What can I do with a major in...

Electrical engineering

ACTIVITIES ELECTRICAL ENGINEERING MAJORS DO:

Electrical engineers learn how to design systems based on electronics, optics, and magnetics technology to create hardware solutions including biomedical, communications, computing, energy and imaging applications. Undergraduate programs teach how materials, devices, and circuits operate as well as how to create devices and systems with these. Electrical engineers design analog and digital hardware like analog sensors, digital circuits, embedded systems and mixed signal circuit boards. They also design controls for circuit and system hardware as well as algorithms to process information from signals. Electrical engineers further develop next generation materials, devices, and circuits needed to improve things like energy circuits using renewables, computer hardware using “spintronic” magnetic devices and optical circuits using plasmonics. Electrical engineering knowledge is used to design a wide range of analog and digital systems; some system examples include computers, radio frequency (RF) or optical communications, radars, radio frequency identification tags (RFID), magnetic resonance imaging systems, embedded systems and power systems.

INDUSTRIES ELECTRICAL ENGINEERING MAJORS WORK IN (SAMPLE LISTING):

- Acoustics
- Antennas and propagation
- Broadcasting
- Supercomputing
- Electrical insulation
- Geoscience
- Circuits and systems
- Ultrasonics
- Magnetics
- Power electronics
- Robotics
- Medical technologies
- Consulting
- RF Communications
- Oceanic engineering
- HVAC systems
- Automotive
- Nuclear and plasma sciences
- Industrial/food products
- Healthcare
- Lasers and electro-optics
- Supercomputing
- Telecommunications
- Automation

EMPLOYERS WHO HIRE ELECTRICAL ENGINEERING MAJORS (SAMPLE LISTING):

- Caterpillar
- Cargill
- Cummins
- Seagate Technology
- Tata Consultancy Services
- Avery Dennison
- LasX Industries Inc.
- Schlumberger
- Beckman Coulter
- Alliant Techsystems
- Boston Scientific
- Polaris Industries
- 3M
- Boeing
- National Instruments
- Accenture
- The Dow Chemical Company
- Eaton Corporation
- Flint Hills Resources
- Medtronic
- Garmin International
- Dell
- General Mills
- Lockheed Martin
- Mayo Clinic
- IBM
- Ingersoll Rand
- Logic PD
- ExxonMobil
- Siemens
- Dupont
- Microsoft Corporation
- Entrust Datacard
- Open Systems International
- Starkey Hearing Tech.
- Xcel Energy

TYPES OF POSITIONS FOR ELECTRICAL ENGINEERING MAJORS (SAMPLE LISTING):

- **Electronic engineer**: Employs 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.
- **Computer hardware engineer**: Designs and develops computer hardware, such as computer chips, circuit boards, modems, and printers. Computer hardware engineers also test hardware and supervise its installation.
- **Power engineer**: Deals with generation, transmission, and distribution of electricity as well as design of related devices. These devices include transformers, electric generators, electric motors, high voltage engineering, and power electronics.
- **Control engineer**: Focuses on the modeling of a diverse range of dynamic systems and the design of controllers that will cause these systems to behave in the desired manner.
- **Telecommunication engineer**: Focuses on the transmission of information across a channel such as a coax cable, optical fiber or free space.

**Some of these positions may require an advanced degree.**
USEFUL WEBSITES FOR ELECTRICAL ENGINEERING MAJORS:

Department of Electrical and Computer Engineering  
Computer Work  
Computing Careers  
Dice  
EE Web  

ece.umn.edu  
computerwork.com  
acm.org  
dice.com  
eeweb.com

USEFUL WEBSITES FOR ENGINEERING MAJORS:

Engineer.net  
Engineer Jobs  
Engineering Central  
Graduating Engineer  
ThinkJobs.com  
Engineering.com  
Engineer Info  

engineer.net  
engineerjobs.com  
engcen.com  
gradiatingengineer.com  
thinkjobs.com  
engineering.com  
engineer.info

PROFESSIONAL ORGANIZATIONS:

American Association of Artificial Intelligence  
Association for Computing Machinery  
NSSN: A National Resource for Global Standards  
Institute of Electrical and Electronics Engineers (IEEE)  
IEEE – Computer Society  
International Society for Optical Engineering  
American Council of Engineering Companies  
American Council of Engineering Companies-MN chapter  
National Society of Professional Engineers  
Minnesota Society of Professional Engineers  
Society of Women Engineers  

aaai.org  
acm.org  
nssn.org  
ieee.org  
computer.org  
spie.org  
acec.org  
acecmn.org  
nspe.org  
mnspe.org  
swe.org

*Additional job/internship search websites and resources can be found at cse.umn.edu/career.

Information on this page was compiled from the Occupational Outlook Handbook, the Encyclopedia of Careers and Vocational Guidance, University of Minnesota departmental websites, and student-reported data.