

# ATCT-2341: CONCRETE SPECIALITIES

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## Cuyahoga Community College

**Viewing: ATCT-2341 : Concrete Specialities**

**Board of Trustees:**

May 2024

**Academic Term:**

Fall 2025

**Subject Code**

ATCT - Appld Indus Tech - Carpentry

**Course Number:**

2341

**Title:**

Concrete Specialities

**Catalog Description:**

Heavy construction methods for forming piers, columns and decks are an integral part of this course. The techniques to form elevated decks, ramps and stairways will be emphasized. This course will focus on forming procedures as well as related mathematical concepts.

**Credit Hour(s):**

2

**Lecture Hour(s):**

2

## Requisites

**Prerequisite and Corequisite**

ATCT-1331 Concrete Footers and Walls, and departmental approval: Admissions to Carpentry Technology apprenticeship program.

**Methods of Evaluation:**

1. Quizzes
2. Exams
3. Classroom Participation
4. Completion of assigned projects

**Course Content Outline:**

1. Concepts
  - a. Pier foundation design
  - b. Column foundation design
  - c. Deck forms design
  - d. Layout methods
- e. Construction methods
  - i. Radius wall forms
  - ii. Vertical shoring
    1. Wood shores
    2. Horizontal bracing
    3. Diagonal bracing
    4. Reshores
    5. Permanent shores
  - iii. Floor form

1. Beam systems
2. Girder systems
3. Slab floor systems
- iv. Concrete stairways
- f. ADA Regulations
- g. Stair design calculations
- h. Building Codes
- i. OSHA standards for forms and concrete construction.
- j. Characteristics/appropriate uses of large panel wall forms
- k. Characteristics/appropriate uses of ganged panel wall forms
- l. Jobsite safety procedures
- m. Elevated deck forming techniques
- n. Ramp forming techniques
- o. Stairway forming techniques
- p. Terminology
- q. Features/uses of pile types
- r. Form construction sequence
2. Skills
  - a. Laying out and constructing radius wall forms
  - b. Building floor form construction for beam and girder floor systems
  - c. Building floor form for slab floor systems
  - d. Building vertical shoring for wood shores, horizontal and diagonal bracing, reshores and permanent shores
  - e. Constructing formwork for concrete stairways
  - f. Perform calculations for stairway design
  - g. Constructing elevated dock forms
  - h. Constructing ramp forms
3. Issues
  - a. Sequence of form construction may vary on differing projects
  - b. Safety
  - c. Weather considerations

## Resources

Koel, Leonard. Carpentry. 7th ed. Homewood IL: American Technical Publishers, 2021.

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Koel, Leonard. Concrete Formwork. 4th ed. Homewood: American Technical Publishers, 2015.

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Carpenters International Training Fund . *Concrete Construction*. Las Vegas, NV: Carpenters International Training Fund, 2023.

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Carpenters International Training Fund. *Wall and Stair Forms*. Las Vegas, NV: Carpenters International Training Fund, 2017.

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Carpenters International Training Fund. *Silica Awareness*. Las Vegas, NV: Carpenters International Training Fund, 2017.

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Occupational Safety and Health Administration, United States Department of Labor. *Code of Federal Regulations 1926*. National Safety Compliance, 2022.

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## Resources Other

[www.elsevier.com/wps/product/cws\\_home/676598](http://www.elsevier.com/wps/product/cws_home/676598)

Carpenter's International Training Fund. <https://www.carpenters.org/citf-training/>.2024

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