

# Carpentry I

**Credit Hours:** 3-4

**Description:** The Carpentry I course helps learners to build general carpentry skills through NCCER General Carpentry curriculum. The included NCCER General Carpentry modules prepare individuals for entry-level positions on project sites by providing instruction and hands-on training for an orientation to the carpentry trade, building materials and fasteners, construction plans & documents, and site and building layout. Students taking this course, combined with the Carpentry II course, will be prepared to take and pass the General Carpentry exam to earn the NCCER General Carpentry credential. *All content from NCCER General Carpentry 6<sup>th</sup> edition modules.*

## **ORIENTATION TO CARPENTRY**

### Learning Objectives

1. Identify the career and training opportunities within the carpentry trade.
  - Describe craft training opportunities within the carpentry trade.
2. Explain the importance of safety in carpentry, and how it impacts contractors and craft professionals on the jobsite.
  - Describe the OSHA Outreach Training Program and contents of a site-specific safety plan (SSSP).
3. Identify skills and attributes of successful carpenters.
  - List the skills and responsibilities of professional carpenters.
  - Summarize the traits and standards followed by professional carpenters.
4. Explain how organizations like SkillsUSA help you connect with construction craft professionals.
  - Describe SkillsUSA programs/competitions and the value they offer to the carpentry trainees and participating organizations.
  - List the seven goals of the SkillsUSA Program of Work.

### Performance Tasks

This is a knowledge-based module. There are no Performance Tasks.

## **BUILDING MATERIALS AND FASTENERS**

### Learning Objectives

1. Identify safety hazards and precautions associated with wood, concrete, steel, and composite building materials.
  - Describe the focus four and explain how to reduce hazards associated with handling carpentry materials.
  - Explain the benefits of a job hazard analysis.
2. Identify different types of building materials and calculate needed quantities.
  - Summarize the types of lumber, their characteristics, and how lumber is graded.

- Describe the types of treated lumber.
  - Identify engineered wood products and their applications.
  - Distinguish between the types of concrete construction materials.
  - Describe the types of steel framing and their applications.
  - Summarize how to calculate lumber, panel, and concrete quantities.
3. Explain how to properly handle and store building materials.
    - Describe how to safely handle and store wood, concrete, and steel building materials.
  4. Identify fasteners, anchors, and adhesives used in construction.
    - Describe different types of nails, screws, bolts, and staples.
    - Summarize the categories of mechanical anchors.
    - List adhesives used in construction and identify their applications.

#### Performance Tasks

1. Learning Objective 2 - Given a selection of building materials, identify a particular material and state its use.
2. Learning Objective 2 - Calculate building material quantities using the described methods.
3. Learning Objective 4 - Demonstrate safe and proper installation of various types of fasteners, anchors, and adhesives.

### **CONSTRUCTION PLANS & DOCUMENTS**

#### Learning Objectives

1. List drawings included in a set of construction plans and explain how to read them.
  - Describe the purpose of each type of drawing in a set of plans.
  - Identify selected lines, architectural symbols, and abbreviations used on plans.
  - Describe the methods of dimensioning construction drawings.
2. Describe the purpose of written specifications.
  - Summarize how specifications are organized.
  - Explain the importance of construction building codes.

#### Performance Tasks

1. Learning Objective 1 - Read and interpret construction plan drawings.
2. Learning Objective 1 - Read and interpret schedules.
3. Learning Objective 2 - Read and interpret written specifications.

### **PRINCIPLES OF SITE AND BUILDING LAYOUT**

#### Learning Objectives

1. Explain how construction drawings are used in site and building layout.
  - Summarize tasks performed during site and building layout.
  - Describe the types of construction drawings used to lay out a building site.
2. Understand fundamental construction math concepts and right triangle calculations used in site layout.
  - Explain how angles, shapes, and the Pythagorean Theorem are used in site and building layout.

3. Describe measuring and leveling tools used in performing site and building layout.
  - Identify measuring tools and their applications.
  - Describe leveling tools and their applications.
  - Describe site layout instruments and equipment.
4. Explain how to measure horizontal and vertical distances, establish building lines, and verify corners are square.
  - Describe how to measure horizontal and vertical distances.
  - Summarize how to establish building lines with batter boards and verify corners are square.

#### Performance Tasks

1. Learning Objective 3 - Demonstrate the ability to use common measuring and leveling tools.
2. Learning Objective 3 - Use a water level, builder's level, laser level, or transit level to determine elevations and angles.
3. Learning Objective 4 - Use the 3-4-5 rule or Pythagorean Theorem to verify that intersecting walls are square.