

**CONS 101 Course Outline as of Fall 2024****CATALOG INFORMATION**

Dept and Nbr: CONS 101 Title: INTRO TO CONST INDUSTRY

Full Title: Introduction to the Construction Industry

Last Reviewed: 9/11/2023

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00	Lab Scheduled	0	6	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00

Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable

Grading: Grade Only

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly:

**Catalog Description:**

Students will be introduced to the construction industry, careers, and roles and responsibilities within a construction firm. The construction project lifecycle and management of that process, safety issues, related agencies and organizations, and an introduction to basic construction technologies will also be covered. Field trip(s) may be required.

**Prerequisites/Corequisites:****Recommended Preparation:**

Eligibility for ENGL 1A OR EMLS 100 (formerly ESL 100) or equivalent

**Limits on Enrollment:****Schedule of Classes Information:**

Description: Students will be introduced to the construction industry, careers, and roles and responsibilities within a construction firm. The construction project lifecycle and management of that process, safety issues, related agencies and organizations, and an introduction to basic construction technologies will also be covered. Field trip(s) may be required. (Grade Only)

Prerequisites/Corequisites:

Recommended: Eligibility for ENGL 1A OR EMLS 100 (formerly ESL 100) or equivalent

Limits on Enrollment:

Transfer Credit:

Repeatability: Two Repeats if Grade was D, F, NC, or NP

## **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>	Effective:	Inactive:
<b>CSU GE:</b>	<b>Transfer Area</b>	Effective:	Inactive:

<b>IGETC:</b>	<b>Transfer Area</b>	Effective:	Inactive:
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<b>CSU Transfer:</b>	Effective:	Inactive:
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<b>UC Transfer:</b>	Effective:	Inactive:
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**CID:**

**Certificate/Major Applicable:**

Certificate Applicable Course

## **COURSE CONTENT**

**Student Learning Outcomes:**

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

1. Describe the roles and responsibilities of design and construction professionals in the building industry.
2. Identify potential workplace hazards and propose potential mitigation steps to prevent injury or illness.
3. Explain the general process by which building projects typically progress from inception to completion.
4. Identify the impact of laws, rules, and regulations on the construction industry.

**Objectives:**

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

1. Characterize the varied roles and responsibilities for different members of a construction firm.
2. Characterize the varied roles and responsibilities of allied professionals and agencies involved in the building process.
3. Discuss issues of safety and prevention of injury or illness due to potential hazards of the workplace environment for construction workers.
4. Analyze and describe common construction industry typologies of completed or in-progress construction projects.
5. Calculate lengths, areas, and volumes from measurements taken from architectural drawings as typically used in the construction industry.

**Topics and Scope:**

- I. Overview of the Construction Industry
  - A. History of construction and construction trades
    1. Brief historical overview
    2. Seasonality

3. Impact from economy
  4. Finances
  - B. Types of construction
    1. Residential
    2. Commercial
    3. Civil
- ## II. Introduction to Career Roles and Responsibilities
- A. Construction firm types and organization
    1. General
    2. Subcontractor
  - B. Union versus non-union firms
  - C. Examples of local firms
  - D. Scalar responsibilities and duties
  - E. Project client and owner types
    1. Private individuals
    2. Corporate entities
    3. Public agencies
  - F. Construction firm employees
    1. Craftsperson
      - a. Laborer
      - b. Apprentice
      - c. Journeyperson
    2. Project manager
    3. Accountant
    4. Superintendent
    5. Scheduler
    6. Construction manager
    7. Estimator
    8. Dispatcher
    9. Field engineer
    10. Safety personnel
- ## III. Allied Professionals, Businesses, and Agencies
- A. Designers
    1. Architect
    2. Landscape architect
    3. Interior designer
    4. Building designer
  - B. Engineers
    1. Geotechnical
    2. Civil/Survey
    3. Structural
    4. Mechanical
    5. Electrical and lighting
    6. Acoustical
  - C. Project consultants
    1. Sustainability and Leadership in Energy and Environmental Design (LEED)
    2. Energy compliance
    3. Historical/cultural
    4. Community liaison
    5. Certified Accessibility Specialist (CASp)
  - D. Materials/equipment suppliers
    1. Equipment rental

