

ELECTRICAL ENGINEERING

<http://ece.gmu.edu/>

Name and description of the field:

The undergraduate program in Electrical Engineering is designed to prepare the graduate either for direct entry into a career in engineering or for graduate study. Students have the option of specializing in bioengineering, electronics, computers, networks, communications, controls and robotics, or of developing a broad generalized background.

What special skills and abilities are needed to succeed in this major?

The most intensively used skills in an Engineering program are mathematical and analytical reasoning and problem solving skills. These skills are developed by calculus and advanced math courses, physics courses, and virtually every engineering course a student takes.

For a reasonable chance of success, an Engineering student should possess, before starting the program, ability in analytical reasoning and solid proficiency in algebra and use of special functions such as sines, cosines, natural logarithms, and exponentials. Equally important is a good study discipline. An Engineering program is demanding and requires persistence for success.

Creative ability is important in engineering careers and is developed in lecture and lab courses having a "design" component.

English language skills, both written and oral, while not as critical for coursework, are extremely important in engineering jobs and therefore are further developed by a series of English, literature, humanities, and certain technical courses.

Leadership, collaboration, and teamwork skills, also not so critical for coursework, are extremely important in engineering jobs. The cooperation between students required in lab courses and the exciting senior design project tends to develop these skills. Students can also develop leadership and teamwork skills by participating in the student branch of the IEEE society and by taking on employment in engineering firms on a part-time, summer, or co-op basis.

A B.S. in Electrical Engineering is offered at the undergraduate level.

What are recent graduates doing?

Some of the most recent graduates have careers in design, research, consulting, sales, management and patent law. Entry level engineers typically work for a while as a designer, and then may change into technical sales or management, depending on their interests, abilities and employers' needs.

Many George Mason undergraduates with a degree in Electrical Engineering continue their education with graduate work in electrical, electronics, computer engineering or bioengineering. With some additional course work, students also do graduate work in the related areas of systems engineering, computer science, physics, mathematics, biomedical engineering, or other engineering fields. Another common advanced degree for engineers is a Masters of Business Administration (MBA) with emphasis in engineering management, management information systems, or finance. Finally, a B.S. in Engineering can also prepare one for non-technical professions; for example, a career in patent law requires a B.S. in Engineering or science and a law degree.

Specific job titles include:

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|------------------------|---------------------------|-----------------------------|
| Electrical Engineer | Project Engineer | Research & Development Engr |
| Systems Engineer | Engineering Manager | Electronics Engineer |
| Communication Engineer | Engineering Consultant | Circuit Design Engineer |
| Network Engineer | Programmer/System Analyst | Robotics Engineer |
| Analyst | Software Engineer | Technical Manager |
| Test Engineer | | |

EXPLORING MAJORS

Organizations that have hired recent GMU Electrical Engineering graduates include:

Sandia Laboratory	Booz-Allen & Hamilton	Micron Technology
Naval Research Laboratory	U.S. Sprint	IBM
Defense Info. Systems Agency	Central Intelligence Agency	Cantada
U.S. Patent & Trademark Office	Raytheon	Intel
Argon Engineering	Hughes Network Systems	Lockheed Martin
Northrup Grumman	Orbital Sciences Corp.	SAIC, Inc.
Boeing	General Electric	Sun Microsystems
General Dynamics	Philip Schrupp	MITRE Corporation

Resources for additional information:

- **Institute for Electrical and Electronics Engineers**, 345 East 47th St, New York, NY 10017-2394 (212) 705-7900, <http://www.ieee.org>, <http://ite.gmu.edu/~ieee>
- **Armed Forces Communications and Electronics Association**, 4400 Fair Lakes Court, Fairfax, VA 22033 (703)631-6100, (800)336-4583, <http://www.gmu.edu/org/AFCEA/>
- **Biomedical Engineering Society**, 8401 Corporate Drive, Suite 140, Landover, MD 20785-2224 (301) 459-1999, <http://www.bmes.org>
- **Opportunities in Engineering Careers** ---available in Career Services
- **Exploring High Tech Careers** ---available in Career Services
- **Careers in Engineering** ---available in Career Services
- **Great Jobs for Engineering Majors** ---available in Career Services
- **Careers for Computer Buffs & other Technology Types** ---available in Career Services
- **Careers in High Tech** ---available in Career Services

Career Library Resources – Go to <http://careers.gmu.edu/careerlibrary/wheretostart/engr.pdf> to view resources located in the Career Services Library, 3400 SUB I.

Major, Career & Job Hunting Information Online (links to the academic department, associations and other useful sites) – Go to <http://careers.gmu.edu/onlineresources/engr.htm>

Is it possible to minor in Electrical Engineering? No minor is available.

Whom should students contact for further information?

William Sutton	Academic Advising & Transfer Center	University Career Services
Electrical & Computer Engr.	3500 SUB I	3400 SUB I
3100 Engineering Building	703-993-2470	703-993-2370
703-993-1569		