

# ELECTRICAL AND COMPUTER ENGINEERING, PH.D.

## INTRODUCTION TO COE AND ECE

Ph.D. 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.

## PH.D. IN ELECTRICAL AND COMPUTER ENGINEERING

The ECE Ph.D. degree program emphasizes creative and original approaches to solving problems through research activity. Research in the department spans several cross-cutting themes: data science, healthcare, mobile computing, security and infrastructure resilience, sensors and sensing, and sustainability. Specific areas of research expertise are: applied electromagnetics and acoustics; communications, networks, privacy and security; solid state electronics and quantum technologies; machine learning, signal processing and information theory; computer systems and architecture; plasma science and fusion energy; energy systems; optics and photonics, optimization and control. Students have the opportunity to pursue and perform Ph.D. research within interdisciplinary cooperative projects.

The ECE doctoral program provides in-depth training in research and allows students multiple opportunities to publish, including the student’s final dissertation. The ECE Ph.D. program typically requires five years of study beyond the bachelor’s degree, although the exact time to degree completion varies depending on research progress.

Students with a bachelor’s degree may apply directly to the ECE Ph.D. program. Ph.D. students also have the opportunity to earn a M.S.-ECE: Research degree along the way to their Ph.D.

For more information on this specific degree plan, please visit the ECE website (<https://engineering.wisc.edu/programs/degrees/electrical-and-computer-engineering-phd/>).