

# ACT 020: INTRODUCTION TO CONSTRUCTION TECHNOLOGY

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**Cross listed as:**

CM 020

**Originator**

zbecker

**Co-Contributor(s)****Name(s)**

Bitanga, Bert

**Justification / Rationale**

Add distance education modality.

**Effective Term**

Fall 2020

**Credit Status**

Credit - Degree Applicable

**Subject**

ACT - Applied Construction Technolog

**Course Number**

020

**Full Course Title**

Introduction to Construction Technology

**Short Title**

INTRO TO CONST TECH

**Cross Listed Course**

CM 020

**CIP Code**

46.0412

**TOP Code**

095700 - Civil and Construction Management Technology

**SAM Code**

C - Clearly Occupational

**Course Control Number**

CCC000513206

**Discipline****Disciplines List**

Construction Technology

**Modality**

Face-to-Face

100% Online

Hybrid

**Catalog Description**

This course provides students with in-depth analysis of the organization and structure of the construction industry and the many career choices the industry offers. The course emphasizes green construction practices, jobsite safety, practical knowledge of tool and equipment use, basic construction math, basic rigging techniques, and communication as well as employability skills. Guest speakers and site visits provide students a wide view of the expectations of entry-level work, wages, benefits, and work place culture.

**Schedule Description**

This course emphasizes green construction practices, jobsite safety, practical knowledge of tool and equipment use, basic construction math, basic rigging techniques, and communication as well as employability skills.

Advisory: RDG 061 & MATH 060 or MATH 065

**Lecture Units**

2

**Lecture Semester Hours**

36

**Lab Units**

1

**Lab Semester Hours**

54

**In-class Hours**

90

**Out-of-class Hours**

72

**Total Course Units**

3

**Total Semester Hours**

162

**Prerequisite Course(s)**

Advisory: RDG 061 & MATH 060 or MATH 065

**Required Text and Other Instructional Materials****Resource Type**

Book

**Author**

National Center for Construction Education and Research (NCCER)

**Title**

Core Curriculum: Introductory Craft Skills (Trainee Guide)

**Edition**

5th

**Publisher**

Pearson Education, Inc.

**Year**

2015

**College Level**

Yes

**Flesch-Kincaid Level**

11.8

**ISBN #**

9780134130989

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**Resource Type**

Book

**Author**

Huth, Mark W.

**Title**

Residential Construction Academy: Basic Principles for Construction

**Edition**

4th

**City**

Clifton Park, NY

**Publisher**

CENGAGE Delmar Learning

**Year**

2016

**College Level**

Yes

**Flesch-Kincaid Level**

11.8

**ISBN #**

9781305088627

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**Resource Type**

Book

**Author**

National Center for Construction Education and Research (NCCER)

**Title**

Your Role in the Green Environment (Trainee Guide)

**Edition**

3rd

**City**

Upper Saddle River, NJ

**Publisher**

Pearson Education, Inc.

**Year**

2016

**College Level**

Yes

**Flesch-Kincaid Level**

11.8

**ISBN #**9780136023036

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**Class Size Maximum**

20

**Entrance Skills**

Compute using the four basic operations of addition, subtraction, multiplication, and division on the Whole Numbers, Integers, and Rational Numbers.

**Requisite Course Objectives**

MATH 060-Compute using the four basic operations of addition, subtraction, multiplication, and division on the rational numbers in both fraction and decimal form.

MATH 060-Apply the basic operations to solve application problems that involve whole numbers, integers, and rational numbers.

MATH 065-Compute using the four basic operations of addition, subtraction, multiplication, and division on the rational numbers in both fraction and mixed number forms.

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**Entrance Skills**

Apply the order of operations to simplify expressions involving several operations.

**Requisite Course Objectives**

MATH 060-Apply the order of operations to simplify expressions involving several operations using rational numbers.

MATH 065-Apply the basic operations to solve application problems that involve integer numbers, decimals, mixed numbers and rational numbers.

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**Entrance Skills**

Comprehend the concept of a fraction as a part of a whole.

**Requisite Course Objectives**

MATH 060-Apply methods of conversion between percents, decimals, and fractions.

