Hardware Development
- Engineer (2147)
- Instrumentation and Control
- Engineer (2133)
- Manager (0211)
- Network Engineer
- Planning Engineer Electrical Systems (2133)
- Power Plant Manager

POTENTIAL WORK SETTINGS

Electrical engineers work in all industries, mostly in the private, for-profit sector. Key among these are communications, power generation, computers, semiconductors, government, aerospace, bioengineering, manufacturing, education and research, service industry and transportation. Many electrical engineers are also self employed. To research specific employers, there are many resources available in such locations as the Career Resource Centre, the Webster Library, Vanier Library and the Internet.

- Aerospace Parts Manufacturing
- Aviation
- Canadian Forces
- Chemical Manufacturing
- Communications Companies
- Computer Systems Design and Services
- Construction
- Consulting Firms
- Corporations
- Education
- Electrical Utilities
- Electrical and Electronic Equipment Manufacturers
- Government at All Levels
- Healthcare
- Insurance
- Internet Services
- Machinery Manufacturing
- Manufacturing Industries
- Mining
- Motor Vehicle Parts Manufacturing
- Oil and Gas
- Scientific Research
- Software Publishing
- Steel Manufacturing
- Telecommunications
- Transportation Industries
- Universities and Colleges

SKILLS AND CHARACTERISTICS

Electrical engineers must have a good background in math and science. They need technical and mechanical skills for the practical application of theoretical concepts. In addition, students will find the following skills, interests, values and other characteristics valuable for succeeding in the field.

- Interpretation of Qualitative and Quantitative Data
- Accuracy/Attention to Detail
- Communication skills (Written and Oral)
- Complex Problem Solving and Decision Making
- Computer Proficiency
- Conscientiousness
- Creativity and Inventiveness
- Critical Thinking
- Decision-Making
- Good Judgment/Logical
- Independence
- Interpersonal Skills
- Keen Observation
- Knowledge of Technology
- Knowledge of Physics
- Knowledge of Systems Interconnectedness
- Supervisory Skills
- Management of Material Resources
- Negotiation
- Patience
- Project Management Skills
- Organizational Skills
- Research Skills
- Resource Allocation
- Systems Analysis
- Teaching Skills
- Technology Design
- Time Management

PROFESSIONAL ASSOCIATION AND OTHER LINKS

Making wise career decisions requires exploring your field. A multitude of Internet sites and other resources will help you do this to the best of your ability. Professional association sites, in particular, are very useful for their career descriptions and job hunting tips. Moreover, these authoritative sites frequently provide links to Internet sites which announce job openings and list potential employers. A few recommended sites are included below.

CANADIAN

Engineering Institute of Canada

<http://www.eic-ici.ca/>

Provides information on continuing education and professional development opportunities. Also offers registration with a job board allowing you to search job openings across Canada.

Engineers Canada

<http://www.engineerscanada.ca>

The International Engineering Graduates section is aimed at international students and provides much of interest. Women in Engineering includes many links to Internet sites of value to women. Click on Site map at the bottom of screen to get started.

IEEE Canada

<http://www.ieee.ca>

Besides its technical journal, the Canadian division of this worldwide organization offers a general interest magazine, electronic newsletter, annual conference, financial aid and web services. Concordia University's branch of IEEE Canada offers a chance for students to develop leadership skills.

Ordre des ingénieurs du Québec

<http://www.oiq.qc.ca>

Click Student for information on the benefits of a student membership in Quebec's professional engineering corporation. Membership in such professional associations is a great way to make contacts, uncover jobs and advance your career.

INTERNATIONAL

IEEE

<http://www.ieee.org>

One of the largest professional organizations for electrical engineers. Click on Education & Careers and explore, among other things, the IEEE Student Job Site.

National Society of Professional Engineers

<http://www.nspe.org/>

Try Career Center for the following sections: Job Board, Salary Info, Mentoring Programs and Resume Services.

CREATE YOUR AMAZING CAREER – CAREER RESOURCE CENTRE TITLES

For those who need more help with their career and educational planning, the Career Resource Centre (CRC) offers books, pamphlets, DVDs and recommended Internet sites. It is located in the Hall Building, H-440, at 1455 de Maisonneuve Blvd. West. The following titles are just a few of the titles available in the CRC.

- Ace the IT Interview
- L'Aérospatiale, notre choix d'avenir (DVD)
- Building a Winning Career in Engineering: 20 Strategies for Success After College
- Career Opportunities in Engineering
- Career Success in Engineering
- Consulting Careers in Engineering and IT (DVD format)
- Fast-Tracking Your Career: Soft Skills for Engineering and IT Professionals
- Hired Minds: A Career Guide for Engineering Students and Graduates
- Land the Tech Job You Love
- Is There an Engineer Inside You?
- Opportunities in Electronics Careers
- Ready For Takeoff! A Winning Process for Launching Your Engineering Career
- Real Resumes for Engineering Jobs
- So You Want to Be an Engineer?
- 21 Things Every Future Engineer Should Know