

CVEEN 4900 - Professional Practice and Design

Units: 3.0

Course Components: Special Projects

Enrollment Information:

Prerequisites: "C" or better in (CVEEN 3100 OR HONOR 3200 OR WRTG 3014 OR WRTG 3015 OR WRTG 301 6) AND Senior Level Standing AND Major Status in Civil Engineering AND not on CVEEN Academic Probation.

Corequisites: One of (CVEEN 4221, CVEEN 4222, CVEEN 5305, CVEEN 5420, CVEEN 5510, CVEEN 5570, CVEEN 5600, CVEEN 5605)

Course Attribute: Sustainability

Course Description:

This course is part one of a two-course sequence (4900/4910) that provides a year-long real design project experience with actual clients. The focus in the first course is on project planning, the design process, project development, feasibility studies, and schematic design. The second course focuses on development and delivery of preliminary and final engineering design documents. Both courses are experientially and team based, meaning learn by doing.

Instructor-Background

Thursday, December 26, 2024 1:48 PM



Steven Bartlett, Ph.D., P.E.

Department of Civil and Environmental Engineering, University of Utah

CME Building 114 (CME = Civil and Materials Engineering Building)

Phone: (435)841 9837, email: bartlett@civil.utah.edu

Career Objectives

- Provide rapid construction solutions for infrastructure and transportation needs.
- Reduce the seismic vulnerability of the built environment through hazard and risk assessment, design, mitigation, and seismic retrofitting.
- Inspire students to obtain leadership in the engineering community.

Education

Ph.D., Civil Engineering, Brigham Young University, May 1992

B.S., Geology, Brigham Young University, December 1983

Professional Positions and Appointments

- Associate Chair, Civil and Environmental Engineering Asia Campus, Incheon, South Korea, 2019-2022
- Associate Professor, Civil and Environmental Engineering, University of Utah, 2007 to present.
- Assistant Professor, Civil and Environmental Engineering, University of Utah, 2000-2007.
- Adjunct Assistant Professor, Department of Civil and Environmental Engineering, Brigham Young University, 2001-2008.
- Research Project Manager, Research Division, Utah Department of Transportation (UDOT), Salt Lake City, Utah, 1998-2000.
- Project Engineer, Woodward-Clyde Consultants, Salt Lake City, Utah, 1996-1998.
- Senior Engineer, Westinghouse Savannah River Company, Aiken, South Carolina, 1991-1996.
- Research Assistant, Brigham Young University, Provo, Utah, 1988-1991.
- Pre-construction Materials Engineer, UDOT, Salt Lake City, Utah, 1987-1988.
- Construction/Survey Technician, UDOT, Orem, Utah, 1984-1987.
- Retort Engineer, Geokinetics In Situ Oil Development, Vernal, Utah, 1984-1985.

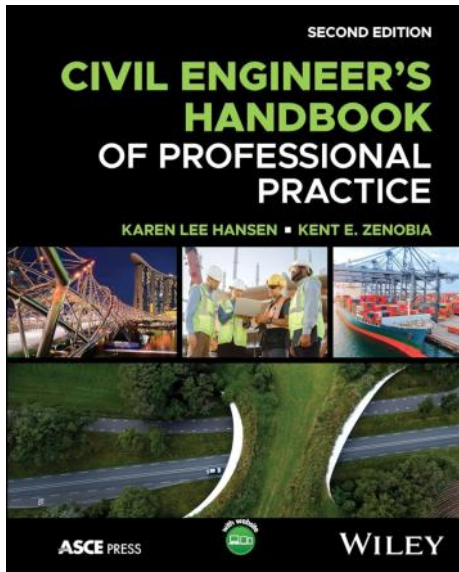
Professional Experience

<https://www.sfb-engineering.com/projects>

<https://www.sfb-engineering.com/bio>

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- Suggested Text (Recommended):



Civil Engineer's Handbook of Professional Practice 2nd Edition

by [Karen Lee Hansen](#) (Author), [Kent E. Zenobia](#) (Author)

The Civil Engineer's Handbook of Professional Practice, 2nd Edition, covers a wide range of topics related to the profession. The book is organized into chapters addressing subjects such as the history of civil engineering, ethics, professional engagement, project development and management, legal aspects, communication, globalization, sustainability, and emerging technologies. It also delves into human relations policies, employment practices, construction management, and health and safety.

The handbook includes numerous appendices containing examples of professional documents, such as requests for proposals, proposals, feasibility study reports, technical reports, specifications, and model contracts. There is also an index for easy reference.

