

Course Information Form (CIF)

Course Code: CCA 213

Course Title: Roof Framing

Department: Applied Sciences and Technologies

Effective Date: Summer 2026

PCS Code: 1.2 - Occupational/Technical Instruction

CIP Code: 46.0201

Repeatability: 0

Credit Hours

Catalog Notation: 1-3-2

Credit Hour Distribution:

Lecture: 1

Lab: 3

Clinical: 0

Total: 2

General Course Information

Catalog Description

Basic theory, calculations, and proper layout practices for gable, hip, valley, and jack rafters.

General Course Objectives

Students will know the theory and be able to demonstrate the ability to construct various types of roofs safely and according to industry standards.

Minimum Placement Levels

English	Reading	Math
Placement out of ENG 098	Placement out of CCS 098	Placement into MAT 060

Prerequisites

Credit in CCA 111 and CCA 212

Methods of Evaluation

The minimum methods of evaluation include: 4 written exams, quizzes, lab exercises, a final written exam, and practical exams.

Instructional Materials and Additional Supplies

Carpentry, Units 46, 47, 48, and 49. Koel, Leonard (2009). Homewood, Illinois: American Technical Publishers.

Course Content

General Learning Outcomes (GLOs)

- Technology: Students will demonstrate the ability to evaluate, select, and appropriately use current and emerging tools.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Principles of Roof Layout	1. Identify and label basic roof designs. 2. List the parts of a typical ceiling joist assembly. 3. List the sequence of steps in the assembly of ceiling joist construction. 4. Define the purpose of a strongback in a ceiling and roof framing system. 5. Determine the size and quantity of ceiling joists needed for a given blueprint complying with Uniform Building Code. 6. Describe the installation of backing over walls running parallel to the ceiling frame.	4	10	0
Structural Factors	1. Identify the rafter table on a framing square. 2. Explain how to lay out a roof framing plan for each type of roof. 3. Explain the difference between slope and pitch ratio. 4. Explain how to lay out a common rafter by applying the unit length method.	4	10	0
Constructing Roofs	1. Demonstrate how to calculate and cut common rafters, gable end studs, hip rafters, hip-jack rafters, valley rafters, valley-jack rafters, and ridge boards. 2. Calculate the total height of various types of roofs. 3. Install and explain the purpose of temporary and permanent bracing when installing rafters. 4. Estimate the material needed to construct a roof from a given plan. 5. Determine the number of hip jacks necessary for a hip roof with the building properly dimensioned. 6. Calculate the theoretical length of the hip-jack rafter. 7. Shorten and correctly mark the top cut of a hip rafter. 8. Demonstrate how to cut the hip-jack rafter. 9. Describe a blind valley rafter. 10. Demonstrate the ability to calculate and cut a blind valley rafter. 11. Locate the valley location on the ridge stock. 12. Analyze valley jack situations and calculate the number necessary to frame a roof. 13. Demonstrate the layout for and ability to cut a valley-jack rafter. 14. Calculate the amount of material needed to sheathe a roof. 15. Demonstrate proper attitudes about health and safety. 16. Use proper roof framing terminology in verbal and written communications.	5	25	0
Exams	1. Successfully complete all required exams.	2	0	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
15	45	0