

WHAT ELECTRICAL ENGINEERS DO

Electrical Engineering (EE) – the largest engineering branch - deals with the study of Electricity, Electronics, and Electromagnetism and the way these theories are applied to sub-disciplines such as:

- Generation, Transmission and Distribution of Electric Power,
- Telecommunication Systems including Wireless Communications,
- Automatic Control Systems and Robotics,
- Aviation Electronic (Avionics) Systems,
- Aerospace and Electronics Systems,
- Computers and Microprocessors,
- Lasers, Optoelectronic and Superconductor Devices,
- Microelectronic Devices and Integrated Circuit Technology,
- Signal Processing,
- Microwave Systems and Electromagnetic Wave Propagation & Antennas,
- Audio, Speech, Video and Image Processing,
- Automotive Electronics,
- Industrial Sensors and Instrumentation,
- Power Electronics, Fuel Cells, Renewable Energy
- Nanoelectronics and Nanofabrication,
- Ultrasonic Imaging, Bio-Engineering and Medical Electronics

Electrical Engineers design products affecting everything from public health to safety, and ranging from huge electric power generators to miniature microprocessor chips. These products include:

- Devices for the generation & delivery of electric power to consumers: (homes/businesses/industry),
- Electronic instruments to measure temperature, speed, pressure and flow rate.
- Computers embedded into systems enriched with methods of data processing & storage,
- Communications systems: radio, tv, satellite systems, telephones and fiber-optic systems,
- Aircraft flight control and collision-avoidance systems,
- Systems used in medical electronics, medical lasers,
- Systems that educate and entertain: computers and computer networks, compact-disk players, and multimedia systems.

A Day in the Life of a Project Electrical Engineer

08:00 AM – Respond to emails and voicemail

08:45 AM – Check with team engineers on new product development

09:15 AM – Meeting: discuss details for a new product design

10:15 AM – Contact customers to resolve technical issues

10:20 AM – Build simulation prototypes for proposed new products

11:15 AM – Meet with marketing and accounting colleagues for revision plans

12:00 PM – Have business lunch with team members, discuss plans for weekend

01:10 PM – Daily Meeting: Discuss with team members on progress of current projects

02:00 pm – Weekly Meeting: Update supervisors on status and progress of projects

03:00 pm – On the floor: Determine cause of manufacturing defect on tested product

04:00 pm – Meet outside vendors visiting the company

04:30 pm – Work on everything else you did not have time to deal with during the day.

Most Electrical Engineering Jobs are in the following places:

- Engineering and Business Consulting Companies,
- Government Agencies,
- Manufacturers of Electrical and Electronic Equipment,
- Manufacturers of Computer and/or Industrial Equipment,
- Transportation, Communications and Utility Companies,
- Computer and Data Processing Services Companies.

Sample of Companies that Hire Electrical Engineers:

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|-----------------------|--------------------|--------------------|
| • AT&T | • Verizon | • Silicon Graphics |
| • Microsoft | • Walt Disney | • Lucent |
| • Ericsson, Inc. | • AEP | • Kimberly-Clark |
| • Milliken | • Electronic Arts | • NASA |
| • General Electric | • Sun Microsystems | • NSA |
| • Procter & Gamble | • Qualcomm | • Rockwell |
| • IBM | • Cisco Systems | • RoviSys |
| • Sprint Corporation | • 3Com | • Ford Motor |
| • Intel Corporation | • Nortel Networks | • Boeing |
| • Texas Instruments | • Audiovox | • General Motors |
| • International Paper | • Johnson Controls | • Honda |
| • Hewlett-Packard | • Raytheon | • Lockheed Martin |
| • Honeywell | • TRW | |

JOB RELATED DATA

- 300,000 Electrical Engineers are currently employed in the US.
- BS degree new graduates receive starting offers averaging **\$53K** per year.
- MS and Ph.D. degree graduates average **\$66K** and **\$78K** per year.
- Median Annual Earnings for all EEs were **\$70K** per year in 2005.

At Ohio University the three related majors: (Electrical Engineering, Computer Engineering and Computer Science) have the following course distribution:
(Electrical Engineering and Computer Engineering Majors also receive an automatic Math Minor with proper elective-course planning):

CLASSES	ELECTR. ENG. MAJR	COMP. ENG. MAJR	COMP. SCIENCE MAJR
ELECTRICAL ENGIN.	20	13	1
COMPUTER ENGIN.	2	8	3
COMPUTER-SCIENCE	2	6	15
MATH/SCIENCE	12	11	9
GENERAL-EDUCATION	6	6	7
ENGLISH	2	2	2
FOREIGN LANGUAGE			3
OTHER (ME-CE-etc)	3	1	4
Hardware-vs-Software	90 / 10	70 / 30	30 / 70