- 2. Sanitation equipment
- 3. Materials suppliers
- E. Insurance and bonding agents
- F. Project funding agencies
- G. Attorneys
- H. Governmental agencies
  - 1. Occupational Safety and Health Administration (OSHA)
  - 2. California Contractors State Licensing Board (CSLB)
  - 3. Local building and planning departments and officials
  - 4. Division of the State Architect (DSA)
  - 5. International Code Council (ICC)
  - 6. California Administrative Code (CAC) and the California Building Code (CBC)
- I. Industry support organizations
  - 1. Builder's exchanges: North Coast Builder's Exchange (NCBE)
  - 2. California Building Industry Association (CBIA)
  - 3. Construction Specifications Institute (CSI)
  - 4. The Associated General Contractors (AGC)
  - 5. Associated Builders and Contractors (ABC)
  - 6. American Institute of Constructors (AIC)
  - 7. Construction Management Association of America (CMAA)
  - 8. Design-Build Institute of America (DBIA)
  - 9. National Association of Home Builders (NAHB)
  - 10. Retail Contractors Association (RCA)
  - 11. The Mechanical Contractors Association of America (MCAA)
- IV. Construction Safety and Material Handling
  - A. Worker health and wellness
    - 1. Nutrition
    - 2. Sleep
    - 3. Ergonomics
  - B. Cardiopulmonary Resuscitation (CPR) and first aid
  - C. Injuries and prevention
  - D. Occupational hazards
    - 1. Falls
    - 2. Being struck or crushed
    - 3. Confined spaces
    - 4. Electrocution
    - 5. Fires
    - 6. Explosions
    - 7. Gases
    - 8. Toxicity: lead, solvents, Volatile Organic Compounds (VOC), and skin, eye, and respiratory irritants
    - 9. Sunlight
    - 10. Heat and cold
    - 11. Sound
    - 12. Molds and other biological elements
  - E. Personal Protective Equipment (PPE)
    - 1. Footwear
    - 2. Hardhats
    - 3. Vests
    - 4. Harnesses
    - 5. Gloves
    - 6. Eye protection

- 7. Hearing protection
- 8. Environmental monitors
- 9. Respiratory protection
- F. Injury and Illness Protective Program (IIPP)
- G. Forklift and vehicle certifications
- H. Aerial lifts
- I. Heavy lifts
- J. Scaffolding and ladders
- K. Fall protection
- L. Cranes
- M. Hoists
- N. Hazard communications: tag-out and lock-out
- O. Material staging
- P. Unemployment and disability
- V. Common and Emergent Technology for Construction Management Professionals
  - A. Construction communication and documentation software, such as Procore
  - B. Computer-Aided Drafting (CAD), such as AutoCAD
  - C. Building Information Modeling (BIM), such as Revit
  - D. Cloud-based document storage and sharing
  - E. PDF documentation and manipulation software, such as Bluebeam
  - F. Space documentation such as laser scanning and 360 photography
  - G. Other emergent technologies such as:
    - 1. Construction robotics
    - 2. Autonomous construction equipment
    - 3. Remote sensing and drones
- VI. Construction Math and Measurement
  - A. Imperial and metric units of measurement and conversions
  - B. Basic trigonometry
  - C. Pythagorean theorem and geometry
  - D. Distance measurements using tape and laser measurers
  - E. Unit measurement
  - F. Length, area, and volume calculations
  - G. Construction materials waste calculations
  - H. Time budgeting
- VII. Leadership and Professional Communications
  - A. The construction professional as a representative
  - B. Office vs. field personnel
  - C. Written, verbal, and informal communications
  - D. Customer service and professional self-presentation
  - E. Social media and online presence
- VIII. Construction Industry Rules and Regulations Overview
- IX. Overview of the Building Process and a Project Lifecycle
  - A. Planning and design
  - B. Drawings and specifications
  - C. Building permit process
  - D. Competitive bidding process
  - E. Design-build process
  - F. Contracts
  - G. Construction process
  - H. Building inspections
  - I. Project observations by others
  - J. Change orders

- K. Punch lists
- L. Project close-out
- M. Certificate of Occupancy
- N. Warranty
- O. Maintenance

**Assignment:**

1. Reading assignments (10-20 pages per week)
2. Study question set(s) (1-3 weekly)
3. Research report(s) such as interview(s) and case study(s) (1-5)
4. Quiz(zes) (1-4)
5. Midterm exam
8. Final exam

**Methods of Evaluation/Basis of Grade:**

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Research report(s)	Writing 10 - 20%
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**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Study question sets	Problem solving 30 - 50%
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**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None	Skill Demonstrations 0 - 0%
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**Exams:** All forms of formal testing, other than skill performance exams.

Quiz(zes); exams	Exams 30 - 50%
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**Other:** Includes any assessment tools that do not logically fit into the above categories.

Class participation	Other Category 5 - 10%
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**Representative Textbooks and Materials:**

- Construction Project Management. 6th ed. Sears, Keoki, Sears, Glenn, Clough, Richard, Rounds, Jerald, and Segne, Robert. Wiley. 2015 (classic).
- Project Management in Construction. 7th ed. Levy, Sidney. McGraw Hill. 2018 (classic).
- Construction Project Management. 5th ed. Gould, Frederick and Joyce, Nancy. Pearson. 2023.
- Construction Project Management. 2nd ed. Dykstra, Alison. Kirschner Publishing. 2018

(classic).

Instructor prepared materials