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: 1118

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

COURSE TITLE: Roof Framing

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 gable roof system, layout and cut hip and valley rafters, and identify various types of roof trusses.

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 common rafters, hip rafters, valley rafters, and jack rafters.
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 common, hip, valley, and jack rafters.
7. Calculating total rise of a roof and installing the ridge board.
8. Use of trusses in roof framing.
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. identify rafter scales
8. identify span
9. identify overhangs
10. identify run
11. identify roof loads
12. identify dead loads
13. identify live loads
14. identify height above plate
15. identify and layout plumb cut
16. identify and layout seat cut
17. cut plumb (ridge) cut on common rafter
18. cut seat cut on common rafter
19. cut plumb cut on common rafter tail
20. identify unit rise
21. identify roof slope
22. identify unit run
23. 30. layout rafter spacing on top plate
24. 31. install common rafter
25. 32. install gable or rake rafter
26. 33. cut lookouts
27. 2. identify hip rafter
28. 3. identify valley rafter
29. 4. identify jack rafter
30. 5. calculate lengths of common rafters
31. calculate lengths of hip rafters
32. calculate lengths of valley rafters
33. calculate lengths of jack rafters
34. layout out common rafter
35. layout hip rafter
36. layout valley rafter
37. layout jack rafter
38. cut common rafter
39. cut hip rafter
40. cut valley rafter
41. cut jack rafter
42. identify intersecting roofs
43. install ridge board
44. install common rafter
45. install hip rafter
46. install valley rafter
47. install jack rafter

LEARNING/TEACHING TECHNIQUES used in the course are:

- Collaborative Learning
- Problem Solving
- Student Presentations
- Interactive Lectures
- Creative Projects
- Individual Coaching
- Lecture
- Films/Videos/Slides
- Other (describe below)
- Lab

ASSIGNMENTS AND ASSESSMENTS FOR THIS CLASS INCLUDE:

- Reading
- Tests
- Oral Presentations
- Worksheets
- Textbook Problems
- Papers
- Group Problems
- Collaborative Projects
- Other (describe below)
- Portfolio
- Term Paper
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 to calculate rafter lengths.
6. Use a framing square, quick square, to layout cut on 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. Layout and install common rafters on a top plate.
11. Demonstrate the proper procedure for sheathing a roof.
12. Cut rafter tails and install lookouts.
13. Install fascia board to the ends of rafters.
14. Identify types of rafters used in hip roofs or intersecting gable roofs.
15. Calculate the length of hip, valley, and jack rafters using the framing square.
16. Accurately make plumb cuts, side cuts, and seat cuts on hip, valley, and jack rafters.
17. Erect ridge board, common rafters, hip rafters, valley rafters, and jack rafters on a given roof.
18. Apply sheathing to a hip roof or intersecting gable roof.

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.