College of Engineering Graduate Programs

Electrical and Computer Engineering
...shaping the future with technology
The University of Idaho, located in Moscow, is the flagship institution of higher learning for the state. It has fulfilled its mission of teaching, research and service to Idaho’s citizens for more than 100 years. This comprehensive land-grant university serves more than 11,000 students from all 50 states and nine countries.

Through innovative research, creative teaching, and a friendly style, the University of Idaho provides leadership to the Northwest and to the nation in engineering, agriculture, the arts, mining, forestry, business, education and other disciplines. Charged by the Idaho Board of Regents with the primary responsibility in the state for modern research and graduate education, the University of Idaho ranks among the top educational institutions in the West.

The quality of life is high in the Northwest with recreational opportunities available in all directions. Nearby rivers and mountains offer hiking, boating, and skiing adventures. Dance, theater, concerts and galleries abound in the University of Idaho area, and the close proximity to Washington State University expands all cultural, athletic and library resources and activities available to residents. Community ties to the university are strong and supportive.
THE DEPARTMENT OF ELECTRICAL ENGINEERING

Long on innovation and scientific creativity, the University of Idaho’s Department of Electrical Engineering provides students with state-of-the-art teaching and research in the exciting fields of circuits, microelectronics, power, electromagnetics, digital systems, communication and data storage systems and automatic control. Teaching and research are each given a balanced role in the department so students benefit from dedicated teachers at the cutting edge of their disciplines.

The principal strengths of our program include skilled and dedicated faculty, bright and hard-working students, 13,000 square feet of modern laboratory facilities, supportive administration, and solid, long-term relationships with industry. Our programs offer students careful advising from accessible faculty, emphasis on the creative aspects of design and excellent placement services.

Our faculty have earned graduate degrees from many of the top universities in the country and have a wide range of industrial experiences. All are committed to serving students and the region through teaching and research. Because we believe that education is a life-long endeavor, our graduates receive the education they need to keep up with a changing world. We strive to develop our students’ minds to their fullest, cultivating their creative powers as well as their intellectual curiosity.

We also offer off-campus engineering programs in Boise and Idaho Falls, as well as interactive video classes across the nation for place-bound students. Advances in technology are making two-way audio-video communication practical and affordable, permitting wide-scale teleconferencing and remote delivery of classes.
THE GRADUATE PROGRAM

Pursuit of research excellence and practical application are guiding principles of the graduate curriculum at the University of Idaho and in the Department of Electrical Engineering and Computer Engineering Program. Classes are large enough to create the necessary creative interchange among students and faculty; at the same time, they are small enough to allow continual interaction between student and teacher.

The Department of Electrical Engineering, through the College of Graduate Studies, has the sole state-wide responsibility for offering Master of Science (M.S.) and Master of Engineering (M.Engr.) degrees in both electrical engineering and computer engineering, and a Doctor of Philosophy (Ph.D.) degree in electrical engineering. The Master of Science degree is the option taken by on-campus students who will pursue writing a thesis, whereas the Master of Engineering is the non-thesis option usually pursued by off-campus students.

Areas of emphasis for the graduate student in Electrical Engineering include very large scale integrated (VLSI) circuits, supercomputing, microwaves, communication systems, integrated circuit design, electromagnetics, control systems, signal analysis, network synthesis, digital systems design, and electric power systems. Emphasis areas for the graduate student in Computer Engineering are digital hardware design, digital systems design, computer systems, and other related areas.

Candidates for graduate degrees have ample opportunities to work with faculty members on practical research projects vital to industry, including engineering prototypes of varying complexity. Whether the graduate is returning to college from industry, or continuing straight from an undergraduate program, students will find the Department of Electrical Engineering an important stop in their educational endeavors.
PARTNERS WITH INDUSTRY

The need for cooperation with the private sector in fulfilling higher education’s mission has proven to be vital. Our reputation with industry for educating the top engineers in the field has helped to place our graduates in important industrial positions and has led to considerable industrial support in both monetary and equipment donations to the department.


Such investments are an acknowledgement of the key role the University of Idaho’s Department of Electrical Engineering plays in the nation’s economic and cultural development, and the high quality of its graduates.