Other Resources (Optional):

- Principles of Applied Civil Engineering Design: Producing Drawings, Specifications, and Cost Estimates for Heavy Civil Projects Second Edition
From <<https://www.amazon.com/Principles-Applied-Civil-Engineering-Design/dp/0784414734>>

Civil Engineer's Handbook of Professional Practice 2nd Edition

by [Karen Lee Hansen](#) (Author), [Kent E. Zenobia](#) (Author)

Topics

1. Introduction
2. Background and History of the Profession
3. Ethics
4. Professional Engagement
5. Engineer's Role in Project Development
6. What Engineers Deliver
 - a. Contract Documents
 - b. Drawings
 - c. Specifications
 - d. Technical Memos
 - e. Technical Reports
 - f. Calculations
 - g. Other Deliverables
7. Project Management
8. Permitting
9. Client Relationship and Business Development
10. Leadership
11. Legal Aspects of Professional Practice
12. Managing the Civil Engineering Enterprise
13. Communicating as a Professional Engineer
14. Balancing Life, Family and Career
15. Globalization
16. Sustainability
17. Emerging Technologies
18. Human Relations and Employment Practices
19. Construction Management
20. Health and Safety
21. What Civil Engineers Need to Know

Appendix A - Example Request for Proposal (RFP)

Appendix B - Example Proposal

Appendix C - Example Feasibility Report

Appendix D - Example Short Technical Report

Appendix E - Example Specification: Cast-In-Place Concrete

Appendix F - Model Contract for Engineer Study and Report

Appendix G - Design and Construction Documents

Other Reading Materials (to be updated)

Thursday, July 24, 2025 8:36 AM

Has Utah Skiing Resorts Reached a Breaking Point

[Has Utah Skiing Reached Its Breaking Point?](#)



U of U Student Reports and Presentations

https://my.civil.utah.edu/~bartlett/Little%20Cottonwood%20Canyon/UofU%20preliminary%20design%20report_FINAL_07_12_18%20sfb%20edits.pdf

https://my.civil.utah.edu/~bartlett/Little%20Cottonwood%20Canyon/UofU%20LCC%20Feasibility%20Study%20Presentation_03_13_18_FINAL.pdf

UDOT Reports

<https://littlecottonwoodeis.udot.utah.gov/record-of-decision/>

Federal Reports

<https://www.govinfo.gov/content/pkg/FR-2023-07-14/pdf/2023-14992.pdf>

Lawsuits

See Handouts - LCC Lawsuits Summary

Norwegian Public Roads - National Routes and Scenic Turnouts

<https://www.nasjonaleturistveger.no/en/routes/>

1. Basis of Design and Design Process (Seminar) (H&Z 5)
2. Value Engineering and NEPA Overviews (Seminar)
NEPA - <https://littlecottonwoodeis.udot.utah.gov/>
FHWA Value Engineering Final Rule - <https://www.fhwa.dot.gov/ve/>
UDOT Manual of Instruction Value Engineering -
(<https://digitallibrary.utah.gov/aw-server/rest/product/purl/USL/s/15ded91c-36e1-4aa1-b1ed-35fc47013e00>)
3. Public Service Responsibility of Civil Engineer (Guest Speaker)
4. Writing Engineering Proposals (Seminar) (H&Z 4.8-4.9; App. A, B)
5. Team Leadership and Project Management (Seminar) (H&Z 10)
6. Team Building and Dynamics (Guest Speaker) (TBD)
7. Project Scheduling (Guest Speaker) (TBD) (H&Z 6, 19.4-19.5)
8. Cost estimating and Life Cycle Cost Analysis (Seminar) (H&K 19.6) (Life-Cycle Cost Analysis Primer - <https://www.fhwa.dot.gov/pavement/lcca/010621.pdf>)
(Real Cost Software - <https://www.fhwa.dot.gov/pavement/lcca/lccasoft/>)
9. Writing Engineering Reports (Instructor Seminar) (Handout-Engineering Reports)
 - a. Feasibility/Alternative Studies
 - b. Design Study Report
 - c. Specifications
 - d. Drawings
10. Effective Technical Presentations (Seminar)
11. Engineering Ethics (Guest Speaker) (H&Z 3)
12. Building Client Relationships (Seminar) (H&Z 9)
13. Accreditation and Pathway to Professional Licensure (Guest Speaker)
14. Sustainability (Guest Speaker)
15. Selection of a Consulting Engineer: QBS vs. Proposal/Bid (Guest Speaker)
16. Quality Management (Guest Speaker)
17. Consulting Business Practices (Guest Speaker)

