## Introductory Craft Skills – 2-3 Credit Hours

*All content from NCCER Core 6th edition modules.*

**BUILDING YOUR FUTURE IN CONSTRUCTION**

Learning Objectives

1. Describe the construction industry.
   - Define construction and summarize the current and future outlook for jobs.
   - Identify some of construction's more prominent contributions in history.
2. Explain the benefits of a construction career.
   - Recognize and describe how construction careers make a difference in the community.
   - Describe the financial and professional benefits of pursuing a construction career.
3. Describe the typical career path for craft professionals.
   - Describe industry sectors and the progression path for construction careers.
   - Identify different construction careers and the types of skills they require.
4. Identify ways to pursue a career in the construction industry.
   - Explain the benefits of career and technical education programs.
   - Describe the advantages of craft training programs and their relationship with apprenticeships.
   - Summarize the path to a construction career through community colleges and universities.

Performance Tasks

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

**BASIC SAFETY (CONSTRUCTION SITE SAFETY ORIENTATION)**

Learning Objectives

1. Explain the benefits of safety, the cost of workplace incidents, and ways to reduce related hazards.
   - Describe the types of workplace incidents along with physical and monetary impacts.
   - Summarize the causes and consequences of common incidents.
   - Explain how to recognize, evaluate, and control workplace hazards.
2. Describe common fall hazards and methods to prevent them.
   - Summarize the most common types of construction fall hazards.
   - Describe components of effective fall arrest systems and how they prevent or halt falls.
   - Explain how to use ladders and stairs safely.
   - Identify key steps to ensuring scaffolds are assembled and used safely.
3. Recognize and avoid struck-by and caught-in/caught-between hazards.
   - Describe struck-by hazards and how to avoid them.
   - Describe common caught-in/caught-between hazards and steps that can prevent them.

4. Identify common electrical hazards and how to avoid them.
    - Summarize basic job-site electrical safety guidelines.
    - Explain the importance of disabling equipment as well as basic lockout/tagout procedures.
5. Associate personal protective equipment (PPE) with the hazards they reduce or eliminate.
    - Explain how PPE is used to protect craftworkers from different types of injuries.
    - Explain how respirators protect craftworkers from respiratory dangers.
6. Describe safety practices used with other common job-site hazards.
    - List other types of hazards craftworkers may encounter.
    - Describe common environmental hazards and how craftworkers should respond to them.
    - Summarize hazards associated with hot work.
    - Identify fire hazards and describe basic firefighting procedures.
    - Name different types of confined spaces and how to avoid related hazards.

Performance Tasks

1. Learning Objective 2 - Properly set up and climb/descend an extension ladder, demonstrating proper three-point contact.
2. Learning Objectives 2 and 5 - Inspect the following PPE items and determine if they are safe to use:
    - Eye protection
    - Hearing protection
    - Hard hat
    - Gloves
    - Fall arrest harnesses
    - Lanyards
    - Connecting devices
    - Approved footwear
3. Learning Objectives 2 and 5 - Properly don, fit, and remove the following PPE items:
    - Eye protection
    - Hearing protection
    - Hard hat
    - Gloves
    - Fall arrest harness
4. Learning Objective 4 - Inspect a typical power cord and GFCI to ensure their serviceability.

**INTRODUCTION TO CONSTRUCTION MATH**

Learning Objectives

1. Identify whole numbers and solve basic arithmetic problems with them.
    - List the key qualities of whole numbers and summarize their place values.
    - Add and subtract whole numbers.

- Multiply and divide whole numbers.

