

# COLLEGE OF THE DESERT

Course Code ACT-022

## Course Outline of Record

1. Course Code: ACT-022
2.
  - a. Long Course Title: Concrete and Formwork
  - b. Short Course Title: CONCRETE/FORMWORK
3.
  - a. Catalog Course 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 have the opportunity to apply Service Learning by way of a practical lab or an actual project site with close supervision of trade professionals.
  - b. Class Schedule Course 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.
  - c. Semester Cycle (if applicable): FALL
  - d. Name of Approved Program(s):
4. Total Units: 1.00      Total Semester Hrs: 36.00  
Lecture Units: 0.5      Semester Lecture Hrs: 9.00  
Lab Units: 0.5      Semester Lab Hrs: 27.00  
Class Size Maximum: 20      Allow Audit: No  
Repeatability No Repeats Allowed  
Justification 0
5. Prerequisite or Corequisite Courses or Advisories:

*Course with requisite(s) and/or advisory is required to complete Content Review Matrix (CCForm1-A)*

Prerequisite: CM 020 or  
Prerequisite: ACT 020
6. Textbooks, Required Reading or Software: *(List in APA or MLA format.)*
  - a. National Center for Construction Education and Research (2009). Construction Technology-Trainee Guide (4th/e). Gainesville, FL Pearson Prentice Hall. ISBN: -  
College Level: Yes  
Flesch-Kincaid reading level: 12
7. Entrance Skills: *Before entering the course students must be able:*
  - a. Discuss common safety hazards on construction sites.
    - ACT 020 - Discuss common safety hazards on construction sites.
  - b. Explain the purpose of Occupational Safety and Health Administration (OSHA) and their regulations for the construction industry.
    - CM 020 - Explain the purpose of Occupational Safety and Health Administration (OSHA) and their regulations for the construction industry.
  - c. Identify various hand tools used in the construction industry.
    - ACT 020 - Identify various hand tools used in the construction industry.
  - d. Identify various power tools used in the construction industry.
    - CM 020 - Identify various power tools used in the construction industry
  - e. Discuss green construction practices.
    - ACT 020 - Discuss green construction practices.
  - f. Discuss green building rating system.
    - ACT 020 - Discuss green building rating system.
  - g. Understand the impact of construction to the environment.

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- CM 020 - Understand the impact of construction to the environment
- h. Solve simple arithmetic functions including addition, subtraction, multiplication, and division of whole numbers, fractions, and decimals.
  - ACT 020 - Solve simple arithmetic functions including addition, subtraction, multiplication, and division of whole numbers, fractions, and decimals.
- i. Demonstrate fluency reading a tape measure.
  - ACT 020 - Demonstrate fluency reading a tape measure.
- j. Demonstrate the ability to interpret information and instructions presented in both written and verbal form.
  - CM 020 - Demonstrate the ability to interpret information and instructions presented in both written and verbal form
- k. Demonstrate critical thinking skills and the ability to solve problems using those skills.
  - CM 020 - Demonstrate critical thinking skills and the ability to solve problems using those skills
- l. Demonstrate effective relationship skills with teammates and supervisors, the ability to work on a team, and appropriate leadership skills.
  - ACT 020 - Demonstrate effective relationship skills with teammates and supervisors, the ability to work on a team, and appropriate leadership skills.
- m. Understand workplace issues such as sexual harassment, stress, and substance abuse.
  - ACT 020 - Understand workplace issues such as sexual harassment, stress, and substance abuse.

### 8. Course Content and Scope:

#### Lecture:

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

#### Lab: *(if the "Lab Hours" is greater than zero this is required)*

1. Construct wood forms for slab and slab curb
2. Perform a concrete slump test and document data
3. Install steel reinforcement in forms
4. Pour concrete into wooden forms
5. Finish concrete surface
6. Remove wooden forms to expose finished surface

### 9. Course Student Learning Outcomes:

1.  
Outline the safety procedures associated with the construction and use of concrete forms.
2.  
Calculate volume estimates for concrete quantity requirements.
3.  
Describe the composition of concrete.
4.  
Identify the parts of various types of forms.