RESEARCH INSTITUTES

Microelectronics Research and Communications Institute

The organization known as the Microelectronics Research and Communications Institute (MRC Institute) reports to the University Research Office. The capabilities of the research center include systems disciplines, such as avionics, simulation, multimedia and graphic technology. The MRC Institute also maintains a commitment to the application, development, design, manufacture and testing of high-performance electronics circuits and systems. An additional branch of the MRC Institute has been established in the Boise area.

Strong relationships with local and national industries, as well as government agencies, provide both research and funding for students at the University of Idaho. The MRC Institute’s primary mission is research, and projects conducted by the affiliate faculty members provide support for graduate engineering students. On the educational side, affiliate faculty members continue a strong history of publishing that includes four upper-division and graduate level textbooks.

Sponsored research projects include those for Hewlett-Packard, Boeing, the Department of Defense, and Micron Technology, to name a few. Continuous effort is focused on cultivating research contracts to be carried on in the MRC Institute’s four laboratories: Microelectronics, Communications and Information Engineering, Advanced Computational Electromagnetics, and Intelligent Systems.
The National Institute for Advanced Transportation Technology:

NIATT, the National Institute for Advanced Transportation Technology, was established in 1991 to work with industry, government, and research institutions to develop, evaluate, and market technologies that will improve the design and operation of transportation vehicles and systems.

Three distinct research centers currently operate under the umbrella of NIATT, and each has a unique mission related to transportation. The Center for Traffic Control and Operations focus on a traffic control system testbed that includes five components: traffic detection, control, surveillance, simulation, and optimization. Technology testbeds consisting of electric and hybrid electric vehicles, models of alternative vehicles, and software models for vehicle performance are at the core of the Center for Clean Vehicle Technology. Activities in the Center for Infrastructure Technology focus on infrastructure components including pavements, bridges, and construction materials, as well as planning methods, design practices, and software development.

Graduate students are involved in NIATT's research efforts on several levels. Working closely with major professors/researchers, students work as mentors with senior design undergraduate students, providing modeling and analysis for fabrication or construction of usable products that meet national or state priorities. Graduates' theoretical research results not only in completion of an advanced degree, but in usable products.

Based on qualifications and available funding, financial assistance is available for graduate students in the form of teaching and research assistantships.

FINANCIAL ASSISTANCE

Financial assistance is available from the Department of Electrical Engineering, Microelectronics Research and Communications Institute (MRC Institute), and the National Institute for Advanced Transportation Technology (NIATT). If you are applying for a teaching and/or research assistantship, you must apply to each one separately. Out-of-state tuition is waived for graduate students who are awarded a teaching or research assistantship. In addition, each assistant receives a salary for working 20 hours per week (on the average) assisting in research.

Teaching Assistantships: The Department of Electrical Engineering offers six to ten teaching assistantships to cover our undergraduate laboratory courses
and courses with enrollments over twenty-five. These assistantships are available in both electrical and computer engineering. NIATT also offers teaching assistantships based on qualifications and available funding.

**Research Assistantships:** The MRC Institute typically supports eighteen or more graduate research assistants affiliated through various research contracts. NIATT also offers graduate research assistantships based on qualifications and available funding. Some contracts are budgeted to allow for the payment of graduate course fees.

**TOEFL & GRE**
All international students are required to take the TOEFL and GRE exams. A minimum score of 550 is required on the TOEFL to be considered for admission. There is no minimum score requirement on the GRE. International applicants will not be evaluated without receipt of TOEFL and GRE scores. TOEFL and GRE are not required of foreign students whose BS degree is from a U.S. or Canadian university. Although the GRE is not required for domestic applicants, it is strongly advisable, since entrance into the graduate program is very competitive.

**APPLICATION DEADLINES**
The department follows the University’s deadlines for admission. Domestic applicants should have all application materials to Graduate Admissions by July 1 for fall, November 1 for spring, and April 1 for summer. International applicants should have all application materials to Graduate Admissions by June 1 for fall, October 1 for spring, and March 15 for summer. Although you may be admitted in the summer, coursework cannot begin until August. All applicants will be notified by Graduate Admissions of the final decision on their application.

**FINANCIAL RESPONSIBILITY**
The department cannot waive or defer your application fee. The Admissions Office will not process your application until your fee is paid. All checks submitted for payment must be drawn on a U.S. bank. In addition, they must receive a statement of financial responsibility before processing an I-20. This is normally in the form of a letter from your bank or sponsoring agency stating that you have sufficient funds for your graduate education, as well as the supplemental form provided with your application material.
FOR FURTHER INFORMATION CONTACT:

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