

Electrical Engineering

Engineering is a profession in which people combine their knowledge of the mathematical and natural sciences with judgment in order to economically use natural materials and forces to benefit human beings.

Electrical engineering deals with the research, development, design, operation, and application of electrical and electronic systems and components.

- [The Undergraduate catalog for Electrical Engineering is available online. Click here.](#)

Program Description

The Department of Electrical and Computer Engineering at Western Michigan University offers a four-year program leading to a Bachelor of Science in Engineering degree in electrical engineering. The program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

In the program, you'll learn about electric power, electronics, computers, communications, instrumentation, and control systems. Your studies will stress identifying and solving practical problems in electrical engineering. Courses in mathematics, physics, and chemistry provide a strong foundation for the courses you'll take in engineering science and design.

Electrical engineering courses focus on circuits, electronics, energy conversion, digital logic, microcomputers, communications, electromagnetics, and automatic control systems. You're introduced to circuits, digital logic, and microcomputers during your freshman and sophomore years. Design is emphasized in your senior year.

Because all engineers must consider non-technical as well as technical factors in the design process, the program includes courses in the humanities, social sciences, and communications.

Program Educational Objectives

Depth:

Graduates demonstrate an understanding of the fundamental knowledge prerequisite for the practice of, or for advanced study in, electrical and/or computer engineering, including its scientific principles, rigorous analysis and creative design.

Breadth:

Graduates utilize general and discipline-specific skills and knowledge acquired as students in our program to be successful in diverse professional fields. Success in these fields necessitates that our graduates be technically competent, exhibit problem-solving skills, engage in life-long learning, and be effective team members.

Professionalism:

Graduates exhibit professional ethics, are effective team members, and demonstrate communication and leadership skills as contributing members within their professional organizations.

Career Options

Engineering provides excellent preparation for either a technical or a management career.

Like graduates of other branches of engineering, electrical engineers are involved in many kinds of work, including construction, consulting, design, development, manufacturing, planning, research, sales, service, and teaching.

You may specialize in:

Electronics, as in the design of integrated circuits or their applications in medicine, science, or industry

Control systems, such as those used in aircraft, missiles, spacecraft, or robots

Instrumentation, as in remote measurements from satellites or spacecraft

Power systems for generating and distributing electrical energy

Communications systems, including telephone, radio, and television

Cooperative Education

A cooperative education program is available if you wish to combine your education with industrial experience. After you complete your third semester of study, you can alternate between studying on campus and working in industry every other semester.

Positions are available in a broad range of industries in manufacturing, product development, and quality control.

Special Opportunities

Electrical engineering students have an opportunity to participate in the activities of WMU's student branch of the Institute of Electrical and Electronics Engineers. Activities include regular meetings featuring guest speakers and technical films, field trips, and social gatherings.

Seminars are also sponsored by the Department of Electrical and Computer Engineering so students can hear professionals speak on current topics in electrical and computer engineering.

Facilities

Instructional facilities are well-equipped and include individual laboratories for circuits, electronics, electrical machines, digital logic, and microcomputers. Facilities also include two shielded rooms, an anechoic chamber, and some special purpose equipment.

Computer terminals distributed throughout the campus provide access to a network of mainframe computers within the University. A variety of microcomputers, graphic terminals, and plotters are also available in the Computer-Aided Engineering Center of the College of Engineering and Applied Sciences.

Preparation

A minimum of three and a half years of high school college-preparatory mathematics, including algebra, geometry, and trigonometry, is necessary to enter the calculus courses required in the program. However, WMU offers a variety of courses that will allow you to enter the mathematics sequence at virtually any level, although you may not be able to complete degree requirements within a four-year period.

Courses in physics, chemistry, general science, English, writing, and speaking are also recommended.

If you plan to transfer from a two-year or four-year college, you're required to contact an academic advisor from the Department of Electrical and Computer Engineering to determine your advanced standing. Transfer credit is granted for courses that satisfy WMU's requirements whenever a student can proceed in subsequent courses without difficulty.

Admission

Admission to WMU is processed by the Office of Admissions and Orientation. For admission requirements,

consult the University's *Undergraduate Catalog* or contact the admissions and orientations office. Write the office or call (269) 387-2000.

Advising

You and your academic advisor will plan your program to take full advantage of your educational experience at WMU. For an appointment with an advisor, call (269) 276-3270.

Financial Aid

Information about financial assistance, such as scholarships, employment opportunities, loans, and grants, is available from the Office of Student Financial Aid and Scholarships by calling (269) 387-6000.

Placement

WMU students and alumni may call Career Services at (269) 387-2745 for help with total job-search planning.

Accreditation

Accredited by the Engineering Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 - telephone: (410) 347-7700.

Further Information

For more information about the electrical engineering program, please contact:

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