Other Topics (Project-Specific)

Thursday, July 24, 2025 8:36 AM

1. Decentralized-Smart Transportation Systems
2. Design Bicycle Systems and Trails
3. Preparing for Public Involvement and Discourse
4. Design of Overpass and Snow Shed Structures
5. Multiagency Administrative Organizations for Asset Management
6. Public-Private Partnerships
7. Engineering Solutions for Access (Tolling) and Parking and Impacts
8. Trailhead, Scenic Turnouts, and Other Community Facilities

Academic Calendar

Sunday, August 18, 2024

1:48 PM

Semester Length Classes

Event	Date
Classes begin	Monday, August 19
Last day to add without a permission code	Friday, August 23
Last day to wait list	Friday, August 23
Last day to add, drop (delete), elect CR/NC, or audit classes	Friday, August 30
Last day to withdraw from classes	Friday, October 18
Last day to reverse CR/NC option	Friday, November 29
Classes end	Thursday, December 5
Reading day	Friday, December 6
<u>Final exam period</u>	Mon.-Fri., Dec. 9-13

Holidays

Event	Date
Labor Day	Monday, September 2
Fall Break	Sun.-Sun., October 6-13
Thanksgiving Break	Thurs.-Sun., November 28-December 1
Holiday Recess	Sat., December 14 - Sun., January 5

Attendance and Grading Policy

Tuesday, August 13, 2024

5:39 PM

The grading metrics include:

1. **Attendance (0%)** – Attendance in class is mandatory. The University expects regular attendance in all courses. Students are responsible for acquainting themselves with and satisfying the entire range of academic objectives and requirements as defined by the instructor. Attendance will not be taken the during first week of class.

Excused Absences

To receive an official excused absence, students submit their requests by email. These excused absences are only granted for University events.

Personal Days

You are granted three (3) unexcused absences (personal days) during the year that can be used without the instructor's permission. These personal days may be used as sick days, work, or other personal matters.

Unexcused Absences

Unexcused absences beyond these three personal days will result in a 2.5 percent decrease in your attendance grade for each absence

2. **Seminar Quizzes (20%)** - These will be delivered through Canvas
3. **Individual Portfolio (10%)** – Your portfolio should include everything generated or created for this class. This shall include (1) class notes, (2) speaker notes, (3) handouts, (4) field trip and site notes, (5) notes from team meetings, and (6) all work products developed for the project (regardless if they are used in the final documents). This will be submitted at the end of the semester in an organized compendium – in a professional manner.
4. **Team Participation Assessment (5%)** by instructor
5. **Peer Evaluations (5%)** by member of teams
6. **Major Deliverables (60%)**
 - Draft Scope of Work (5%) team assignment
 - Final Scope of Work (5%) team assignment
 - Draft Alternative Study (20%) team assignment
 - Final Alternative Study (20%) team assignment
 - Final Alternative Study Presentation (10%) team presentation

Attendance and Grading Policy (cont.)

Sunday, January 7, 2024

1:48 PM

Grades

The grades will be based on the total score for the course using the following ranges

Grade Score (%)	Grade Score (%)
A (94-100)	A- (90-93)
B+ (87-89)	B (84-86)
B- (80-83)	C+ (77-79)
C (74-76)	C- (70-73)
D+ (67-69)	D (64-66)
D- (60-63)	E (< 60)

CVEEN Academic Misconduct

Monday, August 21, 2023

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2. CVEEN POLICY ON ACADEMIC MISCONDUCT

This Departmental policy applies to any course listed as CVEEN XXXX (subsequently referred to as a CVEEN course) or NUCL XXXX (subsequently referred to as a NUCL course). Two documents have primacy; this governance document and information contained in each CVEEN course syllabus. It is the student's responsibility to understand the definitions and consequences of academic misconduct.

a. Definition of Academic Misconduct

As defined in the Student Code,

'Academic misconduct' includes, but is not limited to, cheating, misrepresenting one's work, inappropriately collaborating, plagiarism, and fabrication or falsification of information, as defined further below. It also includes facilitating academic misconduct by intentionally helping or attempting to help another to commit an act of academic misconduct.

Please refer to University Policy 6-400, Section I: General Provision and Definitions for a detailed outline of each of these terms.

