ELECTRICAL ENGINEERING
COURSE 6

DESCRIPTION
Course 6 at MIT houses electrical engineering, computer science, and combinations of computer science with other areas. Electrical engineers study and apply the physics and mathematics of electricity, electromagnetism, and electronics. They work on all kinds of electronic devices, from small pocket devices to large supercomputers. Electrical engineers work to design new ways to use electrical power to develop or improve products, develop standards for manufacturing, construction, and installation, directing manufacturing, installation, and testing, and managing the production of electrical projects.

SKILLS
Familiarity with basic engineering fundamentals
Interpret and write technical documentation
Ability to work in interdisciplinary teams
Strong communication skills

POSSIBLE FUTURE POSITIONS
- **Control engineer:** Focus on the modeling of a diverse range of dynamic systems and design of controllers that cause these systems to behave in the desired manner.
- **Electronic engineer:** Employ knowledge of electronic theories and material properties to research, design, develop, and test electronic components and systems that are used in industrial, military, scientific, or commercial uses.
- **Electrical engineer:** Research, design, develop, test, or supervise the manufacturing and installation of electrical equipment, components, or systems for commercial, industrial, military, or scientific use.

CAREER INDUSTRY EXAMPLES
- Automation
- Laser and electro-optics
- RF communications
- Automotive
- Magnetics
- Robotics
- Circuits and systems
- Medical technologies
- Telecommunications
- Electrical insulation
- Power electronics
- Ultrasonics

SAMPLE EMPLOYERS
- Amazon
- Citadel LLC
- iRobot
- Apple
- Facebook
- Lockheed Martin
- Boeing
- Formlabs
- Twitter
- Cisco
- General Electric
- Vecna Robotics

Brought to you by your friends at UPOP
Inside Electrical Engineering

6.002 Circuits and Electronics
Studies the fundamentals of linear systems through lumped electronic circuits. Provides foundation to independent and dependent sources, resistors, capacitors and inductors, and introduces nonlinear resistors, switches, and transistors. Weekly labs explore the dynamics of first- and second-order networks and design in the time and frequency domains.

6.08 Introduction to EECS via Interconnected Embedded Systems
Introduction to embedded systems in the context of connected devices, wearables and the "internet of things" (IoT). Topics include microcontrollers, energy utilization, algorithmic efficiency, interfacing with sensors, networking, cryptography, and local versus distributed computation. Students design, make, and program an internet-connected wearable or handheld device.

6.012 Nanoelectronics and Computing Systems
Studies interaction between materials, semiconductor physics, electronic devices, and computing systems. Develops intuition of how transistors operate. Topics range from introductory semiconductor physics to modern state-of-the-art nano-scale devices.

Electrical Engineering-Friendly Labs

Computer Science and Artificial Intelligence Laboratory (CSAIL)
Research Laboratory of Electronics (RLE)
Man Vehicle Lab (MVL)
Microsystems Technology Laboratory

Get Involved with Electrical Engineering

CSAIL Student Social Committee
Electric Vehicle Team
Electricity Student Research Group
Electronic Research Society
Student Information Processing Board

Institute of Electrical and Electronic Engineers
Power Electronics Society
Women in EECS
Solar Electric Vehicle Team
Robotics Team

UPOP is here to help you! Come talk to us in 1-123 or email us at upopstudentprogram@mit.edu