

PROFESSIONAL MASTER'S PROGRAM

Power Electronics



A world-class program that cultivates creative power electronics engineers with a practical foundation, current knowledge and industry context.

The professional master's program in power electronics offers comprehensive coverage of power electronics technologies and theory, as well as significant laboratory experience.

This program culminates in a Master of Science (MS) degree. Through flexible core course options and electives, students enrolled in the program may pursue a 30-credit hour degree at a reduced tuition rate. A nine-credit hour certificate is also available.

With newly added power electronics classes taught by Colorado Power Electronics Center faculty, as well as instructors from industry and the National Renewable Energy Laboratory, students with a BS in electrical engineering now have access to all of the courses they need to complete a master's in this dynamic field.

Why Power Electronics?

Power electronics is a key technology in electronic systems and is increasingly important in the grid interface of renewable energy sources. This has created a need for design engineers equipped with knowledge and skills to actively participate in multidisciplinary teams.

The power electronics field has evolved rapidly, which has created a strong demand for continuing education of the workforce. This program offers an opportunity for electrical engineers to obtain the specialized knowledge required to practice power electronics.

For more information, visit colorado.edu/ecee/power-electronics-pmp



Electrical, Computer & Energy Engineering
UNIVERSITY OF COLORADO BOULDER

Be Boulder.

Program Coverage

Essential Technologies

Power conversion circuits
 Modeling and control of power electronics systems
 Circuit design
 Power applications
 Soft switching and resonant conversion
 Electric vehicle technologies
 Variable speed motor drives
 Analog and mixed-signal integrated circuit design
 Grid integration of renewables

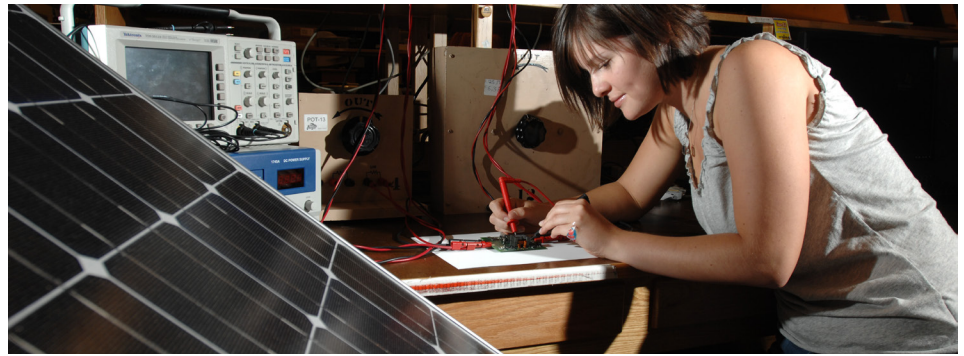
Primary End Markets

Power management and control integrated circuits
 Portable power
 Computer systems
 Medical applications
 Spacecraft power systems
 Automotive industry
 Renewable energy
 Utility industry

Study Online



This degree can be earned online or in residence at the University of Colorado Boulder. All program courses except for laboratories are available through CU Boulder's convenient and flexible online education platform.



Power Electronics Courses

	Course Name	Emphasis
Core Courses	Introduction to Power Electronics	Modeling and analysis of converters, magnetics, design
	Modeling and Control of Power Electronics Systems	Advanced modeling and control topics in power electronics
	Resonant & Soft Switching Techniques	Switching loss. Soft switching, resonant converters and inverters
Design Labs	Power Electronics in Photovoltaic Systems Lab	Practical laboratory techniques in power electronics
	Project Laboratory in Power Electronics	Advanced independent lab projects in power electronics
Electric Vehicles	Power Electronics for Electric Drive Vehicles	Modeling and analysis of power electronics for electrified vehicles
	Electric Machines	Electric machine fundamentals and modeling
	Adjustable Speed AC Drives	Modeling and control of AC machines, with EV applications
Circuits	Analog IC Design	Introduction to analog integrated circuit design
	Mixed-Signal IC Design	Mixed signal integrated circuit design and projects
	Integrated Circuits and Devices for Power Electronics	Integrated power management and control
Grid Integration	Renewable Energy and the Future of the Power Grid	Variable power sources in high penetration systems
	Control of Power Electronics in AC Systems and Microgrids	Techniques to control DC-AC converters in interconnected AC systems
	Power Systems Analysis	Fundamental concepts for analysis of power systems
	Advances in Control and Optimization of Power Systems	System modeling, optimal power flow, stability and control

