

"I would say that this is **one of the best programs for power electronics** — you have the best professors, the best experience you can have in and out of the program with the best opportunities." - Current student

PROFESSIONAL MASTER'S IN 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 fundamentals, as well as extensive practical laboratory experience.

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

A nine-credit hour certificate is also available.

With classes taught by renowned Colorado Power Electronics Center faculty, as well as instructors from industry and the National Renewable Energy Laboratory, students with a BS in electrical engineering or related fields can now complete a master's in this dynamic field with outstanding job opportunities.



Why Power Electronics

Power electronics is increasingly important to energy efficiency, electrified transportation, and the grid interface of renewable energy sources. This has created a need for design engineers equipped with the knowledge and skills to 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 engineers to obtain the specialized knowledge required to practice power electronics in the growing industry.



Electrical, Computer & Energy Engineering
UNIVERSITY OF COLORADO BOULDER

colorado.edu/ecee/power-electronics-mpm

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

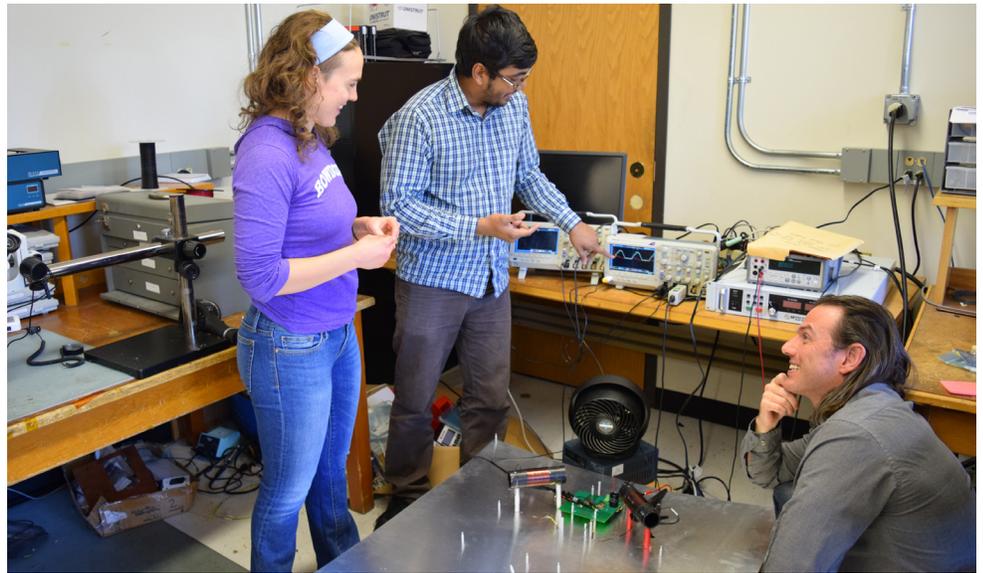
Primary End Markets

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



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
Design Labs	Power Electronics and Photovoltaic Systems Lab	Practical laboratory techniques in power electronics
	Project Laboratory in Power Electronics	Advanced lab projects in power electronics
EVs	Power Electronics for Electrified Transportation	Power electronics for electric vehicles and charging infrastructure
	Adjustable Speed AC Drives	Modeling and control of AC machines, with EV applications
Circuits	Analog IC Design	Analog integrated circuit design with power management applications
	Digital Control for Power Electronics	Digital control of high-frequency switched-mode power converters
Grid Integration	Renewable Energy and the Future of the Power Grid	Variable power sources in high penetration 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

