ACT 322: CONCRETE & FORMWORK

New Course Proposal

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Originator

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Justification / Rationale

Construction is one of the top employment opportunities in the Coachella Valley and with the new Title 24 requirements for Zero Net Energy construction, there is a need for a more educated construction workforce. This course is one of three modules of a non-credit overlay version of CM 020 Introduction to Construction Technology. Module 1 covers tools, equipment, safety and green concepts; Module 2 provides training and review of the basic math skills required for construction; Module 3 provides an awareness of career opportunities in the construction industry and the employability skills required to succeed in those careers. Providing this non-credit version allows those currently unemployed or underemployed to gain the skills and knowledge required to obtain and succeed in construction jobs; providing the modules as a credit overlay allows students to qualify for credit by exam and move into a credit pathway to continue education.

Effective Term

Fall 2020

Credit Status

Noncredit

Subject

ACT - Applied Construction Technolog

Course Number

322

Full Course Title

Concrete & Formwork

Short Title

CONCRETE/FORMWORK

Discipline

Disciplines List
Construction Technology

Modality

Face-to-Face

Catalog Description

This course introduces the significance of concrete as a building material. Topics include the properties of cement, composition of concrete, reinforcement materials, and the various types of forms needed for each particular footing. Students also participate in a practical lab or an actual project site.

Schedule Description

This course introduces the significance of concrete as a building material. Topics include the properties of cement, composition of concrete, reinforcement materials, and the various types of forms needed for each particular footing. Prerequisite: ACT 320

Non-credit Hours

54

Lecture Units

0

Lab Units
0

In-class Hours
36

Out-of-class Hours
18

Total Course Units
0

Total Semester Hours
54

Override Description
Noncredit courses do not have lecture and lab so out of class hours must be adjusted.

Prerequisite Course(s)
ACT 320

Required Text and Other Instructional Materials

Resource Type
Book

Author
National Center for Construction Education and Research

Title
Construction Technology-Trainee Guide

Edition
4th

City
Gainesville, FL

Publisher
Pearson Prentice Hall

Year
2016

College Level
Yes

Flesch-Kincaid Level
12

ISBN #
978-0134130392

Resource Type
Instructional Materials

Title
Career Connections Project Book 3

Edition
Most Recent

Publisher
Carpenters international training Fund

Year
2018

Description
CC0003RG

Class Size Maximum
20

Entrance Skills
Construction hazards and safety on the job site.

Requisite Course Objectives
ACT 320-Discuss common safety hazards on construction sites.
ACT 320-Explain the purpose of Occupational Safety and Health Administration (OSHA) and their regulations for the construction industry.

Entrance Skills
Understand ANSI construction Hand signals.

Requisite Course Objectives
ACT 320-Demonstrate proper use of American National Standards Institute (ANSI) hand signals.

Entrance Skills
Ability to interpret information and instructions presented in both written and verbal form.

Requisite Course Objectives
ACT 320-Demonstrate the ability to interpret information and instructions presented in both written and verbal form.

Entrance Skills
Critical thinking skills and the ability to solve problems.

Requisite Course Objectives
ACT 320-Demonstrate critical thinking skills and the ability to solve problems using those skills.

Course Content
1. Overview of concrete and concrete materials
2. Normal concrete mix proportions and measurements
3. Special types of concrete
4. Curing methods and materials
5. Concrete slump testing
6. Estimating concrete volume
7. Concrete reinforcement materials
8. Concrete forms

Course Objectives

	Objectives
Objective 1	Explain the safety procedures associated with the construction and use of concrete forms.
Objective 2	Explain the properties of cement.

Objective 3	Describe the composition of concrete.
Objective 4	Discuss the process of calculating volume estimates for concrete quantity requirements.
Objective 5	Identify types of concrete reinforcing materials and describe their uses.
Objective 6	Discuss the various types of footings and explain their uses.
Objective 7	Identify the parts of various types of forms.
Objective 8	Discuss the process of erecting, plumbing, and bracing a simple concrete form with reinforcement.
Objective 9	Explain the safe and proper procedure of pouring concrete into forms.
Objective 10	Discuss types of finishes applied to concrete surface.
Objective 11	Explain the safe and proper procedure of removing concrete forms.

Student Learning Outcomes

	Upon satisfactory completion of this course, students will be able to:
Outcome 1	Outline the safety procedures associated with the construction and use of concrete forms.
Outcome 2	Calculate volume estimates for concrete quantity requirements.

Methods of Instruction

Method	Please provide a description or examples of how each instructional method will be used in this course.
Laboratory	Individual and group participation in planning, estimating and creating concrete footings and other forms.
Demonstration, Repetition/Practice	Construct a variety of concrete forms that meet standards.
Participation	Individual and group participation in creating concrete construction.
Lecture	Topics presented in context.
Other (Specify)	Site visits

Methods of Evaluation

Method	Please provide a description or examples of how each evaluation method will be used in this course.	Type of Assignment
Written homework	Field notes following approved construction management format.	Out of Class Only
Student participation/contribution	Individual participation in planning, constructing and evaluating concrete structures.	In Class Only
Mid-term and final evaluations	Comprehensive examination covering content of class.	In Class Only
Other	Out-of-class hours will be accounted for electronically through the learning management system.	Out of Class Only
Tests/Quizzes/Examinations	In-class and out-of-class quizzes and exercises.	In and Out of Class
Other	Out-of-class hours will be accounted for electronically through the learning management system.	Out of Class Only

Assignments

Other In-class Assignments

1. Plan concrete footing, reinforcement and floor construction.
2. Determine materials required for concrete structures.
3. Participate as individual and as member of group/team in constructing concrete structures.
4. Evaluate concrete structures for strength, reinforcement, appearance.

Other Out-of-class Assignments

1. Review questions on vocabulary and concrete specifications.
2. Prepare material recommendations and estimates.
3. Short response papers to evaluate estimates and methods.

Grade Methods
Pass/No Pass Only

MIS Course Data

CIP Code
46.0412 - Building/Construction Site Management/Manager.

TOP Code
095700 - Civil and Construction Management Technology

SAM Code
C - Clearly Occupational

Basic Skills Status
Not Basic Skills

Prior College Level
Not applicable

Cooperative Work Experience
Not a Coop Course

Course Classification Status
Other Non-credit Enhanced Funding

Approved Special Class
Not special class

Noncredit Category
Short-Term Vocational

Funding Agency Category
Not Applicable

Program Status
Program Applicable

Transfer Status
Not transferable

Allow Audit
No

Repeatability
Yes

Repeatability Limit
NC

Repeat Type
Noncredit

Justification
Noncredit courses are repeatable until students achieve the skills and knowledge required to meet the outcomes and objectives of the course.

Materials Fee
No

Additional Fees?
No

Approvals

Curriculum Committee Approval Date
11/05/2019

Academic Senate Approval Date
11/14/2019

Board of Trustees Approval Date
12/19/2019

Chancellor's Office Approval Date
01/10/2020

Course Control Number
CCC000611519

Programs referencing this course
Construction Technology Concrete and Masonry Certificate of Completion (http://catalog.collegeofthedesert.eduundefined?key=283/)