



CARPENTRY

This competency-based course provides the students with a solid foundation in carpentry. Students will engage in virtual reality and interactive videos designed to teach students how to use basic measuring tools, hand tools and machines commonly used in carpentry, to construct basic projects. Additionally, students will examine various wood construction materials and their properties. Throughout the course, students will learn components of site and personal safety, and how to interpret detailed drawings used for construction. Upon completion of this course, the students will be equipped with work-related knowledge and the skills necessary for careers in carpentry, a digital badge in Carpentry, and will be better prepared for the Carpentry Certification Exam.

Title	Objective
Safety: OSHA	Explain the purpose of the Occupational Safety and Health Administration (OSHA), and workplace safety procedures.
Safety: Hand & Power Tools	Explain the safety rules for operating all hand and power tools.
Safety: Transportation, Handling, and Storing	Demonstrate safe transportation, handling, and storing of materials
Safety: Personal Protective Equipment	Demonstrate the inspection, use and care of personal protective equipment.
Tools: Hand & Power Tools	Identify and describe the use of various hand and power tools.
Tool: Using Hand & Power Tools	Demonstrate proficiency in the safe use of hand and power tools.
Tools: Measuring Tools	Read and use carpenter's measuring tools.
Tools: Layout, and Marking Tools	Read and use carpenter's layout and marking tools.
Tools: Clean & Care	Describe how to clean and care for tools and equipment.
Construction Drawings: Terms & Symbols	Recognize and identify basic construction drawing terms, components and symbols.
Construction Drawings: Classifications	Recognize different classifications of construction drawings.
Construction Drawings: Drawing Dimensions	Interpret and use drawing dimensions and architectural scales.
Construction Drawings: Basic Floor Plans	Draw or sketch basic floor plans and/or shop drawings.

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Construction Drawings: Locations	Relate information on construction drawings to actual locations on the print.
Construction Drawings: Material Quantities	Estimate material quantities based on construction drawings.
Construction Drawings: Building Codes	Explain the purpose and importance of the building codes.
Construction Drawings: Green Building Practices	Identify green building practices and its importance in successful building projects.
Construction Drawings: Elevations	Establish building and final grade elevations.
Building Materials: Grades & Species of Lumber	Identify the grades and species of lumber and their appropriate uses.
Building Materials: Lumber Sizes	Identify the actual and nominal sizes of lumber.
Building Materials: Grades of Plywood	Identify the grades of plywood and wood products.
Building Materials: Durability & Strength of Lumber	Identify defects and blemishes that affect the durability and strength of lumber.
Building Materials: Effects of Temperature & Moisture on Materials	Explain the effects of temperature extremes, chemical reaction and moisture content on building materials.
Building Materials: Engineered Lumber	Explain the uses of various types of engineered lumber.
Building Foundations: Types of Footing & Foundations	Identify various types of footing and foundations.
Building Foundations: Types & Characteristics of Concrete	Identify the different types and characteristics of concrete used in foundations and footings.
Building Foundations: Support	Discuss various footings used to support different types of foundation.
Building Foundations: Construction	Describe construction of a selected footing and foundation using an established gridline.
Building Foundations: Layout	Layout and construct a building foundation.
Building Foundations: Installing, Bracing, Alignment, & Removal	Install, brace, align, and removal of the forms used to form footers, and foundations.
Rough Framing: Floor-Framing	Identify and describe floor-framing members including subfloor.
Rough Framing: Supports	Identify supports for structures (e.g., sills, columns, beams and girders).

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Rough Framing: Joists	Identify various types of joists and openings, including joists for a cantilevered floor
Rough Framing: Bridging	Identify various types of bridging.
Rough Framing: Subfloors	Identify various types of subfloors, applying fastening techniques.
Rough Framing: Cut & Install	Cut and install framing members for a floor system.
Walls: Framing Members	Identify framing members used in wall and partition construction.
Walls: Wall lines Layout	Lay out wall lines and partition locations on a floor.
Walls: Studs, Doors, & Window Layout	Lay out walls for studs, doors and windows.
Walls: Studs, Trimmers, Cripples, & Headers	Identify studs, trimmers, cripples, headers and fire stops to length.
Walls: Corners & Headers	Identify T's, corners and headers.
Walls: Wall Sheathing	Identify various wall sheathing and/or diagonal bracing systems used in exterior walls.
Walls: Insulation	Identify and describe various insulation materials, moisture and air barrier materials and systems.
Walls: Cut & Installation	Cut and install framing members for a wall system.
Roof: Types of Roof Systems	Identify the different type of roof systems.
Roof: Gable & Hip Roofs	Identify the roof framing members used in gable and hip roofs.
Roof: Rafters	Identify the methods used to calculate the length of a rafter.
Roof: Trusses	Identify the various types of trusses used in roof framing.
Roof: Layout	Use a rafter framing square, speed square and calculator to lay out a roof system.
Roof: Sheathing	Identify various types of sheathing used in roof construction.
Roof: Vent Openings	Frame a gable roof with vent openings.
Roof: Framing Openings	Frame a roof opening.
Roof: Gable Roof Trusses	Erect a gable roof using trusses.
Roof: Materials	Estimate the materials used in framing and sheathing a roof.
Roof: Installing	Cut and install framing members for a roof system.
Stairs: Types	Identify the types of stair systems.
Stairs: Parts	Identify the parts of a stair system.
Stairs: Treads & Risers	Calculate the number of treads and risers for a stair system.
Stairs: Assemble a Stair System	Lay out, cut and assemble an exterior and/or interior stair system.
Windows: Types	Identify various types of fixed, sliding and swinging windows.
Windows: Materials & Techniques to Install a Window	Identify various materials and techniques used to install a window.

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Window: Installing a Pre-hung Window	Install a pre-hung window in accordance with manufacturer's installation instructions.
Doors: Types	Identify the common types of doors and explain how they are constructed.
Doors: Materials & Techniques to Install a Door	Identify various materials and techniques used to install a door.
Door: Installing a Pre-hung Door	Install a pre-hung door.
Trim: Materials & Techniques to Install Trim	Identify various materials and techniques used to install cornice and trim.
Trim: Installation	Install cornice and trim.
Siding: Types	Identify various types of siding.
Siding: Materials & Techniques to Install Siding	Identify various materials and techniques used to install siding.
Siding: Installing Siding	Calculate, lay out, and install siding using a builder's level to establish a level chalk line for the starting course of vinyl siding.
Cabinets: Materials & Techniques to Installing Cabinets	Identify various materials and techniques used to installing cabinets.
Cabinets: Installation	Install cabinets
Cabinets: Hardware	Install hardware such as hinges, catches, pulls, knobs and guides on assembled cabinets.
Cabinets: Fasteners and Drawers	Install fasteners and drawers.