

**NEOSHO COUNTY COMMUNITY COLLEGE
MASTER COURSE SYLLABUS**

COURSE IDENTIFICATION

Course Code/Number: ENRG 112

Course Title: Intro to Construction Technology

Division: Applied Science (AS) Liberal Arts (LA) Workforce Development (WD)
 Health Care (HC) Lifetime Learning (LL) Nursing Developmental

Credit Hour(s): Three (3)

Effective Date: Fall 2013

Assessment Goal Per Outcome: 70%

COURSE DESCRIPTION

This course teaches general understanding of residential construction. It is designed to provide students with an understanding of all techniques used in current and past construction practices. These practices are essential in order to understand how to diagnose and repair structures for maximum energy efficiency. Once a student completes and passes this course they will be prepared to continue in the Energy Management Program and also will receive a NCCER certification.

Topics Include: Orientation to the trade, types of building materials and fasteners, operation of hand and power tools, reading plans and elevations, types of floor systems, wall and ceiling framing, roof framing, introduction to concrete materials, windows and exterior doors, and measurements.

MINIMUM REQUIREMENTS/PREREQUISITES AND/OR COREQUISITES

CSIS 100 Computer Concepts and Applications: 3 credits hours or test out: or permission of the instructor.

TEXTS

The official list of textbooks and materials for this course is found on *myNeosho*.

<http://www.neosho.edu/ProspectiveStudents/Registration/CourseSyllabi.aspx>

GENERAL EDUCATION OUTCOMES

1. Practice Responsible Citizenship through:
 - identifying rights and responsibilities of citizenship,
 - identifying how human values and perceptions affect and are affected by social diversity,
 - identifying and interpreting artistic expression.
2. Live a healthy lifestyle (physical, intellectual, social) through:
 - listing factors associated with a healthy lifestyle and lifetime fitness,
 - identifying the importance of lifetime learning,
 - demonstrating self-discipline, respect for others, and the ability to work collaboratively as a team.
3. Communicate effectively through:
 - developing effective written communication skills,
 - developing effective oral communication and listening skills.
4. Think analytically through:
 - utilizing quantitative information in problem solving,
 - utilizing the principles of systematic inquiry,
 - utilizing various information resources including technology for research and data collection.

COURSE OUTCOMES/COMPETENCIES (as Required)

Upon the successful completion of the course, the student should be able to:

1. Demonstrate knowledge of the construction trade.
 - a) Describe the history of the carpentry trade.
 - b) Identify the aptitudes, behaviors, and skills needed to be a successful carpenter.
 - c) Identify the training opportunities within the carpentry trade.
 - d) Identify the career and entrepreneurial opportunities within the carpentry trade.
 - e) Identify the responsibilities of a person working in the construction industry.
 - f) State the personal characteristics of a professional.
 - g) Explain the importance of safety in the construction industry
2. Describe the types of building materials and fasteners.
 - a) Identify various types of building materials and their uses.
 - b) State the uses of various types of hardwoods and softwoods.
 - c) Identify the different grades and markings of wood building materials.
 - d) Identify the safety precautions associated with building materials.
 - e) Describe the proper method of storing and handling building materials.
 - f) State the uses of various types of engineered lumber.
 - g) Calculate the quantities of lumber and wood products using industry-standard methods.
 - h) Describe the fasteners, anchors, and adhesives used in construction work and explain their uses.

3. Demonstrate an understanding of the basic uses of hand and power tools used in residential construction.
 - a) Identify the hand tools commonly used by carpenters and describe their uses.
 - b) Use hand tools in a safe and appropriate manner.
 - c) State the general safety rules for operating all power tools, regardless of type.
 - d) State the general rules for properly maintaining all power tools, regardless of type.
 - e) Identify the portable power tools commonly used by carpenters and describe their uses.
 - f) Use portable power tools in a safe and appropriate manner.

