ELECTRICAL/MECHANICAL
ENGINEERING TECHNOLOGY

CAREER OVERVIEW FOR STUDENTS
The Electrical/Mechanical Engineering Technology program provides students with the foundations of mechanics, electrical systems, materials, and energy. Graduates from the electrical/mechanical engineering technology program are able to effectively bridge the technical gap between mechanical and electrical engineering. Students learn how to apply principles and skills in projects related to the various fields of electrical/mechanical engineering, such as product and machine design, power generation, utilities and manufacturing. Graduates are prepared to work with the latest technology to produce superior cost-effective mechanical/electrical design, and to hold professional positions in machine design; manufacturing engineering, engineering development testing; field service engineering; product design thermal analysis; HVAC; plant operations; and technical sales. The program is designed with the maximum amount of diversity to allow students with various interests to obtain appropriate technical knowledge to qualify for professional positions.

Course Description for Electrical/Mechanical Engineering Technology:
http://www.rit.edu/~932www/ugrad_bulletin/colleges/cast/emetech.html

Degree(s) Awarded
Bachelor of Science Degree (5 year)

Enrollment
Approximately 160 students enrolled. 90 full-time students; the balance is part-time and distance learners.

Cooperative Education Component
Students are required to complete 5 co-op work assignments. Students are available for two 6-month and one 3-month assignment.

Salary Information - Avg/Range
Co-op: $15.81 $8.00 - $25.00
BS: $55,750 $45,000 - $66,500

Equipment & Facilities
Students have access to sophisticated equipment such as personal computers and engineering workstations capable of solids modeling and finite element analysis; a wind tunnel; engineering mechanics, materials testing, and thermal apparatus; strain gauge instruments; and modern data acquisition systems that collect and manipulate data and produce reports. Telecommunication labs, advanced circuits, SMT, and automated manufacturing labs are also shared with electrical/mechanical engineering technology students.

Concentrations & Specialization:

Accreditation

Student Skills & Capabilities
• Strong emphasis is placed integrating electrical/mechanical components at a systems level. Focus on problem solving in stress analysis, kinematics, and facilities management, computer based mechanical design and all aspects of electrical/mechanical engineering.
• Skilled in electrical and mechanical troubleshooting and analysis of problems, design of electrical solutions and implementation of the solutions using current technology. The program teaches students to master the fundamentals of electronics and mechanics then apply them to improve existing technology.
• Technical skills and capabilities come from courses that cover the disciplines of electricity, electronics, microprocessors, computer programming, mechanics, materials, thermal science, engineering graphics manufacturing process and economic analysis.
• Students acquire an assortment of software package knowledge from this program and through their two-year degree programs. Most common are Solid works, MathCAD, EES, PSPICE, Microsoft Word, Excel, and PowerPoint.
• Machine design, CAD, layout and installation production, testing, quality control, trouble shooting, field engineering.
Nature of Work

Electrical engineers design, develop, test, and supervise the manufacture of electrical equipment. Some of this equipment includes electric motors; machinery controls, lighting, and wiring in buildings; automobiles; aircraft; radar and navigation systems; and power-generating, -controlling, and transmission devices used by electric utilities. Although the terms “electrical” and “electronics” engineering often are used interchangeably in academia and industry, electrical engineers have traditionally focused on the generation and supply of power, whereas electronics engineers have worked on applications of electricity to control systems or signal processing. Electrical engineers specialize in areas such as power systems engineering or electrical equipment manufacturing. Mechanical engineers research, develop, design, manufacture, and test tools, engines, machines, and other mechanical devices. They work on power-producing machines such as electric generators, internal combustion engines, and steam and gas turbines, as well as power-using machines such as refrigeration and air-conditioning equipment, machine tools, material handling systems, elevators and escalators, industrial production equipment, and robots used in manufacturing. (Source: U.S. Bureau of Labor Statistics Occupational Outlook Handbook)

Training/Qualifications

A bachelor’s degree in engineering is required for almost all entry-level engineering jobs. College graduates with a degree in a physical science or mathematics occasionally may qualify for some engineering jobs, especially in specialties in high demand. Most engineering degrees are granted in electrical, electronics, mechanical, or civil engineering. However, engineers trained in one branch may work in related branches. For example, many aerospace engineers have training in mechanical engineering. This flexibility allows employers to meet staffing needs in new technologies and specialties in which engineers may be in short supply. It also allows engineers to shift to fields with better employment prospects or to those that more closely match their interests. (Source: U.S. Bureau of Labor Statistics O.O.H.)

Significant Points

- Overall job opportunities in engineering are expected to be good, but will vary by specialty.
- A bachelor’s degree is required for most entry-level jobs.
- Starting salaries are significantly higher than those of college graduates in other fields.
- Continuing education is critical for engineers wishing to enhance their value to employers as technology evolves. (Source: U.S. Bureau of Labor Statistics O.O.H.)

Job Outlook

Electrical engineers should have favorable employment opportunities. The number of job openings resulting from employment growth and from the need to replace electrical engineers who transfer to other occupations or leave the labor force is expected to be in rough balance with the supply of graduates. Employment of electrical engineers is expected to increase slower than average for all occupations through 2020. Although international competition and the use of engineering services performed in other countries may limit employment growth, strong demand for electrical devices such as giant electric power generators or wireless phone transmitters should boost growth. Prospects should be particularly good for electrical engineers working in engineering services firms providing technical expertise to other companies on specific projects. Mechanical engineers are projected to have slower than average employment growth through 2020. Although total employment in manufacturing industries—in which employment of mechanical engineers is concentrated—is expected to decline, employment of mechanical engineers in manufacturing should increase as the demand for improved machinery and machine tools grows and as industrial machinery and processes become increasingly complex. Also, emerging technologies in biotechnology, materials science, and nanotechnology will create new job opportunities for mechanical engineers. Additional opportunities for mechanical engineers will arise because the skills acquired through earning a degree in mechanical engineering often can be applied in other engineering specialties. (Source: U.S. Bureau of Labor Statistics O.O.H.)

Employment

Of the 1.6 million engineering jobs in 2010, electrical engineers held 151,000, mechanical engineers held 243,000 jobs, and electronic engineers held 140,000 jobs. Most jobs were in professional, scientific, and technical services firms, government agencies, and manufacturers of computer and electronic products and machinery. Wholesale trade, communications, and utilities firms accounted for most of the remaining jobs. (Source: U.S. Bureau of Labor Statistics O.O.H.)

Selected Employers of RIT Electrical/Mechanical Engineering Technology Co-op and Graduating Students:

- Borg Warner
- Bose Corporation
- Constellation Energy
- Covidien
- Energy East
- General Motors
- ITT Water Systems
- Lockheed Martin
- Logical Control Solutions
- Raymond Corporation
- Toyota
- Ultralife Batteries Inc.
- Welch Allyn
- Xerox Corporation

Contact Us:

We appreciate your interest in your career and we will make every effort to help you succeed. Feel free to contact Maureen Arquette, the program coordinator who works with the Electrical/Mechanical Engineering Technology program. You can access information about services through our web site at http://www.rit.edu/co-op/careers.

Maureen Arquette, Program Coordinator

Office of Cooperative Education and Career Services

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