Electronic Engineering

About my job:

As an electronic engineer, I design, develop, test and supervise the R&D, manufacturing and implementation of electronic and firmware systems, such as control equipment, networks, photonics, sensors, custom integrated circuits, electric motors, radar and navigation systems and power generation equipment.

More about my job:

Electrical engineers also develop electronic equipment such as fiber optic systems, virtual systems, robotic and remote systems, sensors and instrumentation systems.

What I do every day:

- Design and develop new products

- Prepare technical specifications of electrical systems, including custom integrated circuits and sensors to ensure that installation and operations conform to standards and customer requirements

- Operate computer-assisted engineering and design software and equipment to perform engineering tasks

- Direct and coordinate manufacturing, construction, installation, maintenance, support, documentation and testing activities to ensure compliance with specifications, codes and customer requirements

- Design, implement and maintain electrical instruments, equipment, facilities, components, products and systems for commercial, industrial and domestic purposes

- Perform detailed calculations to compute and establish manufacturing, construction and installation standards or specifications

- Plan or implement research methodology or procedures to apply principles of electrical theory to engineering projects

What makes my job great?

Job growth:
The projected growth for electronic engineers in the state of Ohio is 5.2 percent.

Short-term training:
Many of the employers hiring in this field prefer that applicants have earned an associate degree.

Good pay:
The average median salary is $78,827. (That means that 50 percent electronic engineers earn less and the other 50 percent earn more.)

Benefits:
Most electrical engineers work full time, with benefits that may include:

- **Health care**
- **Dental**
- **Paid vacation**

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How can you become an electronic engineer?

Academic/training credentials:
Most employers require a bachelor's degree in electronic engineering or electronic engineering technologies. Employers prefer degrees that have been obtained through an ABET accredited program.

Work experience/internships:
Internships/apprenticeships are very valuable for students to have on their resume when applying for jobs.

Skills and requirements:

- Strong computer skills
- Excellent problem solving and creative thinking skills
- Strong verbal and written communications skills
- Most electronic engineers work full time and overtime is common
- May work evenings, and weekends
- Many travel for meetings, and some for international companies

Where you can find jobs:

- Online job boards
- Local career fairs
- Networking
- Department of Career Services at colleges

Potential job titles:

- Electrical engineer
- Electrical design engineer
- Project engineer
- Embedded firmware/software engineer
- Electrical controls engineer
- Test engineer
- Hardware design engineer
- Broadcast engineer
- Circuits engineer
- Electrical and instrument maintenance supervisor
- Electrical project engineer

Potential local employers:

- Parker Hannefin
- Cleveland Business Consultants
- The Lincoln Electric Company
- Karpinski Engineering,
- Pressco Technology
- Amtec
- General Electric
- Swagelok

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Electronic Engineering

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Local educational opportunities

Technical prep:

- A-Tech: electricity program
- Auburn Career Center: electrical engineering prep program
- Excel TECC: CADD engineering technology program
- Lake Shore Compact: CAD engineering program

Two-year institutions:

- Lakeland Community College: Associate of Applied Science
  in electronics engineering technology
    - Electronic Systems Fundamentals Certificate
    - Advanced Electronic Technology Certificate

Four-year institutions:

- Kent State University: Bachelor of Science
  in Engineering Technology Electrical/Electronics Concentration
- University of Akron: Bachelor of Science
  in Electronic Engineering Technology

Coursework per educational entity:

Secondary pathway:
Engineering & Design

Postsecondary program:
Electrical Engineering Technology

An Example of Course
with Secondary and
Postsecondary Credits

Secondary	7 8	English I	Algebra I	Physical Science	Social Studies	Fine Arts	Pre-Engineering Technologies		
	9 10	English II	Algebra II	Biology	World History	Health (.5) PE (.5)	Engineering Principles	DC & AC Electronic Circuits	World Languages
	11	English III	Geometry	Chemistry	U.S. History	Analog-Based Electronic Circuits	Digital Electronics	World Languages	
	12	English IV	Trigonometry/ Calculus	Physics	U.S. Government	Robotics	Engineering Capstone		
Postsecondary	Year 1 1st Semester	Direct Current Circuit Analysis	English Composition	Intro to Engineering Technology	First Year Experience	Technical Mathematics I	Applied Physics		
	Year 1 2nd Semester	C Programming for Engr. Technology	Alternating Current Circuit Analysis	DC & AC Current Laboratory	Digital Systems Fundamentals	Technical Mathematics II	Applied Physics II		
	Year 2 1st Semester	Basic Economics	Linear & Switch-Mode Power Supplies	Microcontroller Applications	Digital Systems & Microcontroller Laboratory	Programmable Logic Controllers	Introduction to Humanities	Technical Elective	
	Year 2 2nd Semester	Effective Public Speaking	Operational Amps & Linear Integrated Circuits	Power Supply & Intg. Circuits Laboratory	Sensors, Actuators, & Control	Robotics Project Lab	Motor Control & Servo Systems		

