# WHAT ELECTRICAL ENGINEERS DO

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

- Generation, Transmission and Distribution of Electric Power,
- Telecommunication Systems including Wireless Communications,
- Automatic Controls 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 ranging from huge electric power generators and transformers to miniature microprocessor chips, affecting everything from public health to safety, and including:

- Devices for the generation & delivery of electric power to homes/businesses/industry,
- Electronic Instruments to measure temperature, speed, pressure and flow rate.
- Computers incorporated into devices and systems enriched with methods of data processing & storage,
- Communications systems: radio, television, 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 product
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

Over →

04:00 pm – Welcome 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:

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

## 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 have the following class distribution:**

| 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** |

References: http://www.answers.com/topic/electrical-engineering
http://www.princetonreview.com/cte/profiles/dayInLife.asp?careerID=58
http://www.eecs.umich.edu/~ieee/v2/images/stories/jobresources/lutron-ee-analog.pdf
http://www.ieee.org

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http://www.ieee.org