Washtenaw Community College Comprehensive Report

CON 270 Construction Mechanicals
Effective Term: Fall 2025

Course Cover

College: Advanced Technologies and Public Service Careers
Division: Advanced Technologies and Public Service Careers
Department: Heating, Ventilation and A/C
Discipline: Residential Construction Technology
Course Number: 270
Org Number: 14750
Full Course Title: Construction Mechanicals
Transcript Title: Construction Mechanicals
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Time Schedule , Web Page
Reason for Submission: Reactivation
Change Information:
Course description
Outcomes/Assessment
Objectives/Evaluation
Rationale: With the resurgence of the construction industry, a new Construction Technology AAS degree is being proposed and will include this course. Job outlook is very strong compared to what it was when the course was discontinued.
Proposed Start Semester: Fall 2025
Course Description: In this course, students will explore electrical, plumbing, and utility connections in residential and light frame construction, focusing on proper installation, troubleshooting, and compliance with state requirements. Through a combination of classroom instruction and hands-on lab activities, students will gain the skills needed to install and maintain essential building systems safely and efficiently. Material recognition, energy transmission, water supply, sewage systems, and industry best practices for diagnosing and resolving mechanical system issues will be covered.

Course Credit Hours

Variable hours: No
Credits: 3
Lecture Hours: Instructor: 30 **Student:** 30
Lab: Instructor: 30 **Student:** 30
Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 60 **Student:** 60
Repeatable for Credit: NO
Grading Methods: Letter Grades
Audit
Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

No Level Required

Requisites

Prerequisite
CON 104 minimum grade "C"
and
Prerequisite
CON 105 minimum grade "C"
and
Prerequisite
Math Level 3
or
Prerequisite
MTH 157 or higher, minimum grade "C"

General Education

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Identify the proper methods for managing utility connections.
   Assessment 1
   Assessment Tool: Outcome-related exam questions
   Assessment Date: Winter 2027
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Answer key
   Standard of success to be used for this assessment: 80% of students will score 80% or higher.
   Who will score and analyze the data: Departmental faculty

2. Install internal electrical systems in a residential construction project.
   Assessment 1
   Assessment Tool: Outcome-related lab project
   Assessment Date: Fall 2027
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Departmentally-developed rubric
   Standard of success to be used for this assessment: 80% of students will score 80% or higher.
   Who will score and analyze the data: Departmental faculty

3. Install internal building plumbing systems in a residential construction project.
   Assessment 1
   Assessment Tool: Outcome-related lab project
   Assessment Date: Fall 2027
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Departmentally-developed rubric
   Standard of success to be used for this assessment: 80% of students will score 80% or higher.
   Who will score and analyze the data: Departmental faculty

Course Objectives

1. Recognize the various forms of energy transmissions used in light frame construction.
2. Recognize the various forms of water supply and sewage used in light frame construction.
3. Identify the types of utility systems used for different construction projects.
4. Diagnose problems resulting from the incorrect installation of utility systems.
5. Demonstrate the correct sequence for safely installing a proper electrical system in accordance with industry standards.
6. Demonstrate the correct sequence for safely installing a proper plumbing system in accordance with industry standards.
7. Follow state building code requirements for electrical systems in light frame construction.
8. Follow state building code requirements for plumbing systems in light frame construction.
9. Follow state building code requirements for heating, air conditioning, and ventilation (HVAC) systems in light frame construction.
10. Troubleshoot issues that may be encountered in the electric system installation process.
11. Troubleshoot issues that may be encountered in the plumbing system installation process.
12. Troubleshoot issues that may be encountered in the HVAC system installation process.

New Resources for Course

Student hand tools

Course Textbooks/Resources

Textbooks
Manuals
Periodicals
Software

Equipment/Facilities

Level III classroom
Other: Laboratory

Reviewer	Action	Date
Faculty Preparer:		
Matthew Hagood	*Faculty Preparer*	*Feb 10, 2025*
Department Chair/Area Director:		
Brian Martindale	*Recommend Approval*	*Feb 10, 2025*
Dean:		
Eva Samulski	*Recommend Approval*	*Feb 10, 2025*
Curriculum Committee Chair:		
Randy Van Wagnen	*Recommend Approval*	*Mar 05, 2025*
Assessment Committee Chair:		
Jessica Hale	*Recommend Approval*	*Mar 12, 2025*
Vice President for Instruction:		
Brandon Tucker	*Approve*	*Mar 13, 2025*

Washtenaw Community College Comprehensive Report

CON 270 Construction Mechanicals
Effective Term: Fall 2012

Course Cover

Division: Vocational Technologies
Department: Construction Institute
Discipline: Residential Construction Technology
Course Number: 270
Org Number: 14725
Full Course Title: Construction Mechanicals
Transcript Title: Construction Mechanicals
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Time Schedule , Web Page
Reason for Submission: New Course
Change Information:
Rationale: Advisory board recommendations.
Proposed Start Semester: Fall 2012
Course Description: This course covers the mechanical features installed in homes and light industrial buildings. Construction theory in class is included to support lab activities on and offsite. Students will discuss terminology, material recognition, and state requirements for identifying and troubleshooting home and light industrial utility and mechanical systems.

