

Carpentry 1, 2, 3, and 4 6091, 6092, 6093, 6094

If a student takes Introduction to Construction and scores 70% on all assessments (A-H), he or she does not have to repeat these modules in Air Conditioning and Refrigeration Technology, Building Construction, Cabinetmaking, Carpentry, Electricity, Masonry, Mechatronics Integrated Technology, Plumbing, and Welding.

NCCER CONTREN® CORE MODULES

MODULE A: BASIC SAFETY

1. Identify the responsibilities and personal characteristics of a professional craftsman.
2. Explain the role that safety plays in the construction crafts.
3. Describe what job-site safety means.
4. Explain the appropriate safety precautions around common job-site hazards.
5. Demonstrate the use and care of appropriate personal protective equipment.
6. Follow safe procedures for lifting heavy objects.
7. Describe safe behavior on and around ladders and scaffolds.
8. Explain the importance of the HazCom (Hazard Communication Standard) requirement and MSDs (Material Safety Data Sheets).
9. Describe fire prevention and fire fighting techniques.
10. Define safe work procedures around electrical hazards.
11. Complete 10-hour OSHA course/assessment and receive card. (SDE Requirement)

MODULE B: BASIC MATH

1. Add, subtract, multiply, and divide whole numbers, with and without a calculator.
2. Use a standard ruler and a metric ruler to measure.
3. Add, subtract, multiply, and divide fractions.
4. Add, subtract, multiply, and divide decimals, with and without a calculator.
5. Convert decimals to percents and percents to decimals.
6. Convert fractions to decimals and decimals to fractions.
7. Explain what the metric system is and how it is important in the construction trade.
8. Recognize and use metric units of length, weight, volume, and temperature.
9. Recognize some of the basic shapes used in the construction industry and apply basic geometry to measure them.

MODULE C: INTRODUCTION TO HAND TOOLS

1. Recognize and identify some of the basic hand tools used in the construction trade.
2. Use these tools safely.
3. Describe the basic procedures for taking care of these tools.

MODULE D: INTRODUCTION TO POWER TOOLS

1. Identify commonly used power tools of the construction trade.
2. Use power tools safely.
3. Explain how to maintain power tools properly.

MODULE E: INTRODUCTION TO BLUEPRINTS

1. Recognize and identify basic blueprint terms, components, and symbols.
2. Relate information on blueprints to actual locations on the print.
3. Recognize different classifications of drawings.
4. Interpret and use drawing dimensions.

MODULE F: BASIC RIGGING (Optional)

1. Explain how ropes, chains, hoists, loaders, and cranes are used to move material and equipment from one location to another on a job site.
2. Describe inspection techniques and load-handling safety practices.
3. Explain the American National Standards Institute (ANSI) hand signals.

MODULE G: BASIC COMMUNICATION SKILLS (SDE Requirement)

1. Explain techniques for communicating effectively with coworkers and supervisors.
2. Demonstrate verbal and written communication skills necessary in the workplace.
3. Demonstrate telephone and e-communication skills necessary in the workplace.

MODULE H: BASIC EMPLOYABILITY SKILLS (SDE Requirement)

1. Identify the roles of individuals and companies in the construction industry.
2. Explain the importance critical thinking and problem solving skills in the workplace.
3. Describe computer systems and their industry applications.
4. Explain interpersonal relationship skills, self-presentation, and key workplace issues such as sexual harassment, stress, and substance abuse.

Carpentry Standards 1, 2, 3, and 4

UNIT A: DEMONSTRATING BASIC BUILDING SITE PREPARATION SKILLS

1. Describe the major responsibilities of the contractor/carpenter relative to site layout.
2. Use and properly maintain tools and equipment associated with taping.
3. Use taping and/or chaining equipment and procedures to make distance measurements and perform site layout tasks.
4. Recognize, use, and properly care for tools and equipment associated with differential leveling.
5. Use a builder's level or laser level or transit and differential leveling procedures to determine site and building elevations.
6. Check and/or establish 90-degree angles using the 3/4/5 rule.

UNIT B: DEMONSTRATING SKILLS NECESSARY TO CONSTRUCT AND SET CONCRETE FORMS

1. Install anchor bolts/foundation ties.

UNIT C: DEMONSTRATING FLOOR FRAMING SKILLS WITH METAL OR WOOD

1. Understand current terms associated with floor framing.
2. Select and use metal framing connectors.
3. Lay out a floor frame.
4. Cut and install sill plates.
5. Install posts and columns.
6. Frame and install a built-up girder/beam.
7. Cut and install floor joists and bridging.
8. Frame floor openings.
9. Install a subfloor.

