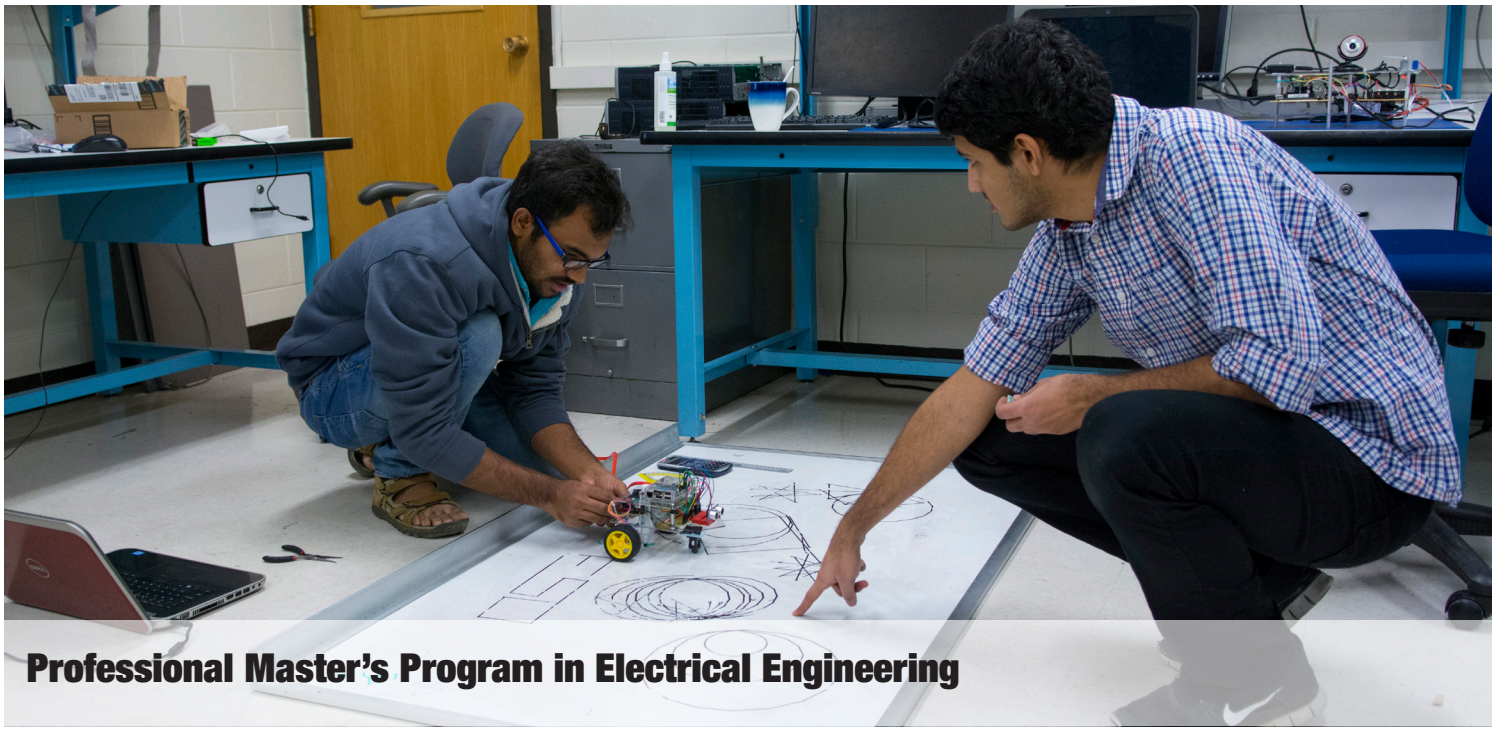


Professional Master's Program in Electrical Engineering

EMBEDDED SYSTEMS AND THE INTERNET OF THINGS

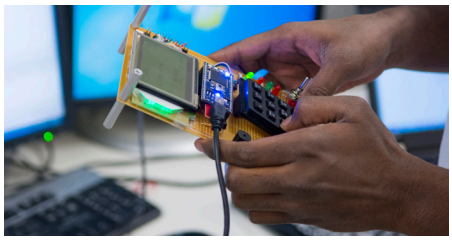
Get the practical knowledge and industry context you need to successfully and creatively contribute to the growing Internet of Things.