Course Credit Hours

Variable hours: No
Credits: 3
Lecture Hours: Instructor: 30 **Student:** 30
Lab: Instructor: 30 **Student:** 30
Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 60 **Student:** 60
Repeatable for Credit: NO
Grading Methods: Letter Grades
Audit
Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

Level 3

Requisites

General Education

Request Course Transfer

Proposed For:
Central Michigan University
Eastern Michigan University
Ferris State University

Student Learning Outcomes

1. Identify building utility connections to the structure.
   Assessment 1
   Assessment Tool: Exam
   Assessment Date: Fall 2015
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Departmental exam key
   Standard of success to be used for this assessment: 80% of the students will score 80% or higher.
   Who will score and analyze the data: Departmental faculty
   Assessment 2
   Assessment Tool: Lab exercises
   Assessment Date: Fall 2015
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: departmentally-developed rubric
   Standard of success to be used for this assessment: 80% of students will score 80% or higher
   Who will score and analyze the data: Departmental faculty

2. Identify and troubleshoot internal electrical systems.
   Assessment 1
   Assessment Tool: Lab exercises
   Assessment Date: Fall 2015
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: departmentally-developed rubric
   Standard of success to be used for this assessment: 80% of students will score 80% or higher
   Who will score and analyze the data: Departmental faculty
   Assessment 2
   Assessment Tool: Exam
   Assessment Date: Fall 2015
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Departmental exam key
   Standard of success to be used for this assessment: 80% of the students will score 80% or higher.
   Who will score and analyze the data: Departmental faculty

3. Identify and troubleshoot internal building plumbing systems.
   Assessment 1
   Assessment Tool: Lab exercises
   Assessment Date: Fall 2015
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: departmentally-developed rubric
   Standard of success to be used for this assessment: 80% of students will score 80% or higher
   Who will score and analyze the data: Department faculty
   Assessment 2

Assessment Tool: Exam
Assessment Date: Fall 2015
Assessment Cycle: Every Three Years
Course section(s)/other population: All
Number students to be assessed: All
How the assessment will be scored: Departmental exam key
Standard of success to be used for this assessment: 80% of the students will score 80% or higher.
Who will score and analyze the data: Departmental faculty

Course Objectives

1. Recognize various forms of energy transmissions used in light frame construction.
   Matched Outcomes
   1. Identify building utility connections to the structure.
2. Recognize various forms of water supply and sewage used in light frame construction.
   Matched Outcomes
   1. Identify building utility connections to the structure.
3. Identify utility systems used for specific projects.
   Matched Outcomes
   1. Identify building utility connections to the structure.
4. Identify state requirements for specfic projects.
   Matched Outcomes
   1. Identify building utility connections to the structure.
5. Diagnose problems that may arise when utility systems are installed incorrectly.
   Matched Outcomes
   1. Identify building utility connections to the structure.
6. Recognize various electrical components used in light framed construction.
   Matched Outcomes
   2. Identify and troubleshoot internal electrical systems.
7. Recognize how electrical components work in a system.
   Matched Outcomes
   2. Identify and troubleshoot internal electrical systems.
8. Diagnose problems that may arise when electrical systems are installed incorrectly.
   Matched Outcomes
   2. Identify and troubleshoot internal electrical systems.
9. Intrepret state requirements for electrical systems for light framed construction.
   Matched Outcomes
   2. Identify and troubleshoot internal electrical systems.
10. Recognize various plumbing components used in light framed construction.
    Matched Outcomes
    3. Identify and troubleshoot internal building plumbing systems.
11. Recognize how plumbing components work in a system.
    Matched Outcomes
    3. Identify and troubleshoot internal building plumbing systems.
12. Diagnose problems that may arise when plumbing systems are installed incorrectly.
    Matched Outcomes
    3. Identify and troubleshoot internal building plumbing systems.
13. Interpret state requirements for plumbing systems for light framed construction.
    Matched Outcomes
    3. Identify and troubleshoot internal building plumbing systems.

New Resources for Course

Student hand tools

Course Textbooks/Resources

Textbooks
Manuals

Periodicals
Software

Equipment/Facilities

Level III classroom

Reviewer	Action	Date
Faculty Preparer:		
Cristy Lindemann	*Faculty Preparer*	*Feb 13, 2012*
Department Chair/Area Director:		
Cristy Lindemann	*Recommend Approval*	*Feb 15, 2012*
Dean:		
Ross Gordon	*Recommend Approval*	*Feb 15, 2012*
Vice President for Instruction:		
Stuart Blacklaw	*Approve*	*Apr 05, 2012*