

# Virginia Western Community College

## ARC 133

### Construction Methods and Procedures

#### **Prerequisites**

None

#### **Course Description**

Studies materials used in construction of buildings, covering foundations to structural framing systems. Includes appropriate use of materials for various construction types. Includes specification of materials and installation procedures; types of specifications and writing procedures; bidding procedures, and contract documents.

**Semester Credits: 3**

**Lecture Hours: 3**

#### **Required Materials**

##### **Textbook:**

Building Construction Illustrated, 5th Edition. Author: Ching, John Wiley & Sons, ISBN: 9781118458341

##### **Other Required Materials:**

Calculator and access to Excel or another spreadsheet software

#### **Course Outcomes**

**At the completion of this course, the student should be able to:**

- Describe the general overall procedure for building construction, including both the design and construction phases.
- Describe the purpose of contract documents, and how the various documents come together to form a legal contract between owner and contractor.
- Understand the process a contractor goes through, to estimate the cost of a building and prepare a bid in order to pursue the work.
- Note the various physical properties that are considered when selecting building materials, and understand how common building materials are produced.
- Understand structural principles related to loads applied to a building, and how the building resists those loads.
- Describe how the different components of a building are constructed, using various materials and framing strategies.

## **Topical Description**

<b>Week</b>	<b>Topic</b>
1	Intro, construction process overview
2	Contract Documents, specs
3	Cost estimating, bid process
4	Materials
5	Materials
6	Structural loads and theory
7	Structural theory, exam review
8	Exam
9	Foundation systems
10	Foundation systems
11	Floor systems
12	Floor systems
13	Wall systems
14	Wall systems
15	Roof systems, exam review
16	Final Exam

## **Notes to Instructors**

1. All instructors teaching this course will use the same textbook.
2. Course content within this course may be covered at the instructor's discretion but with all topics being understood.
3. This course and its grades will be structured around a minimum of a midterm exam, final exam, and homework.
4. At the end of the semester, all instructors will give the outcome assessment as it relates to the final exam to the program head at the same time they prepare their student final grades.
5. A comprehensive final exam will be given, which must be at least 10% of the final grade.