UNIT D: DEMONSTRATING WALL FRAMING SKILLS WITH METAL OR WOOD

1. Understand current terms associated with wall framing.
2. Select and use metal framing connectors.
3. Lay out a wall frame.
4. Construct corner posts and T-posts.
5. Frame and align an exterior wall.
6. Frame and align a partition wall.
7. Install backing for fixtures or cabinets.
8. Build a box beam.
9. Install structural sheathing.

10. Anchor a partition.
11. Frame wall openings.

UNIT E: INTERPRETING AND DEMONSTRATING USE OF ARCHITECTURAL BLUEPRINTS

1. Read and interpret blueprints and specifications.

UNIT F: DEMONSTRATING ROOF AND CEILING FRAMING SKILLS WITH METAL OR WOOD

1. Understand current terms associated with roof and ceiling framing.
2. Select and use metal framing connectors.
3. Lay out a ceiling frame.
4. Cut and install ceiling joists.
5. Cut and install ceiling joist strongbacks.
6. Frame ceiling openings.
7. Lay out roof openings.
8. Cut and install rafters.
9. Cut and install a ridgeboard.
10. Frame roof openings.
11. Frame gable ends.
12. Cut and install collar ties.
13. Install roof trusses.
14. Install roof sheathing.
15. Lay out common rafters.

UNIT G: DEMONSTRATING SKILLS REQUIRED TO INSTALL ROOFING MATERIALS

1. Apply roof felt paper.
2. Install asphalt composition shingles.
3. Install flashing.
4. Install ridge vent.

UNIT H: DEMONSTRATING EXTERIOR FINISHING SKILLS

1. Install exterior sheathing.
2. Install exterior finish materials.
3. Frame a boxed cornice.
4. Install a window unit.
5. Install exterior doors and lock sets.
6. Install exterior trim.
7. Install door and window flashing.

UNIT I: DEMONSTRATING INTERIOR FINISHING SKILLS

1. Install paneling products.
2. Cut and install furring.
3. Install drywall board.
4. Install interior doors.
5. Cut and install finish flooring.
6. Cut and install interior trim.

UNIT J: DEMONSTRATING SKILLS REQUIRED TO CONSTRUCT STEPS

1. Lay out and cut straight-run stringers.
2. Cut and install risers and treads.

The NCCER Modules that are embedded in the SC Carpentry standards above include the following:

LEVEL 1

MODULE 27102-01 – WOOD BUILDING MATERIALS, FASTENERS, AND ADHESIVES

MODULE 27103-01 – HAND AND POWER TOOLS

MODULE 27104-01 – FLOOR SYSTEMS

MODULE 27105-01 – WALL AND CEILING FRAMING

MODULE 27106-01 – ROOF FRAMING

MODULE 27107-01 – WINDOWS AND EXTERIOR DOORS

LEVEL 2

MODULE 27201-01 – READING PLANS AND ELEVATIONS

MODULE 27202-01 – SITE LAYOUT ONE: DISTANCE MEASUREMENT AND LEVELING (EXCEPT #S 1, 3, 4, 6, 7, AND 9)

Module 27203-01 – INTRODUCTION TO CONCRETE AND REINFORCING MATERIALS is considered advanced for the secondary level and only to be covered if time allows.

Module 27204-01 – FOUNDATIONS AND FLATWORK is also considered advanced and only to be covered if time allows. Use the standards below, some of which are abbreviated from the original.

1. Identify various kinds of footings.
2. Identify the parts of footing forms and explain their purpose.
3. Identify the parts of pier forms and explain their purpose.
4. Demonstrate the ability to lay out and construct selected footing forms.
5. Strip a pier footing form and prepare it for erection at another location.
6. Identify types of concrete structures that require the construction of edge forms:
 - a. Slabs with or without a foundation

- b. Parking lots
 - c. Driveways and streets
 - d. Sidewalks
 - e. Approaches
7. Identify the parts of edge forms and explain their purpose.
 8. Demonstrate the ability to construct and disassemble edge forms for a slab-on grade.
 9. Explain the purpose of a screed and identify the different types of screeds.
 10. Demonstrate the ability to set screeds on grade.

All other modules were considered appropriate for postsecondary level only.