Architecture & Construction: Carpentry Concentration
End of Program Assessment Blueprint

Applies to the following programs:

<table>
<thead>
<tr>
<th>CIP Code</th>
<th>Common Name</th>
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<tbody>
<tr>
<td>46.0201</td>
<td>Carpentry</td>
</tr>
<tr>
<td>46.0415</td>
<td>Construction Technology</td>
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</tbody>
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**BASIC SAFETY (BS) 25%**

**TLO:** The student will demonstrate a working understanding of basic concepts critical to the safe execution of carpentry functions and tasks and the avoidance of job-site accidents

- **BS1:** Explain the relationship between housekeeping and safety
- **BS2:** Discuss the importance of following safety rules and policies including:
  - **BS2.1:** the reporting of on-the-job injuries, accidents, and near misses
  - **BS2.2:** following evacuation procedures
- **BS3:** Discuss the relationship between substance abuse and safety
- **BS4:** Demonstrate proper safety practices:
  - **BS4.1:** when executing lockout-tagout procedures
  - **BS4.2:** when lifting heavy objects
  - **BS4.3:** when working around electrical hazards
  - **BS4.4:** when working flammable materials
- **BS5:** Describe the different types and uses of barriers and barricades
- **BS6:** Describe the different types, uses, and proper care of personal protective equipment
- **BS7:** Describe the different types and proper use of different types of ladders and scaffolds
- **BS8:** Demonstrate an understanding of the OSHA Hazard Communication Standard
- **BS9:** Describe Safety Data Sheets and their use
- **BS10:** Compare and contrast the effectiveness of various fire extinguishers
- **BS11:** Discuss general rules for the safe operation of hand and power tools
- **BS12:** Demonstrate an understanding of Codes/Regulations
HAND (HPT) 5%
AND POWER TOOLS 15%

TLO: The student will demonstrate a working understanding of hand and power tools critical to the execution of construction and carpentry functions and tasks

HPT1: Describe the different types (and uses) of hand tools commonly used in the construction trades, in general, and in carpentry, in particular
HPT2: Describe the different types (and uses) of portable power tools commonly used in the construction trades, in general, and in carpentry, in particular
HPT3: Describe the different types (and uses) of stationary power tools commonly used in the construction trades, in general, and in carpentry, in particular
HPT4: Discuss general rules for the proper maintenance of hand and power tools
HPT5: Demonstrate the proper use of hand tools, portable power tools, and stationary power tools commonly used in the construction trades, in general, and in carpentry, in particular

CONSTRUCTION MATH (CM) 13%

TLO: The student will demonstrate a working understanding of math concepts critical to the execution of carpentry functions and tasks

CM1: Demonstrate ability to add, subtract, multiply, and divide:
   CM1.1: whole numbers
   CM1.2: fractions
   CM1.3: decimals
CM2: Demonstrate ability to use a calculator to add, subtract, multiply, and divide whole numbers and decimals
CM3: Demonstrate ability to convert:
   CM3.1: decimals to percentages and percentages to decimals
   CM3.2: fraction to decimals and decimals to fractions
CM4: Demonstrate ability to use standard rulers
CM5: Perform a quantity takeoff for materials
CM6: Identify methods used to calculate the length of a rafter
CM7: Calculate square foot, linear foot, board foot, volume, and area
BUILDING MATERIALS, FASTENERS, AND ADHESIVE (BM)

5%

TLO: The student will demonstrate a working understanding of building material, fasteners, and adhesives used in the execution of carpentry functions and tasks

BM1: Explain common wood and lumber terminology
BM2: Discuss uses of various types of hardwoods and softwoods
BM3: Discuss various types of lumber imperfections
BM4: Describe and interpret lumber grades
BM5: Discuss how plywood is manufactured and graded
BM6: Describe the uses of the various types of building boards, pressure treated lumber, and engineered lumber
BM7: Discuss proper care methods for lumber and wood building materials at job sites
BM8: Fasteners and Adhesives- screw, nails, etc.

BLUEPRINTS (BP)

2%

TLO: The student will demonstrate an entry-level understanding of how to read blueprints critical to the execution of carpentry functions and tasks

BP1: Explain basic blueprint terminology and symbols
BP2: Discuss information presented in various drawings commonly included in a set of plans
BP3: Demonstrate ability to:
   BP3.1: read plans, elevations, schedules, etc., contained in basic construction drawings
   BP3.2: use a scale ruler

FRAMING (F)

35%
(includes Wall (15%), Roof (5%), Floor (10%), and Stairs (5%))

TLO: The student will demonstrate a working understanding of wall, roof, floor, and stair framing

F1: Recognize terms associated with roof framing
F2: Identify roof-framing members used in gable and hip roofs
F3: Identify different types of floor framing systems
F4: Identify floor and sill framing and support members
F5: Describe methods used to fasten sills to the foundation
F6: Describe different types of floor joists
F7: Discuss the purposes of subflooring and underlayment
F8: Demonstrate ability to use appropriate fasteners to frame a floor
F9: Identify components of a wall and ceiling layout
F10: Describe the proper procedure for laying out a wood frame wall
   (including plates, corner posts, door and window openings, partition T’s, bracing, and firestops)
F11: Describe the proper procedure for assembling and erecting an exterior wall
F12: Describe the common materials used for installing sheathing on walls
F13: Identify the difference between load bearing and non-load bearing walls
F14: Explain the meaning of the terms rise, run, tread, riser, and stringer
F15: Identify important measurements necessary in laying out a stair
F16: Explain the meaning of the term “headroom” in stair construction
F17: Discuss the relationship between unit rise and unit run
F18: Demonstrate ability to:
   F18.1: calculate the proper number of rises needed given a known finish floor to finish floor measurement
   F18.2: calculate the individual riser height and appropriate tread run using commonly accepted carpentry formulas for stair construction