

INTRODUCTION TO CONSTRUCTION

Course Code: 6001

COURSE DESCRIPTION: In the Introduction to Construction course, students achieve basic skills needed to continue their education in any Construction craft area. Students learn basic construction site safety, construction math, construction drawings/blueprints, and are introduced to hand tools and power tools, and as well as materials handling.

Provided a student takes Introduction to Construction and scores 70% on all assessments in the NCCER® Core curriculum, he or she does not have to repeat these modules in HVAC Technology, Building Construction, Cabinetmaking, Carpentry, Electricity, Masonry, Mechatronics, Plumbing, and Welding.

OBJECTIVE: Given the necessary equipment, supplies, and facilities, the student will complete all of the following core standards successfully.

CREDITS: 1 (120 hours)

PREREQUISITE(S): None

RECOMMENDED GRADE LEVEL: 9 - 12

COMPUTER ACCESS REQUIRED: 1 Computer per student with Internet access

RECOMMENDED MAXIMUM ENROLLMENT: 24

RESOURCES: [Instructional Materials](#)

A. STUDENT ORGANIZATIONS

Effective professionals know the academic subject matter, including professional development, required for proficiency within their area. They will use this knowledge as needed in their role. The following accountability criteria are considered essential for students in any program of study.

1. Identify the purpose and goals of a Career and Technology Student Organization (CTSO).
2. Explain how CTOS are integral parts of specific clusters, majors, and/or courses.
3. Explain the benefits and responsibilities of being a member of a CTOS.
4. List leadership opportunities that are available to students through participation in CTOS conferences, competitions, community service, philanthropy, and other activities.
5. Explain how participation in CTOS can promote lifelong benefits in other professional and civic organizations.

B. TECHNOLOGY KNOWLEDGE

Effective professionals know the academic subject matter, including the ethical use of technology as needed in their role. The following accountability criteria are considered essential for students in any program of study.

1. Demonstrate proficiency and skills associated with the use of technologies that are common to a specific occupation.
2. Identify proper netiquette when using e-mail, social media, and other technologies for communication purposes.
3. Identify potential abuse and unethical uses of laptops, tablets, computers, and/or networks.
4. Explain the consequences of social, illegal, and unethical uses of technology (e.g., piracy; cyberbullying, illegal downloading; licensing infringement; inappropriate uses of software, hardware, and mobile devices in the work environment).
5. Discuss legal issues and the terms of use related to copyright laws, fair use laws, and ethics pertaining to downloading of images, photographs, documents, video, sounds, music, trademarks, and other elements for personal use.
6. Describe ethical and legal practices of safeguarding the confidentiality of business-related information.
7. Describe possible threats to a laptop, tablet, computer, and/or network and methods of avoiding attacks.

C. PERSONAL QUALITIES AND EMPLOYABILITY SKILLS

Effective professionals know the academic subject matter, including positive work practices and interpersonal skills, as needed in their role. The following accountability criteria are considered essential for students in any program of study.

1. Demonstrate punctuality.
2. Demonstrate self-representation.
3. Demonstrate work ethic.
4. Demonstrate respect.
5. Demonstrate time management.
6. Demonstrate integrity.
7. Demonstrate leadership.
8. Demonstrate teamwork and collaboration.
9. Demonstrate conflict resolution.
10. Demonstrate perseverance.
11. Demonstrate commitment.
12. Demonstrate a healthy view of competition.
13. Demonstrate a global perspective.
14. Demonstrate health and fitness.
15. Demonstrate self-direction.
16. Demonstrate lifelong learning.

D. PROFESSIONAL KNOWLEDGE

Effective professionals know the academic subject matter, including positive work practices and interpersonal skills, as needed in their role. The following accountability criteria are considered essential for students in any program of study.

1. Demonstrate effective speaking and listening skills.
2. Demonstrate effective reading and writing skills.
3. Demonstrate mathematical reasoning.
4. Demonstrate job-specific mathematics skills.
5. Demonstrate critical-thinking and problem-solving skills.
6. Demonstrate creativity and resourcefulness.
7. Demonstrate an understanding of business ethics.
8. Demonstrate confidentiality.
9. Demonstrate an understanding of workplace structures, organizations, systems, and climates.
10. Demonstrate diversity awareness.
11. Demonstrate job acquisition and advancement skills.
12. Demonstrate task management skills.
13. Demonstrate customer-service skills.

E. BASIC CONSTRUCTION SITE SAFETY

Effective construction professionals demonstrate basic safety knowledge as needed in their role. The following accountability criteria are considered essential for students in all the Construction programs of study.

1. Identify the responsibilities and personal characteristics of a professional craftsperson.
2. Define and identify common causes of incidents and the significant costs and related consequences associated with them.
3. Describe the processes related to hazard recognition and control, including the Hazard Communication (HAZCOM) Standard and the provisions of a Safety Data Sheet (SDS).
4. Identify and describe various fall hazards.
5. Identify and describe equipment and methods used in fall prevention and fall arrest.
6. Identify and describe the safe use of ladders, stairs, and scaffolds.
7. Identify and explain how to avoid struck-by and caught-in-between hazards.
8. Describe basic job-site electrical safety guidelines.
9. Explain the importance of lockout/tagout and describe basic procedures
10. Identify and describe the basic use of PPE used to protect workers from bodily injury.
11. Identify potential respiratory hazards and the basic respirators used to protect workers against those hazards.
12. Identify various exposure hazards commonly found on job sites.
13. Identify hazards associated with environmental extremes.
14. Identify hazards associated with hot work.
15. Identify fire hazards and describe basic firefighting procedures.
16. Identify confined spaces and describe the related safety considerations.
17. Complete 10-hour OSHA course/assessment and receive card. (SDE)

- Requirement).
18. Complete Performance Tasks.