The Department of Electrical, Computer and Energy Engineering at the University of Colorado Boulder offers a professional master's program in Embedded Systems Engineering (ESE).

Our world-class program was built from the ground up with comprehensive coverage of essential technologies, tools and trends. It is structured to provide you with a broad, versatile skillset and relies on active industry input for curriculum updates.

The program is offered under the College of Engineering and Applied Science's Professional Master of Science or Master of Engineering degree. Through core courses (offered twice a year for maximum flexibility) and a growing slate of electives, students may pursue a 9-credit hour certificate or 30-credit hour degree.

Now you have access to everything you need to complete a master's degree in this dynamic field!



Why Embedded Systems?

Engineers with versatility in essential embedded technologies, markets and trends are highly sought-after by companies that want to capitalize on the ever-expanding Internet of Things.

In a challenging business environment, you will exude a practical sense of what is creatively possible, opening new revenue opportunities for your company and new career opportunities for yourself.

As an ESE graduate, you will be prepared to hit the ground running, armed with state-of-the-art technology, tools and techniques.

Program Coverage

Essential Technologies

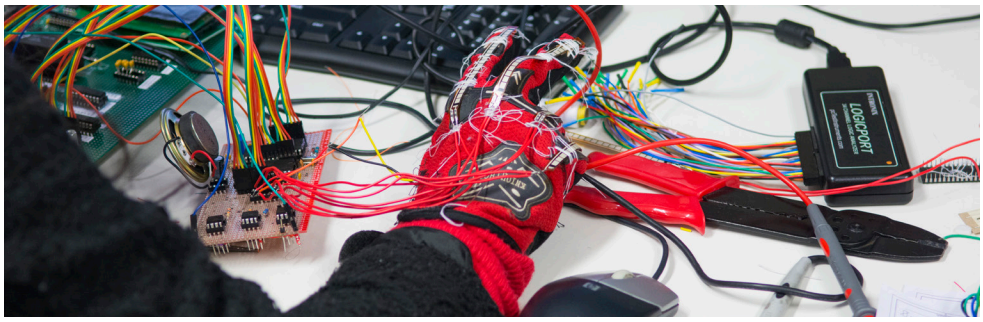
- Communication Protocols
- Controller (MCU/MPU/DSP)
- Electromechanical
- Emerging Technologies
- Human Interface and Display
- Memory (V, NV)
- Operating System/Firmware
- Power Management
- System Control
- Sensors, Signal Chain/Data Conversion

Primary End Markets

- Aerospace/Military
- Alternative Energy
- Consumer
- Emerging Markets
- Industrial
- Medical
- Networking/Communications
- Security
- Transportation

Current Trends

- ARM Processors
- Autonomous Vehicles and Unmanned Aerial Vehicles
- Capacitive Touch
- Computer/Machine Vision
- Consumer Wearables
- FPGA/SoC
- Home Automation
- Imaging
- IoT Enablement
- Memory/Storage
- Sensors/MEMS
- Smartphone Apps
- Solid State Lighting
- Wireless Protocols & Devices



Program Courses

Course Name	Emphasis
*Mastering Embedded Systems Architecture	Processor/OS selection and architecture migration
*Programmable Logic Embedded System Design	FPGA/SoC solutions; embedded ARM to SI and PDN challenges
*Embedded System Design	Embedded system design fundamentals
*Real-Time Embedded Systems	RTOS implementation and rate monotonic theory
*IoT Embedded Firmware	Designing for IoT connectivity, security and energy efficiency
*Embedding Sensors and Motors	Sensor signal capturing, filtering and processing
*Principles of Embedded Software	Rigorous embedded software concepts, languages and tools
*Low-power Embedded Design Techniques	Energy sourcing & power conversion; MCU selection; battery management
Advanced Embedded Software Development	Embedded software complexities (OS, kernels, bootloaders, drivers, etc.)
Advanced Computer Architecture	Design of high-performance computer systems
Embedded Machine Vision and Intelligent Automation	Intelligent machine vision algorithms and related embedded applications
Developing Industrial Internet of Things	Current technology trends, application case studies
Embedded Interface Design	Techniques for optimal environmental capture and conveyance of results
Practical PCB Design and Manufacture	Prototyping basics to production PCB design around SI and PI
High Speed Digital Design	High-speed interconnect design methodology, analysis, measurement
Fundamentals of Computer Security	Principles and practices around software, host systems and networks

*Core course