CONS 101 Course Outline as of Fall 2022

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:
In this course, students will be introduced to an overview of the construction industry, including careers within the construction industry, 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 hand and power tools. Field trips will be required.

Prerequisites/Corequisites:

Recommended Preparation:
Eligibility for ENGL 1A (or ESL 10) or equivalent

Limits on Enrollment:

Schedule of Classes Information:
Description: In this course, students will be introduced to an overview of the construction industry, including careers within the construction industry, 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 hand and

power tools. Field trips will be required. (Grade Only)
Prerequisites/Corequisites:
Recommended: Eligibility for ENGL 1A (or ESL 10) or equivalent
Limits on Enrollment:
Transfer Credit:
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**	Effective:	Inactive:
CSU GE:	**Transfer Area**	Effective:	Inactive:
IGETC:	**Transfer Area**	Effective:	Inactive:

CSU Transfer:	Effective:	Inactive:
UC Transfer:	Effective:	Inactive:

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 constituent roles of and responsibilities for members of a construction firm.
2. Identify potential workplace hazards and propose potential mitigation steps to prevent injury or illness.
3. Identify common workplace tools and describe their intended use and operation.
4. Explain the general process by which building projects typically progress from inception to completion.
5. 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. Examine the varied roles of and responsibilities for different members of a construction firm.
2. Discuss issues of safety and prevention of injury or illness due to potential hazards of the workplace environment for construction workers.
3. Attend field trips to tool vendors and rental yards to observe and handle tools commonly used throughout the construction industry.
4. Review and research 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/duties

E. Project client/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. 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. Introduction to Basic Construction Hand and Power Tools
A. Hand tools
B. Power tools
1. Corded tools
2. Cordless tools
a. Gasoline-powered tools
b. Battery-powered tools
3. Pneumatic tools
4. Power-actuated fastener tools

C. Measuring tools
1. Levels and plumbs: string bob, bubble, and digital levels types
2. Tape measures: tape coil and laser types
3. The architect's scales
4. The carpenter's square

D. Survey tools
E. Ladders and scaffolding
F. Tool belts
G. Tool storage
H. Tool maintenance and care
I. Mobile technology: Tablets and smartphones
J. Pumps: air and water
K. Dust and dirt confinement systems
L. Field trips: tool supplier and tool rental yard

VI. Construction Math and Measurement
A. Imperial and metric units of measurement and conversions
B. Basic trigonometry
C. Pythagorean theorem and geometry
D. How to read a tape and laser measurer for distance measurements
E. Unit measurement
F. Volume calculations
G. Length calculations
H. Area calculations
I. Construction materials waste calculations
J. Time budgeting

VII. Employment Skills and Communication
A. Work ethic
B. Hard skills

C. Soft skills
1. Eye contact
2. Handshakes
3. Proper attire
4. Professional and informal communications
a. Phone skills
b. Writing skills
c. Response time
5. Customer communications
6. Coworker communications
a. Daily reports
b. Log books
7. Social media and online presence

VIII. Construction Industry Rules and Regulations Overview Discussion

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 and Certificate of Occupancy
M. Warranty
N. Maintenance

Assignment:

1. Reading assignments (10-20 pages per week)
2. Study question sets (1-3 weekly)
3. Interview research report(s) (1-3)
4. Quiz(zes) (1-4)
5. Midterm exam
6. 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.

Interview research report(s)	Writing 5 - 10%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Study question sets	Problem solving 30 - 60%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None	Skill Demonstrations 0 - 0%

Exams: All forms of formal testing, other than skill performance exams.

Quiz(zes) and exams	Exams 30 - 50%

Other: Includes any assessment tools that do not logically fit into the above categories.

Class participation	Other Category 5 - 10%

Representative Textbooks and Materials:
Construction Project Management. 6th edition. Sears, Keoki, Sears, Glenn, Clough, Richard, Rounds, Jerald, and Segne, Robert. Wiley. 2015 (classic)
Project Management in Construction. 5th edition. Levy, S. McGraw Hill. 2006 (classic)
Construction Project Management. 4th edition. Gould, F. and Joyce, N. Pearson. 2014 (classic)
Construction Project Management. 2nd edition. Dykstra, Alison. Kirschner Publishing. 2018
Instructor prepared materials