ELECTRICAL AND COMPUTER ENGINEERING, M.S.

INTRODUCTION TO COE AND ECE

Master's students in the College of Engineering (COE) are among an elite group of people who have chosen to advance their education at one of the premier engineering colleges in the country. The academic programs in UW–Madison's College of Engineering are highly ranked, and our faculty are widely recognized as leaders in their fields. Here you will find a community in which you will excel. You will find faculty, staff, and peer students who are supportive and committed to your success. You will find rigorous coursework that will prepare you to achieve your goals. You will experience an environment highly conducive to collaboration—and you will meet faculty with a broad range of research interests and connections both on campus and around the world.

The Department of Electrical and Computer Engineering has a long tradition of excellence in educating, mentoring, and inspiring future leaders; conducting research that is of vital importance to society; and serving Wisconsin, our nation, and the world through professional pursuits.

Our Vision is to improve the world through bold research, educational excellence, effective technology transfer, and impactful service.

Our Mission is to foster a diverse and inclusive community that advances the frontiers of engineering, disseminates discoveries and inventions, and prepares students to make the world a better place for all.

ECE M.S. DEGREE OPTIONS

ECE offers four master's degree named option programs that lead to the M.S. Electrical and Computer Engineering degree:

- **Research**—traditional two-year master's program culminating in a thesis or research project.
- **Professional**—accelerated, course-based master's program with the opportunity to choose a specialty area.
- **Machine Learning and Signal Processing**—accelerated, course-based master's program tailored to the area of machine learning and signal processing.
- **Power Engineering**—**online**, off-campus program in power engineering designed for working professionals.

ADMISSIONS

Students apply to the Master of Science in Electrical and Computer Engineering through one of the named options.

- Electrical and Computer Engineering: Machine Learning and Signal Processing, M.S. (http://guide.wisc.edu/graduate/electrical-computer-engineering/electrical-computer-engineering-ms/electrical-computer-engineering-machine-learning-signal-processing-ms/)
- Electrical and Computer Engineering: Power Engineering, M.S. (http://guide.wisc.edu/graduate/electrical-computer-engineering/electrical-computer-engineering-ms/electrical-computer-engineering-power-engineering-ms/)
- Electrical and Computer Engineering: Professional, M.S. (http://guide.wisc.edu/graduate/electrical-computer-engineering/electrical-computer-engineering-ms/electrical-computer-engineering-professional-ms/)
- Electrical and Computer Engineering: Research, M.S. (http://guide.wisc.edu/graduate/electrical-computer-engineering/electrical-computer-engineering-ms/electrical-computer-engineering-research-ms/)

FUNDING

GRADUATE SCHOOL RESOURCES

Resources to help you afford graduate study might include assistantships, fellowships, traineeships, and financial aid. Further funding information (https://grad.wisc.edu/funding/) is available from the Graduate School. Be sure to check with your program for individual policies and restrictions related to funding.

PROGRAM RESOURCES

Funding information for each named option program is available on the corresponding pages:

- **Research**
- **Professional**
- **Machine Learning and Signal Processing**
- Power Engineering **(**http://guide.wisc.edu/graduate/electrical-computer-engineering/electrical-engineering-ms/electrical-engineering-power-engineering-ms/#fundingtext**) (Online)**

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum academic progress and degree requirements (http://guide.wisc.edu/graduate/#policiesandrequirementstext), in addition to the program requirements listed below.

MAJOR REQUIREMENTS

CURRICULAR REQUIREMENTS

Requirement	Detail
Minimum Credit Requirement	30 credits
Minimum Residence Credit Requirement	See Named Options for policy information.
Minimum Graduate Coursework Requirement	See Named Options for policy information.

Overall Graduate GPA Requirement	3.00 GPA required.
Other Grade Requirements	See Named Options for policy information.
Assessments and Examinations	See Named Options for policy information.
Language Requirements	See Named Options for policy information.

NAMED OPTIONS

A named option is a formally documented sub-major within an academic major program. Named options appear on the transcript with degree conferral. Students pursuing the Master of Science in Electrical and Computer Engineering must select one of the following named options:

