

**Course Outline**

**COURSE:** CARP 216      **DIVISION:** 50      **ALSO LISTED AS:**

**TERM EFFECTIVE:** Fall 2016      **Inactive Course**

**SHORT TITLE:** ROOF FRAMING

**LONG TITLE:** Roof Framing

<u>Units</u>	<u>Number of Weeks</u>	<u>Type</u>	<u>Contact Hours/Week</u>	<u>Total Contact Hours</u>
1	1	Lecture:	6	6
		Lab:	30	30
		Other:	0	0
		Total:	36	36

**COURSE DESCRIPTION:**

This course covers roof framing, layout and construction. Topics include planning and building several styles of roofs using accepted terminology, technical information, construction materials and methods, and meeting accepted industry standards.

**PREREQUISITES:**

**COREQUISITES:**

**CREDIT STATUS:** C - Credit - Degree Non Applicable

**GRADING MODES**

L - Standard Letter Grade

**REPEATABILITY:** N - Course may not be repeated

**SCHEDULE TYPES:**

02 - Lecture and/or discussion

03 - Lecture/Laboratory

04 - Laboratory/Studio/Activity

**STUDENT LEARNING OUTCOMES:**

1. The student will identify ten roof members.

Measure: Quizzes, Written Exams

PLO: 3

ILO: 2, 3, 7

GE-LO:

Year assessed or anticipated year of assessment: 2012-13

2. The student will determine the line length of a hip rafter using Step-off with a framing square, framing square rafter tables, and Full Length Rafter Book.

Measure: Class Performance, Written Exams

PLO: 3

ILO: 2, 3, 7

GE-LO:

Year assessed or anticipated year of assessment: 2012-13

#### PROGRAM LEARNING OUTCOMES:

1. Demonstrate journey level skills, including those skills necessary to build all concrete infrastructures that comprise the California transportation system.
2. Locate on the blueprints and in the specifications, the information needed to construct various types of structures and assemble its various components.
3. Perform horizontal layout and vertical layout of wood framed wall components. Install interior and exterior trims and moldings. Construct various types of roofs and stairs.

#### CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS

Inactive Course: 11/28/2016

Out-of class assignments: For each topic, the student will read chapters and do homework assignments at the end of those chapters.

2 lec/10 lab

- A. Basic roof types
- B. Roof layout principles
  1. Total span, total run, and total rise
  2. Roof pitch and unit run
  3. Roof triangle
  4. Unit rise and unit run
- C. Structural factors in roof design
  1. Dead load
  2. Live load
  3. Allowable rafter spans
  4. Ceiling joist
  5. Collar ties and purlins
  6. Rafter anchors
  7. Roof sheathing

SLO: The student will identify ten roof members. The student will determine rafter lengths using three methods.

Assignments: Read the chapters covered in the lecture and do the homework exercises at the end of the chapters. Answer the study guide questions on the assigned subject.

Identify ten roof members. Determine rafter lengths using three methods.

2 lec/10 lab

- D. Gable roof
  - a. Common rafters

12/5/2016

- b. Calculating common rafter line length
- a. Step-off with a framing square
- b. Framing square rafter tables
- c. Full Length Rafter Book ©
- c. Shortening common rafters
- d. Common rafter layout
- a. Plumb cut at the ridge
- b. Seat cut
- c. Tail cut
- E. Constructing gable roofs
- a. Marking wall plates
- b. Marking and cutting ridge boards
- c. Cutting common rafters
- d. Erecting common rafters using a ridge board
- e. Cutting common rafter overhangs
- f. Framing gable end overhangs
- g. Cutting and installing gable wall studs
- F. Constructing shed roofs
- G. Building dormers

SLO: The student will determine the line length of a common rafter using Step-off with a framing square, framing square rafter tables, and Full Length Rafter Book.

The student will determine the line length of a hip rafter using Step-off with a framing square, framing square rafter tables, and Full Length Rafter Book. The student will frame a shed roof. The student will frame a gable roof.

Assignments: Read the chapters covered in the lecture and do the homework exercises at the end of the chapters. Answer the study guide questions on the assigned subject.

Determine the line length of a common rafter using Step-off with a framing square, framing square rafter tables, and Full Length Rafter Book.

