



Western Technical College

## 10614149 Building Estimating

### Course Outcome Summary

#### Course Information

<b>Description</b>	This course leads advanced architectural students through the estimating process to provide a framework that can be applied to various trades on different types of construction projects. Students will learn how the science of mathematics, the knowledge of building materials, and the art of interpretation of blueprints combine. Construction plans will be referenced to complete material quantity surveys that will be converted into monetary values.
<b>Career Cluster</b>	Architecture and Construction
<b>Instructional Level</b>	Associate Degree Courses
<b>Total Credits</b>	3
<b>Total Hours</b>	54

#### Textbooks

No textbook required.

#### Learner Supplies

Architectural Technology Kit. **Vendor:** Campus Shop. Required.

#### Success Abilities

1. Cultivate Passion: Expand a Growth-Mindset
2. Live Responsibly: Foster Accountability

#### Program Outcomes

1. Evaluate building materials.
2. Develop building designs.
3. Apply structural principles in all phases of an architectural project.
4. Estimate the materials and costs required to construct a building.

## Course Competencies

### 1. Interpret plans and specifications

#### Assessment Strategies

- 1.1. Project

#### Criteria

*You will know you are successful when*

- 1.1. you identify standard symbols found on architectural plans.
- 1.2. you review architectural drawings for appropriate information.

#### Learning Objectives

- 1.a. Identify standard symbols found on architectural plans.
- 1.b. Review architectural drawings for appropriate information.

### 2. Apply mathematical concepts in building estimating.

#### Assessment Strategies

- 2.1. Written Objective Test

#### Criteria

*You will know you are successful when*

- 2.1. you calculate areas of buildings and components.
- 2.2. you calculate volumes of buildings and components.
- 2.3. you apply correct units of measure.
- 2.4. you compute fractions and percentages.

#### Learning Objectives

- 2.a. Calculate areas of buildings and components.
- 2.b. Calculate volumes of buildings and components.
- 2.c. Apply correct units of measure.
- 2.d. Compute fractions and percentages.

### 3. Examine role of estimating in building process.

#### Assessment Strategies

- 3.1. Project

#### Criteria

*You will know you are successful when*

- 3.1. you differentiate between designer and contractor estimates.
- 3.2. you differentiate between preliminary estimates and bidding.

#### Learning Objectives

- 3.a. Differentiate between designer and contractor estimates.
- 3.b. Differentiate between preliminary estimates and bidding.

### 4. Acquire pertinent information from digital building model.

#### Assessment Strategies

- 4.1. Project

#### Criteria

*You will know you are successful when*

- 4.1. you acquire area information from digital building model.
- 4.2. you acquire volume information from digital building model.
- 4.3. you acquire quantity information from digital building model.

#### Learning Objectives

- 4.a. Acquire area information from digital building model.
- 4.b. Acquire volume information from digital building model.
- 4.c. Acquire quantity information from digital building model.

## **5. Explore estimating resources.**

### **Assessment Strategies**

5.1. Project

### **Criteria**

*You will know you are successful when*

- 5.1. you select correct estimating guide for project type.
- 5.2. you locate correct information within estimating guide.
- 5.3. you create an estimate for a single family residence using an estimating website.
- 5.4. you analyze a published estimating example.

### **Learning Objectives**

- 5.a. Select correct estimating guide for project type.
- 5.b. Locate correct information within estimating guide.
- 5.c. Use online estimating resources.
- 5.d. Explore estimating periodicals.

## **6. Use spreadsheet software in building estimating.**

### **Assessment Strategies**

6.1. Written Product

### **Criteria**

*You will know you are successful when*

- 6.1. you modify spreadsheet format appropriately to the task.
- 6.2. you use spreadsheet formulas correctly.
- 6.3. you input data into spreadsheet correctly.
- 6.4. you create organized spreadsheet output.

### **Learning Objectives**

- 6.a. Explore spreadsheet interface.
- 6.b. Modify spreadsheet format.
- 6.c. Employ spreadsheet formulas.

## **7. Develop residential building cost estimate using square foot cost method.**

### **Assessment Strategies**

7.1. Competency will be demonstrated in a residential building estimate written product.

### **Criteria**

*You will know you are successful when*

- 7.1. you select correct estimating guide for project type.
- 7.2. you locate correct information within estimating guide.
- 7.3. you categorize building shape to determine wings and ells.
- 7.4. you calculate correct square footage.
- 7.5. you calculate necessary cost modifications.
- 7.6. you calculate correct estimate cost.
- 7.7. you compose organized estimate format.

### **Learning Objectives**

- 7.a. Select correct estimating guide for project type.
- 7.b. Locate correct information within estimating guide.
- 7.c. Categorize building shape to determine wings and ells.
- 7.d. Calculate correct square footage.
- 7.e. Apply necessary cost modifications.
- 7.f. Calculate estimated cost.
- 7.g. Compose estimate format.

## **8. Develop commercial building cost estimate using square foot cost method.**

### **Assessment Strategies**

8.1. Competency will be demonstrated in a commercial building estimate written product.

**Criteria**

*You will know you are successful when*

- 8.1. you select correct estimating guide for project type.
- 8.2. you locate correct information within estimating guide.
- 8.3. you calculate correct square footage.
- 8.4. you calculate necessary cost modifications.
- 8.5. you calculate correct estimate cost.
- 8.6. you compose organized estimate format.

**Learning Objectives**

- 8.a. Select correct estimating guide for project type.
- 8.b. Locate correct information within estimating guide.
- 8.c. Calculate correct square footage.
- 8.d. Apply necessary cost modifications.
- 8.e. Calculate estimated cost.
- 8.f. Compose estimate format.

**9. Produce material/labor quantity takeoff for building project.**

**Assessment Strategies**

9.1. Competency will be demonstrated in a quantity takeoff written product.

**Criteria**

*You will know you are successful when*

- 9.1. you locate correct information within estimating guide.
- 9.2. you calculate correct material/labor quantities.
- 9.3. you calculate necessary cost modifications.
- 9.4. you calculate correct estimate cost.
- 9.5. you compose organized estimate format.

**Learning Objectives**

- 9.a. Locate information on plans and specifications.
- 9.b. Locate correct information within estimating guide.
- 9.c. Calculate correct material/labor quantities.
- 9.d. Apply necessary cost modifications.
- 9.e. Calculate estimated cost.
- 9.f. Compose estimate format.