MATH 065-Convert between improper fractions and mixed numbers.

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**Entrance Skills**

Know the concept of a ratio and use ratios to solve proportion problems.

**Requisite Course Objectives**

MATH 060-Use the concept of ratio to determine the solution to a proportion problem.

MATH 065-Use the concept of ratio or rate involving both rational numbers, mixed numbers and decimals to determine the solution to a proportion problem.

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**Entrance Skills**

Comprehend percents and convert between percents, decimals, and fractions.

**Requisite Course Objectives**

MATH 060-Apply methods of conversion between percents, decimals, and fractions.

MATH 065- Apply methods of conversion between percents, decimals, and fractions.

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**Entrance Skills**

Recognize and convert between units of measurements in both the American and metric system, especially units of length, volume, and weight.

**Requisite Course Objectives**

MATH 060-Recognize and convert between units of measurements in the American and metric systems.

MATH 065- Recognize and convert between units of measurements in the American and metric systems involving rational numbers, mixed numbers and decimals using conversion factors or proportions.

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**Entrance Skills**

Use basic concepts and formulas from geometry, including perimeter, area, and volume.

**Requisite Course Objectives**

MATH 060-Use concepts and formulas from geometry.

MATH 065-Use concepts and formulas from geometry.

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**Entrance Skills**

Use various reading strategies to prepare, read and comprehend expository text.

**Requisite Course Objectives**

RDG 061-Use SQ3R /or SOAR along with outlining, note-taking, mapping summarizing and other strategies to prepare, read, comprehend expository text.

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**Entrance Skills**

Read a variety of texts fluently.

**Requisite Course Objectives**

RDG 061-Read a variety of texts fluently.

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**Entrance Skills**

Write organized summaries reactions that capture main idea and supporting details.

**Requisite Course Objectives**

RDG 061-Write organized summaries reactions that capture main idea and supporting details.

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**Entrance Skills**

Understand multiple word meanings, uses synonyms.

**Requisite Course Objectives**

RDG 061-Understand multiple word meanings, uses synonyms

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**Course Content**

1. Overview of construction industry and closer examinations of individual trade expectations.
2. Construction safety – hazard recognition and OSHA regulations.
3. Overview of green construction practices.
4. Introduction to basic construction math.
5. Hand and power tool identification and proper use.
6. Overview of basic rigging.
7. Communication skills.
8. Employability skills.

**Lab Content**

1. Site visits
2. Safety demonstration
3. Hand tool usage and demonstration
4. Power tool usage and demonstration
5. Basic rigging demonstration
6. Mock-up interviews

**Course Objectives**

<b>Objectives</b>	
Objective 1	Discuss the apprenticeship requirements and responsibilities for a variety of construction trades.
Objective 2	List the various career paths in the construction industry.
Objective 3	Discuss common safety hazards on construction sites.
Objective 4	Explain the purpose of Occupational Safety and Health Administration (OSHA) and their regulations for the construction industry.
Objective 5	Identify various hand tools used in the construction industry.
Objective 6	Utilize various hand tools.
Objective 7	Identify various power tools used in the construction industry.
Objective 8	Utilize various power tools.
Objective 9	Discuss green construction practices.
Objective 10	Discuss green building rating system.
Objective 11	Understand the impact of construction to the environment.
Objective 12	Discuss alternative construction practices to reduce the impact of construction to the environment.
Objective 13	Solve simple arithmetic functions including addition, subtraction, multiplication, and division of whole numbers, fractions, and decimals.
Objective 14	Demonstrate fluency reading a tape measure.
Objective 15	Recognize and measure basic geometric shapes commonly used in the construction industry.
Objective 16	Identify and describe the use of slings and common rigging hardware.
Objective 17	Describe basic inspection techniques and rejection criteria used for slings and hardware.
Objective 18	Describe basic hitch configurations and their proper connections.
Objective 19	Describe basic load-handling safety practices.
Objective 20	Demonstrate proper use of American National Standards Institute (ANSI) hand signals.
Objective 21	Demonstrate the ability to interpret information and instructions presented in both written and verbal form.
Objective 22	Demonstrate the ability to communicate effectively in on-the-job situations using written and verbal skills.
Objective 23	Demonstrate critical thinking skills and the ability to solve problems using those skills.
Objective 24	Demonstrate effective relationship skills with teammates and supervisors, the ability to work on a team, and appropriate leadership skills.
Objective 25	Understand workplace issues such as sexual harassment, stress, and substance abuse.