F. CONSTRUCTION MATH

Effective construction professionals demonstrate basic math skills as needed in their role. The following accountability criteria are considered essential for students in all the Construction programs of study.

1. Add, subtract, multiply, and divide whole numbers, with and without a calculator.
2. Define equivalent fractions and show how to find lowest common denominators.
3. Describe improper fractions and demonstrate how to change an improper fraction to a mixed number.
4. Demonstrate the ability to add, subtract, multiply, and divide fractions.
5. Demonstrate the ability to add, subtract, multiply, and divide decimals.
6. Demonstrate the ability to convert between decimals, fractions, and percentages.
7. Identify and demonstrate how to use rulers and measuring tapes.
8. Identify and convert units of length, weight, volume, and temperature measurements between the imperial and metric systems.
9. Identify various types of angles.
10. Identify basic geometric shapes and their characteristics.
11. Demonstrate the ability to calculate the area of two-dimensional shapes.
12. Demonstrate the ability to calculate the volume of three-dimensional shapes.

G. INTRODUCTION TO HAND TOOLS

Effective construction professionals demonstrate how to safely use various hand tools as needed in their role. The following accountability criteria are considered essential for students in all the Construction programs of study.

1. Identify and explain how to use various types of hand tools, e.g., hammers and demolition tools; chisels and punches; screwdrivers, non-adjustable and adjustable wrenches socket and torque wrenches; pliers and wire cutters.
2. Identify and explain how to use rules and other measuring tools.
3. Identify and explain how to use various types of levels and layout tools.
4. Identify and explain how to use handsaws.
5. Identify and explain how to use various types of files and utility knives.
6. Identify and explain how to use common hand tools, e.g., shovels and picks; chain falls and come-alongs; and clamps.
7. Complete Performance Tasks.

H. INTRODUCTION TO POWER TOOLS

Effective construction professionals demonstrate how to safely use power tools as needed in their role. The following accountability criteria are considered essential for students in all the Construction programs of study.

1. Identify and explain how to various types of power drills and impact wrenches.
2. Identify and explain how to use various types of saws, e.g., circular, saber, reciprocating, portable band, miter, and cutoff.
3. Identify and explain how to use various types of grinders.
4. Identify and explain how to use various grinder accessories and attachments.
5. Identify and explain how to use pneumatic and powder-actuated fastening tools.
6. Identify and explain how to use pavement breakers.
7. Identify and explain the uses of hydraulic jacks.
8. Complete Performance Tasks.

I. INTRODUCTION TO CONSTRUCTION DRAWINGS/RECOMMEND BLUEPRINT READING

Effective construction professionals demonstrate knowledge and the use of blueprints/construction drawings as needed in their role. The following accountability criteria are considered essential for students in all the Construction programs of study.

1. Identify various types of construction drawings.
2. Identify and describe the purpose of the five basic construction drawing components.
3. Identify and explain the significance of various drawing elements, such as lines of construction, symbols, and grid lines.
4. Identify and explain the use of dimensions and various drawing scales.
5. Identify and describe how to use engineer's and architect's scales.
6. Complete Performance Tasks.

J. BASIC RIGGING (OPTIONAL)

Effective construction professionals demonstrate how to use basic rigging as needed in their role. The following accountability criteria are considered essential for students in the plumbing program of study.

1. Identify, describe, and inspect various types of slings.
2. Identify and describe how to inspect common rigging hardware.
3. Identify and describe various types of hoists.
4. Identify and describe basic rigging hitches and the related Emergency Stop hand signal.
5. Complete Performance Tasks.

K. BASIC COMMUNICATION SKILLS (SDE Requirement)

Effective construction professionals demonstrate appropriate communication skills as needed in their role. The following accountability criteria are considered essential for students in all of the construction programs of study.

1. Describe the communication process and the importance of listening and speaking skills.

2. Describe the listening process and identify good listening skills.
3. Describe the speaking process and identify good speaking skills.
4. Describe the importance of good reading and writing skills.
5. Describe job-related reading requirements and identify good reading skills.
6. Describe job-related writing requirements and identify good writing skills.
7. Complete Performance Tasks.

L. BASIC EMPLOYABILITY SKILLS (SDE Requirement)

Effective construction professionals demonstrate appropriate workplace behavior as needed in their role. The following accountability criteria are considered essential for students in all of the construction programs of study.

1. Describe the opportunities in the construction business and how an individual enters the construction workforce.
2. Describe the construction business and the opportunities offered by the trades.
3. Explain how workers can enter the construction workforce.
4. Describe critical thinking and barriers to solving problems.
5. Describe how to solve problems using critical thinking.
6. Describe problems related to planning and scheduling.
7. Identify good personal and social skills.
8. Explain how to resolve conflicts with co-workers and supervisors.
9. Explain how to give and receive constructive criticism.
10. Identify and describe various social issues of concern in the workplace.
11. Describe how to work in a team environment and how to be an effective leader.

M. MATERIALS HANDLING

Effective construction professionals demonstrate appropriate materials handling techniques as needed in their role. The following accountability criteria are considered essential for students in the plumbing program of study.

1. Describe the basic concepts of material handling and manual lifting.
2. Identify common material-handling safety precautions.
3. Identify and describe how to tie knots commonly used in material handling.
4. Identify non-motorized and motorized material-handling equipment and describe how they are used.
5. Complete Performance Tasks.

[Materials and Resources](#)

[Course Academic Standards and Indicators](#)