### 10. Course Objectives: *Upon completion of this course, students will be able to:*

## ACT 022-Concrete and Formwork

- a. Explain the safety procedures associated with the construction and use of concrete forms.
- b. Explain the properties of cement.
- c. Describe the composition of concrete.
- d. Discuss the process of calculating volume estimates for concrete quantity requirements.
- e. Identify types of concrete reinforcing materials and describe their uses.
- f. Discuss the various types of footings and explain their uses.
- g. Identify the parts of various types of forms.
- h. Discuss the process of erecting, plumbing, and bracing a simple concrete form with reinforcement.
- i. Explain the safe and proper procedure of pouring concrete into forms.
- j. Discuss types of finishes applied to concrete surface.
- k. Explain the safe and proper procedure of removing concrete forms.

### 11. Methods of Instruction: *(Integration: Elements should validate parallel course outline elements)*

- a. Demonstration, Repetition/Practice
- b. Laboratory
- c. Lecture
- d. Participation

Other Methods:

Office and site visits

### 12. Assignments: *(List samples of specific activities/assignments students are expected to complete both in and outside of class.)*

In Class Hours: 36.00

Outside Class Hours: 18.00

#### a. In-class Assignments

1. Individual projects
2. Small group projects

#### b. Out-of-class Assignments

1. Vocabulary terms
2. Short response papers
3. Review questions

### 13. Methods of Evaluating Student Progress: *The student will demonstrate proficiency by:*

- Written homework
- Mid-term and final evaluations
- Quizzes In-class exercises
- Student participation/contribution
- Participation during office and site visits

### 14. Methods of Evaluating: Additional Assessment Information:

### 15. Need/Purpose/Rationale -- *All courses must meet one or more CCC missions.*

PO - Career and Technical Education

Apply critical thinking skills to execute daily duties in their area of employment.

Display the skills and aptitude necessary to pass certification exams in their field.

Exhibit effective written, oral communication and interpersonal skills.

IO - Personal and Professional Development

Develop realistic goals.

Demonstrate an understanding of ethical issues to make sound judgments and decisions.

### 16. Comparable Transfer Course

# ACT 022-Concrete and Formwork

University System

Campus

Course Number

Course Title

Catalog Year

17. Special Materials and/or Equipment Required of Students:

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18. Materials Fees: ☐ Required Material?

**Material or Item**

**Cost Per Unit**

**Total Cost**

19. Provide Reasons for the Substantial Modifications or New Course:

Periodic review (2-year)

20. a. Cross-Listed Course (*Enter Course Code*): *N/A*

b. Replacement Course (*Enter original Course Code*): *N/A*

21. Grading Method (*choose one*): Letter Grade Only

22. MIS Course Data Elements

a. Course Control Number [CB00]: CCC000513175

b. T.O.P. Code [CB03]: 95700.00 - Civil and Construction Ma

c. Credit Status [CB04]: D - Credit - Degree Applicable

d. Course Transfer Status [CB05]: C = Non-Transferable

e. Basic Skills Status [CB08]: 2N = Not basic skills course

f. Vocational Status [CB09]: Clearly Occupational

g. Course Classification [CB11]: Y - Credit Course

h. Special Class Status [CB13]: N - Not Special

i. Course CAN Code [CB14]: *N/A*

j. Course Prior to College Level [CB21]: Y = Not Applicable

k. Course Noncredit Category [CB22]: Y - Not Applicable

l. Funding Agency Category [CB23]: Y = Not Applicable

m. Program Status [CB24]: 2 = Stand-alone

Name of Approved Program (*if program-applicable*): *N/A*

*Attach listings of Degree and/or Certificate Programs showing this course as a required or a restricted elective.)*

23. Enrollment - Estimate Enrollment

First Year: 20

Third Year: 32

24. Resources - Faculty - Discipline and Other Qualifications:

a. Sufficient Faculty Resources: Yes

b. If No, list number of FTE needed to offer this course: *N/A*

25. Additional Equipment and/or Supplies Needed and Source of Funding.

N/A

26. Additional Construction or Modification of Existing Classroom Space Needed. (*Explain:*)

N/A

27. FOR NEW OR SUBSTANTIALLY MODIFIED COURSES

Library and/or Learning Resources Present in the Collection are Sufficient to Meet the Need of the Students Enrolled in the Course: Yes

28. Originator Donbert M. Bitanga

Origination Date 03/09/15