COURSE OUTLINE

DEPT.  Carpentry                              COURSE NO.  CRPT 1160

COURSE TITLE:        Roof Framing

CATALOG DESCRIPTION:
Learn theory behind trusses, stick framing, and roof loads. Students 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. Students will install roof truss systems, hand frame roof sections of
various styles, including ceiling vaults and trays, and install roof sheathing.

AUDIENCE:  Carpentry students

PREREQUISITES OR NECESSARY ENTRY SKILLS/KNOWLEDGE:
CRPT 1101 Tool Safety Terms & Materials. A student may be asked to perform
certain tasks pertaining to carpentry.

LENGTH OF COURSE:           2 lecture and  2 lab credits

THIS COURSE IS USUALLY OFFERED:
Fall Semester

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

1) ACADEMIC CONTENT: The student will attain knowledge in various up to date
roof framing methods for energy efficient housing, roof system assemblies and
sheathing methods.

2) THINKING SKILLS: Students will be asked to assemble roof systems with
trusses and hand framing methods and apply sheathing.

3) COMMUNICATIONS SKILLS: The student must be able to work with others in
the process of constructing the roof systems. Each student will be Foreman of the
entire house project for one week

4) HUMAN DIVERSITY: The student should be aware that the access for
handicapped persons on the job site is limited.

TOPICS TO BE COVERED:
01. Types of roofs
02. Parts of common rafters, hip rafters, valley rafters, and jack rafters.
03. Rafter and ceiling joist layouts.
04. Use of a framing square to calculate rafter lengths.
05. Use of a framing square to lay out a common rafter.
06. Proper cutting common, hip, valley, and jack rafters.
07. Calculating total rise of a roof and installing the ridge board.
08. Use of trusses in roof framing.
09. Bracing conventional roof framing and roof trusses.
10. Proper application of roof sheathing.
11. Various sizes of dimension lumber
12. Roof systems
13. Sheathing materials
14. Estimating

LIST OF EXPECTED COURSE OUTCOMES:

01  Blue print reading
02  Design and install hand frame rafter and joist materials
03  Design and install a truss roof system
04  Discuss various types of roof styles
05  Install truss roof wind shear bracing
06  Install roof sheathing
07  Installation of facia materials
08  Identify various roof styles (gable, hip, dutch hip, gambrel, etc)
09  Frame intersecting roofs, valleys, and hips
10  Apply UBC span tables
11  Assemble truss girders
12  Layout common rafter
13  Identify span
14  Identify overhangs
15  Identify run
16  Identify roof loads
17  Identify height above plate
18  Layout rafter spacing on top plate
19  Layout lookouts
20  Layout common, hip, valley, and jack rafters

LEARNING/TEACHING TECHNIQUES USED ARE:

Collaborative Learning  Problem Solving
Interactive Lectures  Individual Coaching
Creative Projects  Lecture
Demonstrations  Lab
ASSIGNMENTS AND ASSESSMENTS FOR THIS CLASS INCLUDE:
- Tests
- Individual Projects
- Group Problems
- Collaborative Projects
- Other: Be a working Foreman

EXPECTED STUDENT LEARNING OUTCOMES:
1. Read a set of truss blueprints
2. Complete assembly of roof components including sheathing so as to be ready for shingling and other exterior finishes.
3. Identify the parts of a common rafter.
4. Explain the design and erection of roof trusses.
5. Define slope and pitch.
6. Use a framing square and rafter tables to calculate rafter lengths
7. Use a framing square to layout cut on rafters.
8. Make all plumb cuts and seat cuts on a common rafter.
9. Calculate length of common rafters for a given span and roof slope.
10. Accurately cut all plumb cuts and seat cuts on a common rafter.
11. Layout 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.
15. Identify types of rafters used in hip roofs or intersecting gable roofs.
16. Calculate the length of hip, valley, and jack rafters using the framing square.
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.

The information in this course outline is subject to revision

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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