

# Introduction to Construction

## Course Outcome Summary

### Course Information

<b>Organization</b>	Madison Area Technical College
<b>Developers</b>	Allie Berenyi
<b>Development Date</b>	5/23/2005
<b>Revised Date</b>	1/20/2006
<b>Course Number</b>	31-410-399
<b>Instructional Level</b>	One-Year Technical Diploma
<b>Potential Hours of Instruction</b>	280
<b>Total Credits</b>	3

### Description

This course provides an introduction to the identification, safe use, and care of hand and portable power tools to square up stock, cut joints, sand surfaces, and other skills involved in tool usage. In addition, stationary machine woodworking operations are introduced for basic woodworking activities. Plans, their interpretations along with lumber, plywood, and other materials for woodworking activities are explored.

### Types of Instruction

Instruction Type	Contact Hours	Credits
Classroom Presentation	72	3
On-Campus Lab	104	
Actual Work Experience	104	

### Textbooks

Feirer and Feirer. *Carpentry and Building Construction*. Glencoe. **Edition:** 5. **Source:** MATC Bookstore.

### Learner Supplies

Safety Glasses. **Quantity:** 1. **Price:** \$5.

Basic Hand Tools. **Price:** \$100.

Hard hat. **Price:** \$10.

### Prerequisites

Corequisite: Introduction to Construction (31-410-301)

Corequisite: Plans, Site and Formwork (31-410-302)

### Exit Learning Outcomes

#### Core Abilities

- A. Mathematics
- B. Social interaction
- C. Critical thinking

## Competencies

### A. Build a product from given plans

#### You will demonstrate your competence:

A.1. by building a sawhorse

#### Your performance will be successful when:

- A.1. you follow proper safety procedures
- A.2. sawhorse is of the correct dimensions
- A.3. sawhorse is made of specified and structurally sound lumber
- A.4. sawhorse sits with all four feet on a flat floor
- A.5. sawhorse is assembled with specified, countersunk fasteners
- A.6. sawhorse is made of cleanly cut lumber
- A.7. sawhorse edges are eased

#### Learning Objectives

- A.1. Follow safety procedures.
- A.2. Identify lines on a drawing.
- A.3. Read measurements from a drawing.
- A.4. Identify standard symbols on a drawing.
- A.5. Measure in the English system of measurement.
- A.6. Select sound lumber.
- A.7. Use appropriate hand and power tools.
- A.8. Use fasteners.

### B. Select lumber appropriate to application

#### You will demonstrate your competence:

B.1. by taking a written exam

#### Your performance will be successful when:

- B.1. you explain how trees are milled into lumber
- B.2. you identify woods commonly used in construction
- B.3. you identify common defects in lumber
- B.4. you select the appropriate lumber for given scenarios
- B.5. you explain conditions that are damaging to wood

#### Learning Objectives

- B.1. Identify woods commonly used in construction.
- B.2. Explain lumber production.
- B.3. Identify common defects in lumber.
- B.4. Identify wood damaging scenarios.

### C. Interpret building plans

#### You will demonstrate your competence:

C.1. by completing a written assignment

#### Your performance will be successful when:

- C.1. you identify blueprint symbols
- C.2. you interpret schedules and notes from the plan
- C.3. you determine measurements from the plan
- C.4. you identify features based on line weights and line types

#### Learning Objectives

- C.1. Identify blueprint symbols.
- C.2. Determine measurements on a drawing.
- C.3. Identify lines on a drawing.

C.4. Interpret schedules.

C.5. Interpret notes.

**D. Explain house framing methods**

**You will demonstrate your competence:**

D.1. by taking a written exam

**Your performance will be successful when:**

D.1. you identify different framing methods

D.2. you explain on-center spacing

D.3. you explain the effects of loads and forces on homes

D.4. you compare the pros and cons of different framing method

**Learning Objectives**

D.1. Compare framing methods.

D.2. Explain on-center spacing.

D.3. Explain loads and forces.

**E. Demolish structures as per plans and/or instructor direction**

**You will demonstrate your competence:**

E.1. by participating in a demolish project

**Your performance will be successful when:**

E.1. you install site protection to limit damage and dust migration

E.2. you follow proper safety procedures

E.3. you turn off plumbing, electrical and heating that may be impacted by your work

E.4. you remove wall coverings using prybars, flatbars, crowbars, hammers and Sawzalls

E.5. you take precautions so as not to damage hidden plumbing, electrical and heating equipment

E.6. you keep your work area clean and free of hazards

E.7. you install shoring walls as needed

E.8. you remove structural elements as per building plans

E.9. you identify and remove rotten building elements

**Learning Objectives**

E.1. Follow safety procedures.

E.2. Install site protection.

E.3. Be aware of electrical/mechanical systems.

E.4. Clean work area.

E.5. Be alert to structural issues.

E.6. Build shoring walls.