2. Name fraction types and calculate with fractions.
   - Define equivalent fractions and calculate their lowest common denominators.
   - Define improper fractions and convert them into mixed numbers.
   - Add and subtract fractions.
   - Multiply and divide fractions.
3. Identify decimal numbers and calculate with them.
   - List the key qualities of decimal numbers and summarize their place values.
   - Add, subtract, multiply, and divide decimal numbers.
   - Convert between decimals, fractions, and percentages.
4. Name the common length-measuring tools and use them to measure lengths accurately.
   - Describe English and metric rulers, using them correctly to measure lengths.
   - Describe English and metric measuring tapes, using them correctly to measure lengths.
5. Name common length, weight, volume, and temperature units in both the inch-pound and metric systems and convert them into other comparable units.
   - List and convert between common inch-pound and metric length units.
   - List and convert between common inch-pound and metric weight units.
   - List and convert between common inch-pound and metric volume units.
   - List and convert between common inch-pound and metric temperature units.
6. Classify angles and geometric shapes, as well as calculating their areas or volumes.
   - List each angle type.
   - Name common geometric shapes and summarize their qualities.
   - Calculate the area of two-dimensional shapes.
   - Calculate the volume of three-dimensional shapes.

Performance Tasks

1. Learning Objective 4 - Using a measuring tape, measure lumber pieces in both English and metric units.
2. Learning Objective 4 - Using a measuring tape, measure a room-sized space in both English and metric units.
3. Learning Objective 4 - Using a measuring tape, determine a short inside measurement in both English and metric units.
4. Learning Objective 4 - Add English measurements that include fractions.

**INTRODUCTION TO HAND TOOLS**

Learning Objectives

1. Name common hand tools and state how to use them.
   - Identify various hammers and demolition tools and explain how to use them.

- Describe chisels and punches and how they are used.
- Match screwdrivers to the appropriate hardware.
- Differentiate between non-adjustable, adjustable, and socket wrenches.
- Describe various types of pliers and explain how they are used.

2. Identify common measurement and layout tools and describe how to use them.
   - Explain how to use a variety of measuring tools.
   - Define various types of levels and layout tools and indicate how they are used.
3. Identify and describe other hand tools common to shops and job sites.
   - Differentiate between various handsaws and their designated applications.
   - Identify common clamp designs.
   - Explain how different files and utility knives are used with various materials.
   - Describe shovels and picks and the tasks for which each one is best suited.

Performance Tasks

1. Learning Objectives 1 through 3 - Inspect and demonstrate the safe and proper use of the following hand tools:
   - Hammers
   - Demolition tools
   - Chisels and punches
   - Screwdrivers
   - Adjustable wrenches
   - Non-adjustable wrenches
   - Sockets
   - Pliers
   - Tape measures
   - Levels
   - Squares
   - Handsaws
   - Clamps
   - Files
   - Utility knives
   - Shovels

**INTRODUCTION TO POWER TOOLS**

1. Identify and explain how to use various types of power drills and impact wrenches.
   - Summarize basic power tool safety guidelines.
   - Identify common power drills and bits and explain how to use them.
   - Describe the difference between hammer drills and impact drivers.
   - Identify pneumatic drills and impact wrenches and explain how to use them.
2. Identify and explain how to use various types of power saws.
   - Explain how to use a circular saw and identify different types of blades.

- Differentiate between jigsaws and reciprocating saws and explain how to use them.
- Explain how to use a portable band saw.
- Describe the difference between miter saws and cutoff saws.
- Explain how to use table saws and describe the types of jobs for which they are best suited.

3. Describe the types of jobs best suited to grinders and oscillating multi-tools.
   - Explain how to use various types of grinders.
   - Identify grinder accessories and the jobs for which they are used.
   - List the type of jobs that can be performed using an oscillating multi-tool.
4. Identify and explain how to use miscellaneous power tools.
   - Discuss the hazards of using power nailers.
   - Describe jobs that can be performed with hydraulic jacks.

<u>Performance Tasks</u>

1. Learning Objectives 1 through 4 - Safely and properly demonstrate the use of the following tools:
   - Electric drill (corded or cordless)
   - Hammer drill
   - Impact driver
   - Circular saw
   - Jigsaw
   - Reciprocating saw
   - Portable band saw
   - Miter or cutoff saw
   - Table saw
   - Portable or bench grinder
   - Oscillating multi-tool
   - Power nailer