Determine the line length of a hip rafter using Step-off with a framing square, framing square rafter tables, and Full Length Rafter Book. Frame a shed roof. Frame a gable roof.

2 lec/10 lab

- G. Hip rafters
- 1. Calculating hip rafter line lengths
- a. Step-off with a framing square
- b. Framing square rafter tables
- c. Full Length Rafter Book ©
- 2. Shortening hip rafters
- 3. Laying out hip rafters
- 1. Plumb and seat cuts
- 2. Side cuts
- 3. Overhang
- H. Hip jack rafters
- a. Common length differences
- b. Laying out hip jack rafters
- a. Plumb and seat cuts
- b. Side cuts
- c. Overhang
- I. Constructing hip roofs
- A. Calculating ridge length

- B. Wall and ridge layout
- C. Erection procedures
- J. Intersecting roof
- A. Equal span
- B. Unequal span
- C. Valley rafters
  - 1. Line length
  - 2. Layout valley rafters
  - 3. Supporting and shortened valley rafters
- D. Valley jack rafters
  - a. Line length
  - b. Layout valley rafters
- E. Hip-valley cripple jack rafters
  - a. Line length
  - 4. Layout valley rafters
- K. Constructing intersecting roofs
  - 1. Locating points of intersection
  - 2. Calculating intersecting ridge board lengths
  - 3. Framing intersecting roofs with equal spans
  - 4. Framing intersecting roofs with unequal spans
  - 5. Blind valley construction of intersecting roofs
    - a. Blind valley rafter layout

SLO: The student will frame a hip roof. The student will frame an intersecting hip roof with unequal spans. The student will layout the plates and ridge for an assigned roof. The student will install purlins, braces, collar ties, and barge rafters.

Assignments: Read the chapters covered in the lecture and do the homework exercises at the end of the chapters. Answer the study guide questions on the assigned subject.

Frame a hip roof. Frame an intersecting hip roof with unequal spans.

Layout the plates and ridge for an assigned roof. Install purlins, braces, collar ties, and barge rafters.

2 hours

Final exam

**METHODS OF INSTRUCTION:**

- A. Lecture and discussion
- B. Visual aids
- C. Demonstrations
- D. Group hands-on exercise
- E. Individual hands-on exercise
- F. One-on-one hands-on instruction

**METHODS OF EVALUATION:**

The types of writing assignments required:

Written homework

Reading reports

Lab reports

Essay exams

The problem-solving assignments required:

Homework problems

Field work

Lab reports

Quizzes

Exams

The types of skill demonstrations required:

Class performance

Field work

Performance exams

The types of objective examinations used in the course:

Multiple choice

True/false

Matching items

Completion

Other category:

None

The basis for assigning students grades in the course:

Writing assignments: 10% - 30%

Problem-solving demonstrations: 10% - 40%

Skill demonstrations: 30% - 80%

Objective examinations: 10% - 30%

Other methods of evaluation: 0% - 0%

### **REPRESENTATIVE TEXTBOOKS:**

Required:

Leonard A. Koel, Barclay, CTCNC. Carpentry 6th edition, Construction Safety Orders 1 & 2, Roof Framing. American Technical Publishers, Thomas West, CTCNC, 2013. Or other appropriate college level text.

Reading level of text, Grade: 10 Verified by: publisher/dvt

### **ARTICULATION and CERTIFICATE INFORMATION**

Associate Degree:

CSU GE:

IGETC:

CSU TRANSFER:

Not Transferable

UC TRANSFER:

Not Transferable

### **SUPPLEMENTAL DATA:**

Basic Skills: N

Classification: Y

Noncredit Category: Y

Cooperative Education:

Program Status: 1 Program Applicable

Special Class Status: N

CAN:

CAN Sequence:

CSU Crosswalk Course Department:

12/5/2016

CSU Crosswalk Course Number:  
Prior to College Level: Y  
Non Credit Enhanced Funding: N  
Funding Agency Code: Y  
In-Service: N  
Occupational Course: A  
Maximum Hours:  
Minimum Hours:  
Course Control Number: CCC000500349  
Sports/Physical Education Course: N  
Taxonomy of Program: 095210