4. Demonstrate how to read plans and measure elevations.
 - a) Describe the types of drawings usually included in a set of plans and list the information found on each type.
 - b) Identify the different types of lines used on construction drawings.
 - c) Identify selected architectural symbols commonly used to represent materials on plans.
 - d) Identify selected electrical, mechanical, and plumbing symbols commonly used on plans.
 - e) Identify selected abbreviations commonly used on plans.
 - f) Read and interpret plans, elevations, schedules, sections, and details contained in basic construction drawings.
 - g) State the purpose of written specifications.
 - h) Identify and describe the parts of a specification.
 - i) Demonstrate or describe how to perform a quantity takeoff for materials.

5. Explain the construction of different types of floor systems in residential construction.
 - a) Identify the different types of framing systems.
 - b) Read and interpret drawings and specifications to determine floor system requirements.
 - c) Identify floor and sill framing and support members.
 - d) Name the methods used to fasten sills to the foundation.
 - e) Given specific floor load and span data, select the proper girder/beam size from a list of available girders/beams.
 - f) List and recognize different types of floor joists.
 - g) Given specific floor load and span data, select the proper joist size from a list of available joists.
 - h) List and recognize different types of bridging.
 - i) List and recognize different types of flooring materials.
 - j) Explain the purposes of subflooring and underlayment.
 - k) Match selected fasteners used in floor framing to their correct uses.

6. Describe the construction of walls and ceilings in residential construction.
 - a) Identify the components of a wall and ceiling layout.
 - b) Describe the procedure for laying out a wood frame wall, including plates, corner posts, door and window openings, partition Ts, bracing, and firestops.
 - c) Describe the correct procedure for assembling and erecting an exterior wall.

- d) Identify the common materials and methods used for installing sheathing on walls.
 - e) Describe wall framing techniques used in masonry construction.
 - f) Explain the use of metal studs in wall framing.
 - g) Describe the correct procedure for laying out ceiling joists.
7. Distinguish the different types of roof systems in typical residential construction.
- a) Understand the terms associated with roof framing.
 - b) Identify the roof framing members used in gable and hip roofs.
 - c) Identify the methods used to calculate the length of a rafter.
 - d) Identify the various types of trusses used in roof framing.
 - e) Use a rafter framing square, speed square, and calculator in laying out a roof.
 - f) Identify various types of sheathing used in roof construction.
8. Explain basic concrete and reinforcing materials.
- a) Identify the properties of cement.
 - b) Describe the composition of concrete.
 - c) Perform volume estimates for concrete quantity requirements.
 - d) Identify types of concrete reinforcement materials and describe their uses.
 - e) Identify various types of footings and explain their uses.
 - f) Identify the parts of various types of forms.
 - g) Explain the safety procedures associated with the construction and use of concrete forms.
9. Describe how windows and exterior doors are installed and operate.
- a) Identify various types of fixed, sliding, and swinging windows.
 - b) Identify the parts of a window installation.
 - c) State the requirements for a proper window installation.
 - d) Identify the common types of exterior doors and explain how they are constructed.
 - e) Identify the parts of a door installation.
 - f) Identify the types of thresholds used with exterior doors.

MINIMUM COURSE CONTENT

The following topics must be included in this course. Additional topics may also be included.

Section 1

Orientation of the Trade

Section 2

Building Materials, Fasteners, and Adhesives

Section 3

Hand and Power Tools

Section 4

Reading Plans and Elevations

- Section 5
 - Floor Systems
- Section 6
 - Wall and Ceiling Framing
- Section 7
 - Roof Framing
- Section 8
 - Introduction to Concrete and Reinforcing Materials
- Section 9
 - Windows and Exterior Doors

STUDENT REQUIREMENTS AND METHOD OF EVALUATION

INSTRUCTIONAL METHODS

1. Online study material
2. Text book
3. Online tests

STUDENT REQUIREMENTS

Access to computer-Suggested system requirements:

- OS: Windows 98, Windows ME, Windows 2000, Windows XP, Windows Vista
- CPU: 200 MHz or better
- RAM: 64MB or better
- Disk: 20MB or better free disk space
- Other: CD-ROM Drive for software Installation

Evaluation of student performance is determined primarily from results of written tests to validate mastery of course competencies.

