CNST-CONSTRUCTION

CNST 1110. General Carpentry or Building Trades I
8 Credits (2+12P)
This course will have two components: a classroom segment, where carpentry concepts will be explored, and a hands-on segment where students will be able to participate in the actual construction of a structure. Habitat for Humanity has generously offered one of their projects as a "hands-on" site. May be repeated up to 8 credits.
Learning Outcomes
1. Identify and define various elements of a Structural Wood Wall.
2. Build Structural and non-load bearing Walls and Partitions using OSHA compliant safety practices.
3. Size floor joists and roof rafters according to local building codes.
4. Hang and "Trim Out" Doors and Windows for Residential Construction Projects.
5. Choose construction project foundations.

CNST 1114. Basic Carpentry
3 Credits (1+4P)
Covers orientation to the trade; wood building materials, fasteners, and adhesives; detailed description and explanations of hand-operated and power tools, including safety; framing basics including laying out and constructing of wood floors, walls and ceilings and includes roughing in of door and window openings.
Corequisite: CNST 1115, CNST 1116.
Learning Outcomes
1. Students will be able to operate hand and power tools safely.
2. Demonstrate the ability to read construction drawings.
3. Work effectively as a team.
4. Identify various types of building materials and their uses.
5. Calculate the quantities of lumber and wood products using industry standard methods.
6. Describe the fasteners, anchors and adhesives used in construction.
7. Describe the responsibilities of safety related to the construction industry.
8. Select proper tools for the job.
9. Identify the different grades and markings of wood building materials. 1
10. List and recognize different types of flooring materials. 1
11. Knowledge of the materials and methods used to construct floor systems using the platform method of floor framing. 1
12. Describe the procedure for laying out a wood frame wall. 1
13. Describe the correct procedure for laying out floor joist. 1
14. Estimate the materials required to frame a floor system.

CNST 1115. Carpentry Level I
3 Credits (1+4P)
Describes the various kinds of roofs and provides instructions for lay out of the different roofing systems. Describes the various types of windows, skylights, and exterior doors and provides instruction for installation.
Corequisite: CNST 1114; CNST 1116.
Learning Outcomes
1. Students will be able to operate hand and power tools safely.
2. Demonstrate the ability to read construction drawings.
3. Work effectively as a team.
4. Identify various types of building materials and their uses.
5. Calculate the quantities of lumber and wood products using industry standard methods.
6. Describe the fasteners, anchors and adhesives used in construction.
7. Describe the responsibilities of safety related to the construction industry.
8. Select proper tools for the job.
9. Identify the different grades and markings of wood building materials. 1
10. List and recognize different types of flooring materials. 1
11. Knowledge of the materials and methods used to construct floor systems using the platform method of floor framing. 1
12. Describe the procedure for laying out a wood frame wall. 1
13. Describe the correct procedure for laying out floor joist. 1
14. Estimate the materials required to frame a Floor System.

CNST 1116. Basic Carpentry Lab
2 Credits (2)
Provides students the opportunity to practice skills they have acquired in CNST 1114 and CNST 1115. It includes task-oriented projects in which students can apply many of the skills and knowledge that have been presented throughout the National Center for Construction and Education Research (NCCER) Carpentry Program.
Corequisite: CNST 1114; CNST 1115.
Learning Outcomes
1. Demonstrate the correct selection, use, and care of various hand tools.
2. Demonstrate the correct selection, use, and care of various power tools.
3. Recognize and Read basic blueprint terms, components, and symbols.
4. Recognize and identify different classifications of drawings.
5. Lay out and frame a complete roof structure.
6. Be able to layout and set up concrete forms.
7. Build a Staircase.
8. Install windows and exterior doors properly.

CNST 1118. Math for Building Trades
3 Credits (3)
Geometry, algebra, arithmetic, and basic trigonometry pertaining to mathematical applications in the building trades field. Same as OEET 118, DRFT 118, OEPB 118.
Prerequisite: CCDM 103 N.

CNST 1120. Construction Drawings
4 Credits (2+4P)
An introduction to the various construction documents with symbols. Emphasizing extraction of information and specifications from drawings.
Learning Outcomes
1. Interpret construction documents.
2. Identify and navigate the basic views commonly displayed in a technical drawings.
3. Identify and describe common components on construction documents.
4. Demonstrate the use of measuring devices.
5. Use appropriate construction terminology.

CNST 1121. Introduction to Construction I
2 Credits (2+1P)

Basic safety, including personal protective equipment, how to perform basic construction tasks safely, and what to do if an accident occurs. Includes basic construction methods.
Corequisite: CNST 1122 and CNST 1133.

