

ATPD-2370: ADVANCED PILE DRIVING ON LAND

Cuyahoga Community College

Viewing: ATPD-2370 : Advanced Pile Driving on Land

Board of Trustees:

September 2025

Academic Term:

Fall 2025

Subject Code

ATPD - Applied Ind Tech-Pile Driving

Course Number:

2370

Title:

Advanced Pile Driving on Land

Catalog Description:

In-depth study of pile driving. Includes caissons and drilled shafts, tie back walls, cofferdams and cells, shoring and lagging, and fundamentals of geo-technical engineering and soil.

Credit Hour(s):

2

Lecture Hour(s):

2

Requisites

Prerequisite and Corequisite

ATCT-1301 Introduction to Carpentry, and departmental approval: admission to Pile Driving Technology apprenticeship program.

Outcomes

Course Outcome(s):

Layout, rig-up, lace, stab, manipulate, and install sheet pile and sheet pile walls safely. Install sheet pile walls.

Objective(s):

1. Install sheet pile walls.
2. Install shoring, lagging, and tie backs.
3. Lay out, rig-up, lace, stab, and manipulate sheet pile.
4. Apply facts about fundamentals of geo-technical engineering and soil.

Course Outcome(s):

Identify and layout cofferdams and cells, and their configurations.

Objective(s):

1. Analyze cofferdam configurations for land construction.
2. Layout cofferdams and cells.

Course Outcome(s):

Differentiate various designs of caisson including engineered, pre-excavated, driven, and pre-fabricated.

Objective(s):

1. Identify various designs of caissons.
2. Explain differences between various designs of caissons.

Methods of Evaluation:

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

Course Content Outline:

1. Concepts
 - a. Types of caissons
 - i. open
 - ii. box
 - iii. pneumatic
 - b. Designs of caissons
 - i. engineered
 - ii. pre-excavated
 - iii. driven
 - iv. pre-fabricated
 - c. Types of cofferdams
 - i. land sheet
 - ii. trench walls
 - iii. box
 - iv. braced
 - v. marine sheet
 - vi. engineered box marine
 - vii. circular marine
 - viii. individual circular
 - ix. cellular
 - d. Fundamentals of geo-technical engineering and soil.
 - e. Cofferdam configurations.
2. Skills
 - a. Creating structure for sheet pile walls including retaining walls, bulkheads or seawalls, and breakwaters and jetties.
 - b. Creating sheet pile wall groins.
 - c. Pouring caissons using tremie pours.
 - d. Creating cofferdams using steel sheet pile, straight web, shallow arch, and deep arch.
 - e. Extracting and cleaning pile.
 - f. Stacking and storing pile.
 - g. Lofting and driveing pile.
3. Issues
 - a. Care in handling of extraction and cleaning, stacking and storing, lofting and driving.
 - b. Safety.

The Course Schedule is subject to change due to pedagogical needs, instructor discretion, parts of term, and unexpected events.

Resources for the Instructor

United Brotherhood of Carpenters. *Pile Driving*. First ed. Washington: United Brotherhood of Carpenters, 1972.

APE. *American Piledriving Equipment*. First ed. Kent, WA: APE, 1998.

Associated Pile and Fitting Corp. *Design Installation of Driven Pile Foundation*. First ed. Clifton, NJ: Associated Pile and Fitting Corp., 2005.

Northern California Pile Drivers JATC. *Pile Driving Land and Water Advanced*. First ed. Northern CA: Northern California Pile Drivers JATC, 1991.

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