



Course Description

EEV0162 | Low Voltage Technician 1 | 5.00 credits

This course is an overview of the trade with an introduction to construction safety and hand and power tools used in the construction industry. Students will learn basic written and verbal communication skills, basic mathematics, construction methods and techniques, building codes, and how to read construction drawings. Prerequisite: TABE test.

Course Competencies

Competency 1: The student will be able to demonstrate competency in Career Ready Practices by:

1. Acting as a responsible and contributing citizen and employee
2. Applying appropriate academic and technical skills
3. Attending to personal health and financial well-being
4. Communicating clearly, effectively and with reason
5. Considering the environmental, social and economic impacts of decisions. Demonstrating creativity and innovation
6. Employing valid and reliable research strategies
7. Utilizing critical thinking to make sense of problems and persevering in solving them
8. Modeling integrity, ethical leadership and effective management
9. Planning education and career path aligned to personal goals
10. Using technology to enhance productivity
11. Working productively in teams while using cultural/global competence

Competency 2: The student will be able to identify differences between alternating current (AC) and direct current (DC) by:

1. Explaining basics of electrical distribution (Optional)
2. Describing the fundamentals of AC and DC electricity
3. Describing the distribution of AC and DC
4. Identifying the difference between single-phase and three- phase power

Competency 3: The student will be able to identify the parameters of and the differences in voltages (e.g. 12, 24, 120, 240, 277, 480, etc.) by:

1. Explaining the differences in and the relationship between voltage and current; understand the implications of limiting one versus the other and how this applies to the distinctions between types of work
2. Identifying the difference between Class 1, Class 2 and Class 3 circuits, including voltage differences.
3. Identifying differences between alternating current (AC) and direct current (DC)

Competency 4: The student will be able to identify the four basic units of measurement used with electricity and explain how they relate to Ohm's Law by:

1. Learning the basic algebra required for using Ohm's Law
2. Describing the difference between watts, amperes, volts and ohms
3. Applying Ohm's law and power formulas
4. Explaining the difference between resistance and impedance and identifying resistors by their color code
5. Categorizing the different types of non- color-coded resistors, capacitors, coils, chokes, inductors, and transformers
6. Describing the relationship between inductance, capacitance, and reactance as they relate to impedance.
7. Calculating impedance of both series and parallel circuits

Competency 5: The student will be able to read and identify planning tools, including construction drawings and

symbols on drawings by:

1. Describing different types of construction drawings
2. Identifying symbols commonly used on construction drawings, as referenced in ANSI J-STD-710-2015: Audio, Video and Control Architectural Drawing Symbols Standard

Competency 6: The student will be able to identify the various types of documentation tools and methods used on a job/project by:

1. Identifying and explaining the purpose of the following documentation tools: Construction drawings, cable schedule, work order, change order, materials delivery/shipper, timesheet, rack/cabinet layout drawing, block diagram, schematic, software, safety data sheets (SDS), punch list, and as-built diagrams
2. Reading and interpreting common company documents and typical field documents
3. Identifying the parameters of and the differences in voltages (e.g. 12, 24, 120, 240, 277, 480, etc.)

Competency 7: The student will be able to use and maintain hand and power tools and test equipment in a manner that complies with OSHA requirements and general safety best practices by:

1. Safely using and maintaining common hand and power tools and test equipment used in electronics integration, in accordance with OSHA standards and best practices
2. Applying appropriate safety practices for fall protection when using scaffolding and ladders

Learning Outcomes:

- Use quantitative analytical skills to evaluate and process numerical data
- Formulate strategies to locate, evaluate, and apply information
- Use computer and emerging technologies effectively