Western Technical College

31410303 Site Layout and Concrete

Course Outcome Summary

Course Information

Description	Students will be introduced to portable power tools, various hand tools, measuring and layout procedures, and site development using surveying equipment. Concrete as a building material, foundation walls and footings, and below grade foundation preparation will be studied as well.
Career Cluster	Architecture and Construction
Instructional Level	Technical Diploma Courses
Total Credits	1
Total Hours	36

Textbooks

Carpentry and Building Construction (Student Edition). Copyright 2016. McGraw Hill Education. Publisher: McGraw-Hill Publishing Company. **ISBN-13**: 978-0-02-140244-1. Required.

Learner Supplies

Safety glasses with side eye protection that meet Z87 OSHA guidelines. **Vendor:** Campus Shop. Required.

25' - 1" tape measure. **Vendor:** To be discussed in class. Required.

Scientific Calculator - $20. **Vendor:** Campus Shop. Required.

Proper work boots - $35.00-75.00. **Vendor:** To be discussed in class. Required.

Program Outcomes

1. Use hand and power tools and equipment.
2. Apply industry recognized safety practices and procedures.
3. Interpret building codes.
4. Demonstrate industry building practices and material application.

Course Competencies

1. Explore various applications of the Framing Square.

Assessment Strategies

1.1. Skill Demonstration

Criteria

You will know you are successful when

1.1. you lay out an octagon, rectangle, circle, and square corners using the framing square
1.2. you lay out a 45 degree angle brace and a sway brace using the framing square
1.3. you list the scales and tables found on a framing square

Learning Objectives

1.a. Interpret the different tables and scales found on the framing square
1.b. Draw various geometric shapes using framing square
1.c. Calculate and lay out a brace at a 45 degree angle using the brace measure table found on the framing square
1.d. Draw out a brace using the twelfth scale with a framing square

2. Use hand and power tools.

Assessment Strategies

2.1. Skill Demonstration
2.2. Written Objective Test (score 70% or higher)

Criteria

You will know you are successful when

2.1. you select the correct power tool to use
2.2. you demonstrate safe and accurate use of power tools
2.3. you select and use hand tools needed to perform a task
2.4. you produce a final product according the instructors' specifications.
2.5. you pass a power saw safety test.

Learning Objectives

2.a. Use a circular saw in a safe and effective manner
2.b. Use a saber saw in a safe and effective manner
2.c. Use a drill in a safe and effective manner
2.d. Use a tape measure to perform basic measuring operations
2.e. Use different squaring devices to draw a square corner

3. Perform a building lay out using surveying equipment.

Assessment Strategies

3.1. Skill Demonstration
3.2. Written Objective Test (score 70% or higher)

Criteria

You will know you are successful when

3.1. you locate a building setback as stated on a plot plan
3.2. you set up a transit accurately
3.3. you use a transit to establish 90 degree corners
3.4. you establish building corners at the proper dimensions as shown on a plot plan using a transit

Learning Objectives

3.a. Identify property lines on a plot plan
3.b. Identify building lines on a plot plan
3.c. Locate building setbacks from property lines on a plot plan
3.d. Locate building corners at 90 degrees using a transit

4. Locate the elevations of top of footing, top of foundation, and finish floor from a plan.

Assessment Strategies

4.1. Skill Demonstration
4.2. Written Objective Test (score 70% or higher)

Criteria

You will know you are successful when

4.1. you set up a laser accurately
4.2. you calculate elevations of top of footing, top of foundation, and finish floor above or below a benchmark
4.3. you record the elevation of a benchmark using a laser, leveling rod, and receiver
4.4. you mark top of footing, top of foundation, and finish floor elevations using a laser, leveling rod, and receiver

Learning Objectives

4.a. Calculate the elevations on top of footing, top of foundation, and finish floor from a benchmark
4.b. Set up a laser for recording and establishing elevations
4.c. Record a benchmark elevation using a laser, receiver, and leveling rod
4.d. Determine location of receiver on leveling rod above or below benchmark to establish footing, foundation wall, and finish floor elevations
4.e. Locate top of footing, top of foundation, and finish floor elevations using a laser, leveling rod, and receiver.

5. Examine use of concrete as a building material.

Assessment Strategies

5.1. Written Objective Test (score 70% or higher)

Criteria

You will know you are successful when

5.1. you list the 4 main ingredients of concrete and their roles as they relate to strength, durability, and appearance
5.2. you explain how the process of hydration and the addition of reinforcing steel effect the strength of cured concrete

Learning Objectives

5.a. Identify the ingredients used in a concrete mixture for various applications
5.b. Explain the process of hydration as it relates to a concrete mixture
5.c. Examine the physical characteristics of concrete
5.d. Investigate the role of embedded steel in concrete

6. Examine the design, use, and application of concrete in a buildings' foundation and flatwork.

Assessment Strategies

6.1. Written Objective Test (score 70% or higher)
6.2. Skill Demonstration

Criteria

You will know you are successful when

6.1. you differentiate between a buildings' footing, foundation wall, and flatwork
6.2. you explain the purpose of a footing and foundation wall
6.3. you list the steps to finishing concrete flatwork
6.4. you install a wall form mock-up as specified on a drawing

Learning Objectives

6.a. Analyze the design and purpose of a footing
6.b. Analyze the design and purpose of a foundation wall
6.c. Analyze the design and use of flatwork in building construction
6.d. List the steps in finishing concrete flatwork
6.e. Install foundation wall forms