**F. Install a girder or beam and posting**

**You will demonstrate your competence:**

F.1. by participating in the installation of a girder, beam and posting

F.2. by taking a written exam

**Your performance will be successful when:**

F.1. you follow proper safety procedures

F.2. girder, beam and posting are cut to the correct length

F.3. girder, beam and posting are installed in correct location

F.4. girder, beam and posting are nailed as per applicable codes and specifications

**Learning Objectives**

F.1. Follow safety procedures.

F.2. Interpret building plans.

F.3. Assess site conditions.

F.4. Use hand and power tools.

- F.5. Interpret building codes.
- F.6. Apply accepted construction practices.

**G. Construct a floor frame**

**You will demonstrate your competence:**

- G.1. by taking a written exam
- G.2. by participating in the construction of a floor frame
- G.3. by replacing floor frame members as per plan or instructor's direction

**Your performance will be successful when:**

- G.1. you identify members of a floor frame
- G.2. you follow proper safety procedures
- G.3. mudsills are installed as per plans and applicable codes
- G.4. rim boards and floor joists are installed as per plans and applicable codes
- G.5. floor sheathing is installed as per plans and applicable codes

**Learning Objectives**

- G.1. Follow safety procedures.
- G.2. Interpret building plans.
- G.3. Assess site conditions.
- G.4. Use hand and power tools.
- G.5. Interpret building codes.
- G.6. Apply accepted construction practices.

**H. Frame exterior walls with window and door openings**

**You will demonstrate your competence:**

- H.1. by taking a written exam
- H.2. by framing an exterior wall

**Your performance will be successful when:**

- H.1. you identify framing members in an exterior wall
- H.2. you follow proper safety procedures
- H.3. exterior wall is constructed as per plans and applicable codes
- H.4. wall is square
- H.5. wall is in correct place
- H.6. wall is plumb
- H.7. wall is properly braced

**Learning Objectives**

- H.1. Follow safety procedures.
- H.2. Interpret building plans.
- H.3. Assess site conditions.
- H.4. Use hand and power tools.
- H.5. Interpret building codes.
- H.6. Apply accepted construction practices.

**I. Sheath building**

**You will demonstrate your competence:**

- I.1. by taking a written exam
- I.2. by installing exterior sheathing

**Your performance will be successful when:**

- I.1. you explain the structural role of exterior sheathing
- I.2. you describe how to install exterior sheathing
- I.3. you follow proper safety procedures
- I.4. exterior sheathing is installed as per plans, applicable codes and instructor's directions

**Learning Objectives**

- I.1. Follow safety procedures.
- I.2. Interpret building plans.
- I.3. Assess site conditions.
- I.4. Use hand and power tools.
- I.5. Interpret building codes.
- I.6. Apply accepted construction practices.

**J. Frame interior walls****You will demonstrate your competence:**

- J.1. by taking a written exam
- J.2. by framing interior walls

**Your performance will be successful when:**

- J.1. you explain how to lay out interior walls
- J.2. you follow proper safety procedures
- J.3. interior walls are framed as per plans and applicable codes
- J.4. interior walls are located in the correct positions
- J.5. interior walls are square
- J.6. interior walls are plumb

**Learning Objectives**

- J.1. Follow safety procedures.
- J.2. Interpret building plans.
- J.3. Assess site conditions.
- J.4. Use hand and power tools.
- J.5. Interpret building codes.
- J.6. Apply accepted construction practices.

**K. Install roof trusses and bracing****You will demonstrate your competence:**

- K.1. by taking a written exam
- K.2. by installing roof trusses

**Your performance will be successful when:**

- K.1. you explain the pros and cons of constructing roofs with trusses
- K.2. you explain the movement of forces in a roof truss
- K.3. you follow proper safety procedures
- K.4. you interpret truss plans
- K.5. roof trusses are installed as per truss plans, building plans, and applicable codes
- K.6. roof trusses are braced as per truss plans and applicable building codes

**Learning Objectives**

- K.1. Follow safety procedures.
- K.2. Interpret building plans.
- K.3. Assess site conditions.
- K.4. Use hand and power tools.
- K.5. Interpret building codes.
- K.6. Apply accepted construction practices.

**L. Install roof sheathing****You will demonstrate your competence:**

- L.1. by taking a written exam
- L.2. by sheathing a roof

**Your performance will be successful when:**

- L.1. you explain the structural role of roof sheathing
- L.2. you describe how to install roof sheathing
- L.3. you follow proper safety procedures
- L.4. roof sheathing is installed as per plans, applicable codes and instructor directions
- L.5. roof is protected from rain

**Learning Objectives**

- L.1. Follow safety procedures.
- L.2. Interpret building plans.
- L.3. Assess site conditions.
- L.4. Use hand and power tools.
- L.5. Interpret building codes.
- L.6. Apply accepted construction practices.