Learning Outcomes

1. Students will be able to operate hand and power tools safely.
2. Demonstrate the ability to read construction drawings.
3. Students will demonstrate the ability to effectively work in a team.
4. Demonstrate how related industry theories apply to real world settings.
5. Investigate mechanical processes found in building trades.
6. Identify and resolve ethical workplace issues.
7. Describe the responsibilities of safety related to the construction industry.
8. Students will be able to selected the proper tools for the job.

CNST 1122. Introduction to Construction II
2 Credits (2+1P)
Introduction to power and hand tools, blueprints, and basic rigging hardware and techniques.
Corequisite: CNST 1121 and CNST 1133.

Learning Outcomes

1. Students will be able to operate hand and power tools safely.
2. Demonstrate the ability to read construction drawings.
3. Students will demonstrate being able to work effectively in a team.
4. Demonstrate how related industry theories apply to real world settings.
5. Investigate mechanical processes found in building trades.
6. Identify and resolve ethical workplace issues.
7. Describe the responsibilities of safety related to the construction industry.
8. Students will be able to selected the proper tools for the job.

CNST 1133. Introduction to Construction Laboratory
3 Credits (3)
Provides students the opportunity to practice skills they have acquired in CNST 1121 and CNST 1122 It includes task-oriented projects in which students can apply many of the skills and knowledge that have been presented throughout the National Center for Construction and Education Research (NCCER) Carpentry Program.
Corequisite: CNST 1121, CNST 1122.

Learning Outcomes

1. Demonstrate effectively leadership skills.
2. Work effectively as a team.
3. Demonstrate the ability to read construction drawings.
4. Demonstrate how related industry theories apply to real world settings.
5. Identify and resolve ethical workplace issues.
6. Describe the responsibilities of safety related to the construction industry.
7. Work effectively as a team.
8. Demonstrate an awareness of the environmental problems arising from conventional practices.
9. Students will be able to operate hand and power tools safely. 1
10. Students will be able to selected the proper tools for the job. 1
11. Investigate mechanical processes found in building trades.

CNST 1144. Woodworking Skills I
3 Credits (1+4P)
Use and care of hand tools and elementary power tools, safety procedures, and supervised project construction. May be repeated up to 3 credits.

Learning Outcomes

1. Students will gain the skills necessary to use hand tools, and power tools, perform basic calculations accurately, and complete projects.
2. Students will purchase materials, draft, and construct one project without a door or drawer.
3. Students will develop creative thinking skills and problem-solving skills in working with the various hand tools.

CNST 1155. Woodworking Skills II
3 Credits (1+4P)
Advanced woodworking skills to include use of advanced power tools, power tool safety, and supervised construction.

Learning Outcomes

1. Students will gain the skills necessary to use hand tools, and power tools, perform basic calculations accurately, and complete projects.
2. Students will purchase materials, draft, and construct one project without a door or drawer.
3. Students will develop creative thinking skills and problem-solving skills in working with the various hand tools.

CNST 1160. Plumbing Theory I
3 Credits (2+3P)
Covers occupational introductions, human relations, safety, tools and equipment used in plumbers trade, plumbing components, sizes of various residential and commercial plumbing systems, pipe fittings, pipe joining and cost estimation.

Learning Outcomes

1. Demonstrate the ability to use equipment safely and to demonstrate these practices in the classroom.
2. Demonstrate diagramming and explain the drain, waste, and vent system.
3. Demonstrate the ability to diagram and explain the potable water system.
4. Demonstrate the ability to draw and explain storm water systems.
5. Demonstrate an awareness of the various materials and fittings used in plumbing.
6. Demonstrate an awareness of the various materials and fittings used in plumbing.
7. Demonstrate soldering of copper pipe. Demonstrate gluing of PVC pipe.

CNST 1166. Woodworking Theory and Practice
3 Credits (2+2P)
History of wood manufacturing, industrial techniques, wood characteristics, stains and finishes. Design and construction of minor wood projects. May be repeated up to 3 credits.

Learning Outcomes

1. Students will learn about the history of woodworking, learn about the different types of wood and best use for projects; learn about wood stain, and construct one project without a drawer working with various hand tools.

CNST 1215. Weatherization in Construction
3 Credits (2+2P)
Introduction to industry weatherization standards and practices utilized in the construction of buildings for the purpose of energy conservation.

Economic and environmental impacts of the use of energy in heating and cooling building will be examined.
Prerequisite(s): CNST 1110, CNST 1122 and CNST 1133.
Learning Outcomes

1. Knowledge of the construction industry.
2. Knowledge of related career pathways.
3. Applicable knowledge and skills related to specific industry fields.
4. Knowledge and ability to follow industry safety practices and procedures.
5. Understand applicable codes, rules, and regulations.