High School Career-Technical Education Program Courses

High School Courses for Postsecondary Credit (Including Apprenticeship Hours) and the Corresponding Postsecondary Courses
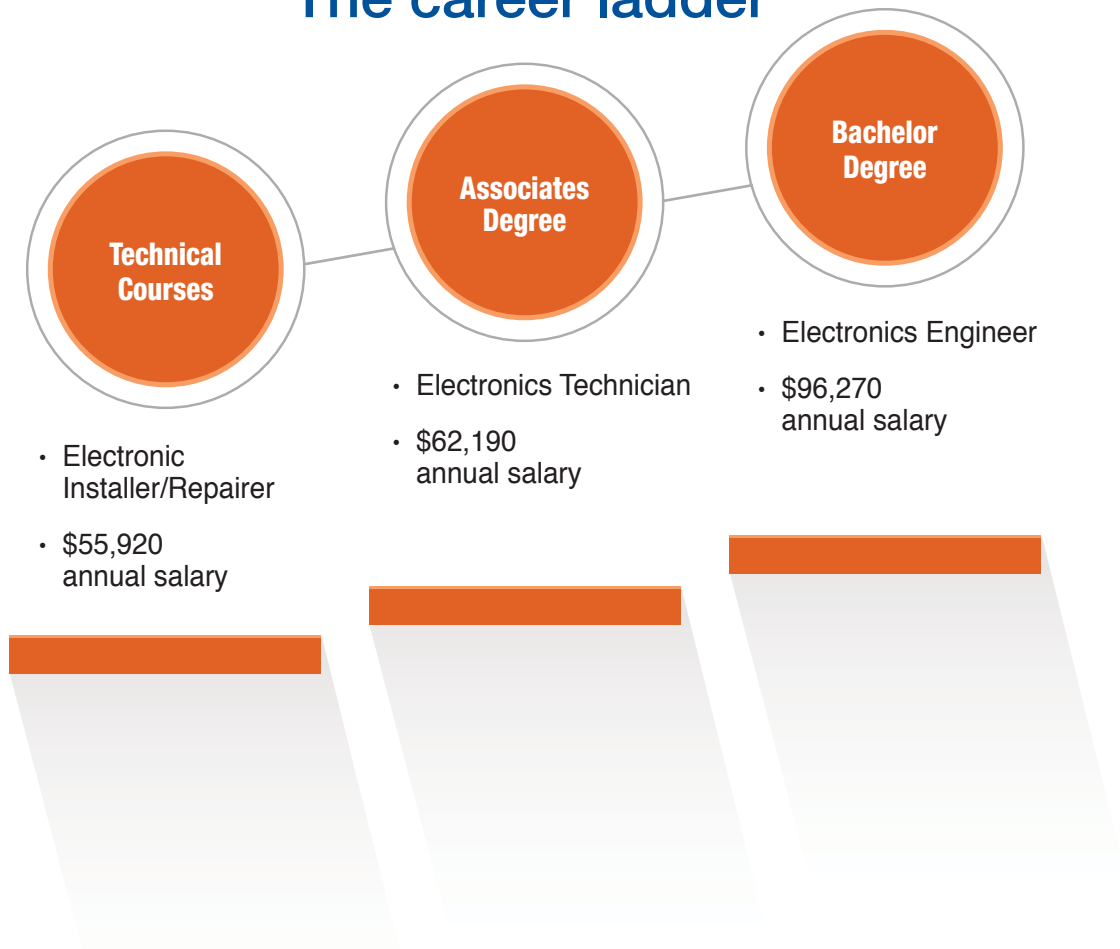
Required Courses

Recommended Electives

Ohio | Department of Education   Ohio MEANS Jobs   Ohio | Board of Regents University System of Ohio

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How can I grow my career?

Where could I focus or specialize in my career?

- Electronic component manufacturing
- Research and development
- Maintenance and testing

The career ladder

Technical Courses

Associates Degree

Bachelor Degree

- Electronic Installer/Repairer
- $55,920 annual salary

- Electronics Technician
- $62,190 annual salary

- Electronics Engineer
- $96,270 annual salary

Sources/References:

Ohio Means Jobs, Bureau of Labor Statistics – Occupational Outlook Handbook

O*Net Online-Summary Report, Ohio Labor Market and Finance 2013 Information

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