

**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.

DEPT. CRPT

COURSE NUMBER: 1110

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

COURSE TITLE: Roof Framing Part I

CATALOG DESCRIPTION : The basics of roof framing are covered in this course. Students will learn theory behind trusses, stick framing, and roof loads. They will be taught how to use a framing square and roof terminology. Students completing this class will be able to build a simple gable roof system.

AUDIENCE : Carpentry I 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. Types of roofs
2. Parts of a common rafter.
3. Rafter and ceiling joist layouts.
4. Use of a framing square to calculate rafter lengths.
5. Use of a framing square to lay out a common rafter.
6. Proper cutting of plumb cuts on a common rafter.
7. Calculating total rise of a roof and installing the ridge board.
8. Use of trusses in roof framing.
9. Bracing conventional roof framing and roof trusses.
10. Proper application of roof sheathing.

LIST OF EXPECTED COURSE OUTCOMES:

1. identify common roof types
2. identify common rafters
3. identify gable or rake rafters
4. identify ridge board
5. calculate common rafter
6. layout common rafter
7. calculate common rafter deductions
8. identify collar ties
9. identify rake framing
10. identify rafter scales
11. identify span

12. identify overhangs
13. identify run
14. identify overhangs
15. calculate pitch
16. identify roof loads
17. identify dead loads
18. identify live loads
19. identify height above plate
20. identify and layout plumb cut
21. identify and layout seat cut
22. cut plumb (ridge) cut on common rafter
23. cut seat cut on common rafter
24. cut plumb cut on common rafter tail
25. identify unit rise
26. identify roof slope
27. identify unit run
28. cut ridge board
29. set ridge board to proper height
30. layout rafter spacing on top plate
31. install common rafter
32. install gable or rake rafter
33. cut lookouts
34. install lookouts
35. layout ceiling joists
36. cut and install ceiling joists
37. cut and install collar ties
38. cut and install backing on top plates

LEARNING/TEACHING TECHNIQUES used in the course are:

- | | |
|--|--|
| <input checked="" type="checkbox"/> Collaborative Learning | <input checked="" type="checkbox"/> Problem Solving |
| <input type="checkbox"/> Student Presentations | <input checked="" type="checkbox"/> Interactive Lectures |
| <input checked="" type="checkbox"/> Creative Projects | <input type="checkbox"/> Individual Coaching |
| <input checked="" type="checkbox"/> Lecture | <input checked="" type="checkbox"/> Films/Videos/Slides |
| <input checked="" type="checkbox"/> Demonstrations | <input type="checkbox"/> Other (describe below) |
| <input checked="" type="checkbox"/> Lab | |

ASSIGNMENTS AND ASSESSMENTS FOR THIS CLASS INCLUDE:

- | | | |
|---|--|--|
| <input checked="" type="checkbox"/> Reading | <input checked="" type="checkbox"/> Tests | <input checked="" type="checkbox"/> Individual Projects |
| <input type="checkbox"/> Oral Presentations | <input checked="" type="checkbox"/> Worksheets | <input checked="" type="checkbox"/> Collaborative Projects |
| <input checked="" type="checkbox"/> Textbook Problems | <input type="checkbox"/> Papers | <input type="checkbox"/> Portfolio |
| <input checked="" type="checkbox"/> Group Problems | <input type="checkbox"/> Term Paper | |
| <input type="checkbox"/> Other (describe below) | | |

EXPECTED STUDENT LEARNING OUTCOMES:

1. List and describe the various types of roofs.
2. Identify the parts of a common rafter.
3. Explain the design and erection of roof trusses.
4. Define slope and pitch.
5. Use a framing square, quick square, and rafter tables.
6. Lay out common rafters.
7. Make all plumb cuts and seat cuts on a common rafter.
8. Calculate length of common rafters for a given span and roof slope.
9. Accurately cut all plumb cuts and seat cuts on a common rafter.
10. Lay out and install ceiling joists on a top plate.
11. Lay out and install common rafters on a top plate.
12. Demonstrate the proper procedure for sheathing a roof.
13. Cut rafter tails and install lookouts.
14. Install fascia board to the ends of rafters.

To receive accommodations for a documented disability, please contact the campus Student Services Advisor as soon as possible. Students are also encouraged to notify the instructor.

This document can be made available in alternative format by contacting Student Services, the Campus CEOs or calling Minnesota Relay Service at 1-800-627-3529. Reasonable accommodations will be provided upon request for documented disabilities. An Affirmative Action Equal Opportunity Educator/Employer. ADA Accessible.

The information in this course outline is subject to revision.