

POWER ELECTRONICS AND DRIVES

W ELECTRICAL & COMPUTER
ENGINEERING
UNIVERSITY of WASHINGTON

OVERVIEW

The Power Electronics and Drives concentration is focused on the development of technologies for efficient power transfer in renewable energy systems, electric transportation systems, motor drives, computational systems, and sustainable power grids. Emphasis is placed on the design of circuits that deliver power with maximum energy efficiency and are controlled with digital embedded systems. Application examples include electric vehicles, solar power electronics, and dc-dc converters for computers.

AREAS OF IMPACT

- Environment Sustainability and Energy
- Infrastructure Transportation and Society

STUDENTS MIGHT BE INTERESTED IN THIS CONCENTRATION IF THEY ENJOY:

Physics, circuit theory, analog electronics, electromagnetics, differential equations, hands-on experimentation, coding.

WHAT RESEARCH OPPORTUNITIES ARE AVAILABLE TO UNDERGRADUATES IN THIS CONCENTRATION?

Exceptional students may get the opportunity to assist with research projects focused on renewable energy, power electronics, and motor drives. Space is limited.



WHAT KIND OF INTERNSHIPS DO STUDENTS PURSUE?

Students find internships at electronics manufacturers, electric vehicle developers, solar and wind technology companies, and integrated circuit manufacturers.

WHAT CLASSES OUTSIDE OF ECE WILL HELP STUDENTS LEARN RELATED AND USEFUL SKILLS?

Differential equations, physics coursework on electromagnetics, and studies on environmental issues.

WHAT KIND OF PROJECTS DO STUDENTS COMPLETE IN THEIR CAPSTONE?

Over the course of the full senior academic year, students will develop the power electronics and control system for an e-bike. In the fall quarter, students will build the front-end dc-dc converter for the battery. The digital controller will be designed and programmed in the winter, and the full e-bike build will occur in the spring.

WHAT KINDS OF JOBS DO STUDENTS GET AFTER GRADUATING?

Potential employers include Texas Instruments, General Electric, Schneider Electric, Amazon, Microsoft, SMA, and Enphase Energy among many others.

DO STUDENTS NEED A GRADUATE DEGREE SPECIALIZING IN THIS AREA TO BE MARKETABLE IN INDUSTRY?

No, a graduate degree is not absolutely necessary. However, a graduate degree may be useful if there is a desire to pursue advanced research and development.



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QUESTIONS? Contact us at: undergrad@ece.uw.edu or attend a prospective drop in session: bit.ly/eceadvising