Each CVEEN or NUCL course instructor provides detailed information regarding academic misconduct for specific course activities in the course syllabus. If students have questions about this information, they should seek clarification from the instructor rather than seek an interpretation from a third-party. For example, if an instructor has a rule banning cell phone usage during an exam then texting or using a cell phone, even as a calculator, would be seen as academic misconduct.

b. Sanctions

Instructors have two options that can be exercised when an instance of academic misconduct has been committed:

1. Fail-the-course Option

The default sanction for an academic misconduct offense is a failing grade for the course. Thus, unless explicitly stated in any CVEEN course syllabus, academic misconduct means receiving an E grade for the course. This sanction will be placed in the student's departmental file and the faculty member will notify the chair of the student's home department and the senior vice president for academic affairs of the academic misconduct and the circumstances which the faculty member believes support the imposition of a failing grade. Note that a failing grade sanction still applies even for students who withdraw from a course after a sanction has been imposed.

2. Less than Fail-the-course Option

As defined in a specific CVEEN course syllabus, or due to instructor discretion, an academic misconduct sanction may be relaxed from a failing course grade. In such cases, the individual will receive a zero for the particular assignment or activity (homework, exam, paper, laboratory session, etc.). The faculty member will report the misconduct to the student's home department chair as well as dean of the student's home college.

Two instances of academic misconduct by a student will result in a recommendation for dismissal from their respective minor and/or degree program or revocation of a degree or certificate. These matters will be referred to the Price College of Engineering's Academic Appeals Committee for proceedings.

<https://www.civil.utah.edu/cveen-academic-misconduct-policy/>

CVEEN Academic Misconduct (continued)

Monday, August 21, 2023

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Appeals Committee for proceedings.

c. Reporting

The CVEEN Department tracks an individual's academic misconduct for all its courses. Information regarding prior offenses is available to the Director of Undergraduate Studies, the Director of Graduate Studies, the CVEEN Department Chair, and the CVEEN office staff. This information is protected per established FERPA guidelines.

d. Appeal of Sanction

A student has the right to appeal within fifteen (15) business days of receiving notice of the academic sanction. Please refer to University Policy 6-400: Code of Student Rights and Responsibilities, Part V.B.5. and the College of Engineering's Academic Appeals and Misconduct Policy for guidance in the appeals process.

3. STUDENT RESPONSIBILITIES

It is the responsibility of all students taking CVEEN courses to:

1. Read and understand the CVEEN Academic Misconduct Policy Statement.
2. Read and understand the academic misconduct definitions associated with each specific course and course syllabus, recognizing that acceptable procedures may be different in each class.
3. Not engage in any activity that could constitute academic misconduct as defined in this policy and notify the instructor immediately if they suspect academic misconduct is occurring

[1] <https://regulations.utah.edu/academics/6-400.php>

[2] Ibid.

[3] <https://www.coe.utah.edu/students/current/semester-guidelines/>

College of Engineering Appeals Policy

<https://www.price.utah.edu/students/academic-affairs/academic-appeals>

Policy for AI-Generated Products For Writing

Friday, August 8, 2025 3:51 PM

Policy on AI-Generated Writing in Class Assignments

Purpose

Artificial Intelligence (AI) tools, such as ChatGPT, Claude, and similar platforms, can assist with brainstorming, research, and improving written communication. However, their use in this course must support learning and uphold academic integrity.

1. Acceptable Uses

Students **may** use AI tools to:

- Brainstorm ideas and outline assignments.
- Clarify concepts or rephrase complex language.
- Check grammar and writing mechanics.
- Explore examples of writing styles or formats.

If AI is used for any of the above, the **student must still produce the final work in their own words** and ensure all ideas are understood and explainable by them.

2. Prohibited Uses

Students **may not**:

- Submit AI-generated writing as their own without substantial revision or personal contribution.
- Use AI to complete assignments entirely with minimal or no personal input.
- Use AI in exams, timed writing, or any assignment where independent work is required unless explicitly stated.
- **Rely on AI for factual accuracy without verification from credible sources.**

3. Disclosure Requirement

If AI tools are used in any stage of the assignment, students must include a brief **AI Usage Statement** at the end of their work. For example:

"Portions of this work were assisted by ChatGPT (OpenAI) for brainstorming and grammar suggestions. All ideas and final wording are my own."

4. Accountability

- Students must be able to explain, defend, and elaborate on any portion of their submitted work.
- Misrepresenting AI-generated content as entirely one's own is considered **plagiarism** and will be handled according to the university's academic integrity policy.

5. Rationale

The goal of this policy is to prepare students for real-world professional environments where AI is a tool, not a substitute for original thinking. Ethical use of AI helps develop critical thinking, creativity, and independent writing skills.