View as listView as grid

- ELECTRICAL AND COMPUTER ENGINEERING: MACHINE LEARNING AND SIGNAL PROCESSING, M.S. **(**HTTP://GUIDE.WISC.EDU/GRADUATE/ELECTRICAL-COMPUTER-ENGINEERING/ELECTRICAL-COMPUTER-ENGINEERING-MS/ELECTRICAL-COMPUTER-ENGINEERING-MACHINE-LEARNING-SIGNAL-PROCESSING-MS/**)**
- ELECTRICAL AND COMPUTER ENGINEERING: POWER ENGINEERING, M.S. **(**HTTP://GUIDE.WISC.EDU/GRADUATE/ELECTRICAL-COMPUTER-ENGINEERING/ELECTRICAL-COMPUTER-ENGINEERING-MS/ELECTRICAL-COMPUTER-ENGINEERING-POWER-ENGINEERING-MS/**)**
- ELECTRICAL AND COMPUTER ENGINEERING: PROFESSIONAL, M.S. **(**HTTP://GUIDE.WISC.EDU/GRADUATE/ELECTRICAL-COMPUTER-ENGINEERING/ELECTRICAL-COMPUTER-ENGINEERING-MS/ELECTRICAL-COMPUTER-ENGINEERING-PROFESSIONAL-MS/**)**
- ELECTRICAL AND COMPUTER ENGINEERING: RESEARCH, M.S. **(**HTTP://GUIDE.WISC.EDU/GRADUATE/ELECTRICAL-COMPUTER-ENGINEERING/ELECTRICAL-COMPUTER-ENGINEERING-MS/ELECTRICAL-COMPUTER-ENGINEERING-RESEARCH-MS/**)**

POLICIES

Students should refer to one of the named options for specific policy information:

- Electrical and Computer Engineering: Machine Learning and Signal Processing, M.S. (http://guide.wisc.edu/graduate/electrical-computer-engineering/electrical-computer-engineering-ms/electrical-computer-engineering-machine-learning-signal-processing-ms/)
- Electrical and Computer Engineering: Power Engineering, M.S. (http://guide.wisc.edu/graduate/electrical-computer-engineering/electrical-computer-engineering-ms/electrical-computer-engineering-power-engineering-ms/)
- Electrical and Computer Engineering: Professional, M.S. (http://guide.wisc.edu/graduate/electrical-computer-engineering/electrical-computer-engineering-ms/electrical-computer-engineering-professional-ms/)
- Electrical and Computer Engineering: Research, M.S. (http://guide.wisc.edu/graduate/electrical-computer-engineering/electrical-computer-engineering-ms/electrical-computer-engineering-research-ms/)

PROFESSIONAL DEVELOPMENT

GRADUATE SCHOOL RESOURCES

Take advantage of the Graduate School's professional development resources (https://grad.wisc.edu/pd/) to build skills, thrive academically, and launch your career.

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING RESOURCES

UW–Madison, the College of Engineering, and ECE have an abundance of professional development opportunities for students to take advantage of in order to better prepare themselves for internships and job positions during and following their education. First of all, the ECE Department strongly encourages students to utilize the Graduate School's professional development resources (https://grad.wisc.edu/professional-development/). Engineering Career Services (ECS) (http://ecs.wisc.edu/) hosts multiple career fairs each semester where students can directly interact with prospective employers, schedule interviews, and find internships and full-time jobs. ECS also maintains job listings and hosts a variety of professional development workshops each semester. The ECE Department provides unique opportunities throughout the year for students to attend and participate in various lectures, workshops, and trainings. The ECE Graduate Student Association (GSA) organizes professional development opportunities for fellow students. Students are made aware of events and opportunities via email and other communications.

LEARNING OUTCOMES

1. Demonstrate a strong understanding of mathematical, scientific, and engineering principles in the field.
2. Demonstrate an ability to formulate, analyze, and independently solve advanced engineering problems.
3. Apply the relevant scientific and technological advancements, techniques, and engineering tools to address these problems.
4. Recognize and apply principles of ethical and professional conduct.

PEOPLE

PROFESSORS

Susan Hagness (Chair)
Nader Behdad
Daniel Botez
Azadeh Davoodi
John A. Gubner (Associate Chair for Operations)
Yu Hen Hu
Hongrui Jiang (Associate Chair for Graduate Studies)
Irena Knezevic
Bernard Lesieutre (Associate Chair for Undergraduate Studies)
Mikko Lipasti
Zhenqiang Ma
Luke J. Mawst
Robert Nowak
Parameswaran Ramanathan
Bulent Sarlioglu
William A. Sethares
Daniel van der Weide
Giri Venkataramanan
Amy E. Wendt
Zongfu Yu

ASSOCIATE PROFESSORS

Mikhail Kats
Daniel Ludois
Paul H. Milenkovic
Umit Ogras
Dimitris Papailiopoulos
Andreas Velten

ASSISTANT PROFESSORS

Joseph Andrews
Jennifer Choy
Jeremy Coulson
Kassem Fawaz
Dominic Gross
Chirag Gupta
Robert Jacobberger
Younghyun Kim
Bhuvana Krishnaswamy
Kangwook Lee
Chu Ma
Pedro Morgado
Shubhra Pasayat
Line Roald
Jinia Roy
Joshua San Miguel
Eric Severson
Eric Tervo
Ramya Korlakai Vinayak
Ying Wang

TEACHING FACULTY

Mark C. Allie
Setareh Behroozi
Eric Hoffman
Joe Krachey
Srdjan Milicic

TEACHING PROFESSOR

Eduardo Arvelo
Steven Fredette
Nathan Strachen

See also Electrical and Computer Engineering Faculty Directory (https://directory.engr.wisc.edu/ece/faculty/).