CNST 1240. Cabinet Making
3 Credits (1+3P)
Covers advanced design and construction of cabinets including safety and use of hand and power tools, and materials.
Prerequisites: CNST 1155, CNST 1166, or consent of instructor.
Learning Outcomes

1. Demonstrate the safe use of various hand and power tools used in cabinet making.
2. Demonstrate the proper selection of tools for required tasks.
3. Design cabinet projects and prepare accurate materials lists.
4. Perform planning, joining, cutting, routing and other procedures used for cabinet making.
5. Demonstrate how to select and apply various finishes.
6. Properly assemble, install, assess and adjust cabinet project components.

CNST 1311. Small Equipment Maintenance and Repair
4 Credits (2+4P)
Covers small engine theory, troubleshooting and repair, auto maintenance, hydraulic theory and repair lubricants, batteries and scheduled tool maintenance. May be repeated up to 4 credits.

CNST 1330. Professional Development and Leadership
1 Credit (1)
As members and/or officers of various student professional organizations, students gain experience in leadership, team building, and community service. Students competing or participating in Skills USA are required to register for the course.
Learning Outcomes

1. Apply knowledge of conduit types and sizes to select appropriate bending methods.
2. Describe the purpose and function of raceways and fittings.
3. Restate the properties, ratings, and applications of different conductors and cables.
4. Identify the layout and organization of electrical drawings, including plans, elevations, and details.
5. Determine residential service sizing, grounding, and bonding requirements.
6. Apply knowledge of test equipment usage and safety practices to perform accurate electrical measurements and diagnostics.

CNST 1510. Forklift Operation
1 Credit (1)
Classroom instruction and hands-on practice to prepare students to operate a forklift safely in the workplace. Students will have the opportunity to earn a forklift operator's permit. Consent of Instructor required.
Learning Outcomes

1. Recall the rules and regulations for operating a forklift.
2. Apply knowledge of the correct methods for handling loads with a forklift.
3. Evaluate the factors affecting the stability of a forklift.
4. Utilize a forklift safety checklist to ensure compliance with safety protocols and procedures.
5. Indicate the process and safety guidelines for battery charging in forklifts.
6. Define the procedures for servicing and handling LP gas in forklifts.

CNST 2217. Building and the Environment
3 Credits (3)
Introduction to LEED's, and Green Building Fundamentals, sustainability, sustainable design and green building evaluating cost implication of green building. Describes site development; managing site water runoff, improving a project's water use efficiency. Discusses renewable energy sources, and introduces student to generating power on-site using renewable energy sources, improving a building's indoor environment quality, improving the building industries' environmental performance and environmental aspects of building maintenance, re-use and conservation.
Learning Outcomes

1. Employ effective oral and written communication skills.
2. Interpret information and instructions accurately.
3. Explain knowledge of sustainable and alternative building practices, such as LEED/Green initiatives.
4. Evaluate mechanical processes commonly used in building trades.
5. Describe and utilize methods to measure personnel and individual improvement.
6. Demonstrate effective leadership skills by utilizing available resources efficiently.

CNST 2290. Plumbing II
3 Credits (2+3P)
Provides students the opportunity to gain more practice in the skills and knowledge learned in Plumbing I. Students will install fixtures and run the various plumbing supply lines from Plumbing Level I. The course included hands on projects in which the students apply many of the competencies that have been presented through the National Center for Construction and Education Research (NCCER) Plumbing Program.
Prerequisite/Corequisite: CNST 1160.
Learning Outcomes

1. Work with copper tubing and fittings.
2. Practice safety related to the plumbing trade.
3. Work with cast iron pipe and fittings.
4. Work with steel pipe and fittings.
5. Perform calculations related to the plumbing trades.
6. Read plumbing blueprints and drawings.
7. Install plumbing fixtures.
8. Install and design drain, waste and vent systems.
9. Identify the major components of water distribution systems and describe their functions.

CNST 2994. Special Problems in Building Technology
1-4 Credits
Individual studies in areas directly related to building technologies. May be repeated up to 4 credits.

Learning Outcomes

1. Varies.

CNST 2995. Cooperative Co-Op
1-4 Credits (1-4)
Supervised cooperative work program. Student is employed in an approved occupation and is supervised and rated by the employer and instructor. Student will meet in a weekly class.

Learning Outcomes

1. Varies.

CNST 2996. Topics in Construction
1-6 Credits (1-6)
Topics to be announced in the Schedule of Classes.

Learning Outcomes

1. Varies.