GRADING SCALE

90-100 %	A
80-89 %	B
70-79 %	C
60-69 %	D
0-59 %	F

CERTIFICATES

Student is eligible to add this course to their NCCER credentials if they have passed and completed the NCCER core curriculum course.

ASSESSMENT OF STUDENT GAIN

Students will be assessed through written testing and assignments. Comparison will determine the extent of student gain.

Attendance Policy

1. NCCC values interactive learning which promotes student engagement in the learning process. To be actively engaged, the student must be present in the learning environment.
2. Unless students are participating in a school activity or are excused by the instructor, they are expected to attend class. If a student's absences exceed one-eighth of the total course duration, (which equates to one hundred (100) minutes per credit hour in a face-to-face class) the instructor has the right, but is not required, to withdraw a student from the course. Once the student has been dropped for excessive absences, the registrar's office will send a letter to the student, stating that he or she has been dropped. A student may petition the chief academic officer for reinstatement by submitting a letter stating valid reasons for the absences within one week of the registrar's notification. If the student is reinstated into the class, the instructor and the registrar will be notified. Please refer to the Student Handbook/Academic Policies for more information
3. Absences that occur due to students participating in official college activities are excused except in those cases where outside bodies, such as the State Board of Nursing, have requirements for minimum class minutes for each student. Students who are excused will be given reasonable opportunity to make up any missed work or receive substitute assignments from the instructor and should not be penalized for the absence. Proper procedure should be followed in notifying faculty in advance of the student's planned participation in the event. Ultimately it is the student's responsibility to notify the instructor in advance of the planned absence.

ACADEMIC INTEGRITY

NCCC expects every student to demonstrate ethical behavior with regard to academic pursuits. Academic integrity in coursework is a specific requirement. Definitions, examples, and possible consequences for violations of Academic Integrity, as well as the appeals process, can be found in the College Catalog, Student Handbook, and/or Code of Student Conduct and Discipline.

ELECTRONIC DEVICE POLICY

Student cell phones and other personal electronic devices not being used for class activities must not be accessed during class times unless the instructor chooses to waive this policy.

NOTE

Information and statements in this document are subject to change at the discretion of NCCC. Students will be notified of changes and where to find the most current approved documents.

ACCOMMODATIONS

If you are a student with a disability who may need accommodation(s), in compliance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990, please notify the Dean of Student Services in the Student Services Office, Sanders Hall, 620-432-0304, on the Chanute Campus, or the Dean for the Ottawa and Online Campuses, 785-248-2798, on the Ottawa Campus as soon as possible. You will need to bring your documentation for review in order to determine reasonable accommodations, and then we can assist you in arranging any necessary accommodations.

NON-DISCRIMINATION POLICY

The following link provides information related to the non-discrimination policy of NCCC, including persons with disabilities. Students are urged to review this policy.

<http://www.neosho.edu/Departments/NonDiscrimination.aspx>

SEXUAL MISCONDUCT POLICY (TITLE IX)

At NCCC, it is the responsibility of an instructor to help create a safe learning environment in the classroom, including both physical and virtual classrooms. All instructors are considered mandatory reporters at NCCC, therefore any information regarding sexual misconduct that is shared by a student in one-on-one meetings with the instructor must be reported to appropriate personnel at the College. Instructors will keep the information private to the greatest extent possible, but it is not confidential. Generally, climate surveys, classroom writing assignments or discussions, human subjects research, or events such as Take Back the Night events do not provide notice that must be reported to the Coordinator by employees, unless the reporting party clearly indicates that they wish a report to be made.

The following link provides information related to the sexual misconduct policy of NCCC, including resources, reporting options, and student rights. Students are urged to review this policy.

<http://www.neosho.edu/TitleIX.aspx>

COURSE NOTES