MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE
COURSE OUTLINE

Faculty are required to have the outline submitted to the Academic Affairs Office. The course outline is the form used for approval of new courses by the Academic Affairs and Standards Council.

DEPARTMENT: CRPT COURSE NUMBER: 1155

NUMBER OF CREDITS: 2 (1 lecture, 1 lab)

COURSE TITLE: Building Science

CATALOG DESCRIPTION: Students in this course will learn about the house as a system and will include advanced topics in building shell components, air sealing, insulation, air quality, and health and safety.

AUDIENCE: First Year Carpentry Students

FULFILLS MN TRANSFER CURRICULUM AREA(S) (Leave blank if not applicable)
Area: by meeting the following competencies:
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PREREQUISITES OR NECESSARY ENTRY SKILLS/KNOWLEDGE: Desire to learn through a combination of lecture and hand-on activities. Career interest in the building construction trade.

LENGTH OF COURSE: One semester

THIS COURSE IS USUALLY OFFERED:
Every other year ☐ fall ☐ spring ☒ summer ☐ undetermined ☐

Four goals are emphasized in course at Minnesota West Community & Technical College:

1) ACADEMIC CONTENT: The academic objectives of this course are:
   a. Improve writing skills with the completion of required written assignments.
   b. Improve mathematical skills calculating linear measurements, dimensions, area, and volume measurements.
   c. Improve reading skills with the completion of required reading assignments.

2) THINKING SKILLS: This course will help students improve the effectiveness of their thinking skills through:
   a. Interpretation of blueprints and building product specifications as they apply to construction methods and techniques.
   b. Demonstration by individuals to calculate statistics into current building situations.
c. Decision making processes that involve recalling facts and specifics about given situations or problems encountered in building construction, evaluating the situation, and reaching a conclusion.

3) COMMUNICATIONS SKILLS: This course will help students improve their oral and written communication skills through:
   a. Group problem solving, collaborative projects and individual demonstrations.
   b. Individual classroom assignments and interactive lectures.

4) HUMAN DIVERSITY: This course will help students recognize, understand, and appreciate human diversity through:
   a. Working in a team with persons of different race, gender, and cultural background.

TOPICS TO BE COVERED:
   1. House as a system
   2. Building shell components
   3. Thermal envelope
   4. Health and safety
   5. Testing the building shell
   6. Air sealing and insulation
   7. Total building performance
   8. Evaluating energy performance, comfort, safety, and structural integrity of homes
   9. Conducting a blower door test

LIST OF EXPECTED COURSE OUTCOMES:
   1. Learn principles of energy and building science.
   2. Understand industry terminology
   3. Identify building construction types
   4. Identify types of heat flows
   5. Understand building shell weak points
   6. Introduce blower door testing.
   7. Investigate cost effective energy retrofits.
   8. Increase awareness of health and safety issues.

LEARNING/TEACHING TECHNIQUES used in the course are:

- Collaborative Learning
- Problem Solving
- Student Presentations
- Interactive Lectures
- Creative Projects
- Individual Coaching
- Lecture
- Films/Videos/Slides
- Demonstrations
- Other (describe below)
- Lab
ASSIGNMENTS AND ASSESSMENTS FOR THIS CLASS INCLUDE:

- Reading
- Textbook Problems
- Group Problems
- Other (describe below)
- Tests, Worksheets, Individual Projects
- Papers, Collaborative Projects, Portfolio
- Term Paper

EXPECTED STUDENT LEARNING OUTCOMES:

1. Demonstrate an understanding of the principles of energy and building science.
2. Demonstrate an understanding of industry terminology.
3. Identify building construction types.
4. Identify building shell weak points.
5. Perform a blower door test.
6. Identify cost effective energy retrofits.
7. Conduct a residential home energy audit.
8. Identify possible health and safety issues during an energy audit.

Veteran Services: Minnesota West is dedicated to assisting veterans and eligible family members in achieving their educational goals efficiently. Active duty and reserve/guard military members should advise their instructor of all regularly scheduled military appointments and duties that conflict with scheduled course requirements. Instructors will make every effort to work with the student to identify adjusted timelines. If you are a veteran, please contact the Minnesota West Veterans Service Office.

To receive reasonable accommodations for a documented disability, please contact the campus Student Services Advisor or campus Disability Coordinator as arrangements must be made in advance. In addition, students are encouraged to notify their instructor.

This document is available in alternative formats to individuals with disabilities by contacting the Student Services Advisor or by calling 800-658-2330 or Minnesota Relay Service at 800-627-3529 or by using your preferred relay service.

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The information in this course outline is subject to revision.