**Student Learning Outcomes**

<b>Upon satisfactory completion of this course, students will be able to:</b>	
Outcome 1	Explain the purpose of Occupational Safety and Health Administration (OSHA) and their regulations for the construction industry.
Outcome 2	Use hand and power tools commonly found in the construction workplace.
Outcome 3	Recognize alternative construction practices to reduce the impact of construction on the environment.
Outcome 4	Develop interrelationship and leadership skills in a team scenario.

**Methods of Instruction**

<b>Method</b>	<b>Please provide a description or examples of how each instructional method will be used in this course.</b>
Lecture	Presentation of topic in context.
Laboratory	Analysis of job sites.
Discussion	Classroom and group discussions of job site analysis.
Participation	Class discussion and questions.
Other (Specify)	1. Guest lectures 2. 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	Homework assigned from text and worksheets.	Out of Class Only
Student participation/contribution	Participation in lab groups and classroom/online discussion.	In and Out of Class
Mid-term and final evaluations	Examinations covering key concepts introduced in the course.	In Class Only
Tests/Quizzes/Examinations	Weekly quizzes on topics covered in class and analysis of job sites.	Out of Class Only

### Assignments

#### Other In-class Assignments

1. Individual projects to analyze safety hazards on the construction job site.
2. Small group projects to analyze safety hazards on the construction job site and develop team procedures to ensure safety.

#### Other Out-of-class Assignments

1. Review questions.
2. Vocabulary terms.
3. Completing daily assigned homework and complete projects.
4. Reading textbook and supplementary assignments.

### Grade Methods

Letter Grade Only

### Distance Education Checklist

Include the percentage of online and on-campus instruction you anticipate.

### Lab Courses

#### How will the lab component of your course be differentiated from the lecture component of the course?

For the lab component, students will analyze job sites either in person or virtually to analyze site safety and appropriate use of hand and power tools.

#### From the COR list, what activities are specified as lab, and how will those be monitored by the instructor?

Students will submit written analysis of each job site visited, evaluating the site safety and the appropriate and effective use of power and hand tools.

#### How will you assess the online delivery of lab activities?

Instructor will provide feedback on written student analysis of job sites.

### Instructional Materials and Resources

### Effective Student/Faculty Contact

Which of the following methods of regular, timely, and effective student/faculty contact will be used in this course?

#### Within Course Management System:

Timely feedback and return of student work as specified in the syllabus  
 Discussion forums with substantive instructor participation  
 Regular virtual office hours  
 Online quizzes and examinations  
 Weekly announcements

#### External to Course Management System:

Direct e-mail

**Briefly discuss how the selected strategies above will be used to maintain Regular Effective Contact in the course.**

Timely feedback and return of student work as specified in the syllabus.  
Discussion forums with substantive instructor participation.  
Online quizzes and examinations.  
Weekly announcement.

**Other Information****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**

Credit Course

**Approved Special Class**

Not special class

**Noncredit Category**

Not Applicable, Credit Course

**Funding Agency Category**

Not Applicable

**Program Status**

Program Applicable

**Transfer Status**

Transferable to CSU only

**Allow Audit**

No

**Repeatability**

No

**Materials Fee**

No

**Additional Fees?**

No

**Approvals****Curriculum Committee Approval Date**

2/20/2020



**Academic Senate Approval Date**

2/27/2020

**Board of Trustees Approval Date**

3/20/2020

**Course Control Number**

CCC000513173

**Programs referencing this course**Power Generation and Distribution (<http://catalog.collegeofthedesert.eduundefined?key=139/>)Building Energy Systems Professionals (BESP) AS Degree (<http://catalog.collegeofthedesert.eduundefined?key=202/>)Air Conditioning Refrigeration AS Degree (<http://catalog.collegeofthedesert.eduundefined?key=51/>)