

# Instrumentation Apprenticeship (Electrical and Electronic)

## Did you know?\*

- Employment of electrical and electronic engineering technicians is expected to grow 2 percent from 2010 to 2020, resulting in little or no change for this occupation.
- Some of these technicians work in traditional manufacturing industries, many of which are growing slowly or declining. However, employment growth for electrical and electronic engineering technicians will likely occur in engineering services firms as companies seek to contract out these services as a way to lower costs. They also work closely with electrical and electronics and computer hardware engineers in the computer systems design services industry. Demand is expected to be high for technicians in this industry as computer and electronics systems become more integrated. For example, computer, cellular phone, and global positioning systems (GPS) technologies are being included in automobiles and various portable and household electronics systems.

\*Statistics retrieved from the U.S. Bureau of Labor Statistics.

## What Does a Instrumentation Techs Do?

Electrical and electronic engineering technicians help engineers design and develop computers, communications equipment, medical monitoring devices, navigational equipment, and other electrical and electronic equipment. They often work in product evaluation and testing, using measuring and diagnostic devices to adjust, test, and repair equipment.

### Tasks:

- Read blueprints, wiring diagrams, schematic drawings, or engineering instructions for assembling electronics units, applying knowledge of electronic theory and components.
- Identify and resolve equipment malfunctions, working with manufacturers or field representatives as necessary to procure replacement parts.
- Test electronics units, using standard test equipment, and analyze results to evaluate performance and determine need for adjustment.
- Adjust or replace defective or improperly functioning circuitry or electronics components, using hand tools or soldering iron.
- Assemble, test, or maintain circuitry or electronic components, according to engineering instructions, technical manuals, or knowledge of electronics, using hand or power tools.
- Perform preventative maintenance or calibration of equipment or systems.
- Maintain system logs or manuals to document testing or operation of equipment.
- Provide customer support and education, working with users to identify needs, determine sources of problems, or to provide information on product use.
- Write reports or record data on testing techniques, laboratory equipment, or specifications to assist engineers.
- Procure parts and maintain inventory and related documentation.

## What Are the Working Conditions?

Electrical and electronic engineering technicians held about 151,100 jobs in 2010. Electrical and electronic engineering technicians work closely with electrical engineers. They work in offices, laboratories, and factories because their job tasks involve both engineering theory and assembly line production. Electrical and electronic engineering technicians may be exposed to hazards from equipment or toxic materials, but incidents are rare if proper procedures are followed.

## How is the Training Structured?

- 4 year training program
- 8,000 hours on-the-job training
- 144 hours of related instruction per year

## What are the Application Requirements?

- Must be 18 years old
- High school diploma or equivalent
- Must be able to perform the required work
- Valid driver's license and reliable transportation

## What Skills Should I Possess?

- **Reading Comprehension** — Understanding written sentences and paragraphs in work related documents
- **Complex Problem Solving** — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- **Critical Thinking** — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- **Active Listening** — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.
- **Monitoring** — Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action.
- **Speaking** — Talking to others to convey information effectively.
- **Troubleshooting** — Determining causes of operating errors and deciding what to do about it.
- **Active Learning** — Understanding the implications of new information for both current and future problem-solving and decision-making.
- **Operation Monitoring** — Watching gauges, dials, or other indicators to make sure a machine is working properly.
- **Repairing** — Repairing machines or systems using the needed tools.

## Additional Resources

The United States Bureau of Labor Statistics maintains information on all occupations. For more information on the Plumbing and Pipefitting trades in the United States, visit:

<http://www.bls.gov/ooh/architecture-and-engineering/electrical-and-electronic-engineering-technicians.htm#tab-1>

## Who to Contact in Mississippi

For more information on becoming a instrumentation technician contact MCEF at 601-605-2989.