Policy for AI-Generated Products (cont.)

Friday, August 8, 2025

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AI Use in Class Assignments – Quick Guide

■ OK to use AI for:	■ Not OK to use AI for:
• Brainstorming ideas • Making an outline • Checking grammar • Exploring writing styles	• Writing your whole paper • Copying AI text without changes • Using AI in tests/solo work • Believing AI facts without checking

■ If you use AI, you must say so:

Add at the end of your work: "I used ChatGPT to help brainstorm ideas and check grammar. All final writing and ideas are my own."

■ Bottom line:

AI is a helper, not a substitute for your brain. If you can't explain your work without the AI, you've gone too far.

Do Not Rely on AI for factual accuracy without verification from the original source or credible sources. These sources must be referenced (cited) in a reference section.

Final Exam Schedule (Not Applicable to This Course)

Sunday, August 18, 2024

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Main Campus Fall 2025 Final Exam Schedule

Reading Day (no exams held): Friday, December 5

Final Exams: Monday, December 8 – Friday, December 12

Day Class Exams for Synchronous Courses [In-Person/Hybrid/Remote Real-Time]

Final examinations will be given in regularly scheduled classrooms according to the schedule below. Faculty may make online exams available for multiple days during the exam week, provided that one of the days encompasses the regularly scheduled exam time.

CLASS TIME BEGINS BETWEEN	CLASS MEETING PATTERNS: MoWeFr, MoTuFr, MoThFr, MoWeTh, TuWeFr, WeThFr, MoTuWe, MoWe, MoFr, 4 or 5 DAYS A WEEK	CLASS MEETING PATTERNS: TuTh, TuThFr, TuWeTh, MoTu, TuWe, TuFr
7:30-8:30 am	Wednesday, December 10, 2025 8:00 – 10:00 am	Monday, December 8, 2025 8:00 – 10:00 am
8:35-9:35 am	Thursday, December 11, 2025 8:00 – 10:00 am	Tuesday, December 9, 2025 8:00 – 10:00 am
9:40-10:40 am	Friday, December 12, 2025 8:00 – 10:00 am	Wednesday, December 10, 2025 10:30 am – 12:30 pm
10:45-11:45 am	Tuesday, December 9, 2025 10:30 am – 12:30 pm	Thursday, December 11, 2025 10:30 am – 12:30 pm
11:50-12:50 pm	Monday, December 8, 2025 10:30 am – 12:30 pm	Friday, December 12, 2025 10:30 am – 12:30 pm
12:55-1:55 pm	Friday, December 12, 2025 1:00 – 3:00 pm	Monday, December 8, 2025 1:00 – 3:00 pm
2:00-2:55 pm	Thursday, December 11, 2025 1:00 – 3:00 pm	Wednesday, December 10, 2025 1:00 – 3:00 pm
3:00-4:25 pm	Friday, December 12, 2025 3:30 – 5:30 pm	Wednesday, December 10, 2025 3:30 – 5:30 pm

****Exceptions****

- Those classes listed under departmental exams.
- All exams for MoTh, ThFr, WeTh, weekend and one day per week classes starting before 4:30pm will be arranged by the instructor after consultation with students. The instructor must reserve the room in advance through Scheduling, (801) 581-7854.

Final exams (mid-terms and end-of-semester) must be taken on the day scheduled. In no case will an exam be issued early.

Other Important Information

Monday, August 21, 2023

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Important Safety Information

The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-581-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit <https://safeu.utah.edu>

If you are experiencing interpersonal violence, sexual assault, domestic violence, and/or stalking, please connect with one of the resources below.

Resource	Phone #	Hours	Affiliation
McCluskey Center for Violence Prevention Email checked daily: cvp@utah.edu	801.587.3982	NA	University
Center for Campus Wellness, Victim Survivor Advocate:	801.581.7776	8-5	University
Office of Equal Opportunity	801.581.8365	9-5	University
University Department of Public Safety	801.585.2677	24 hrs	University
Crime Victim Advocate For less urgent matters, email checked M-F 9-5: crimevictimsadvocates@utah.edu	801.585.2677	24hrs	University
Huntsman Mental Health Institute	800.587.3000	24hrs	University
Utah Domestic Violence Coalition	800.897.5465	24hrs	State
Rape Recovery Center	801.467.7282.	(M-Th) 9-5	State
Utah Coalition Against Sexual Assault 24 hour crisis line	801.736.4356	24hrs	State
Stalking Helpline	800.621.4673	24hrs	State

Mandatory reporters are university employees, including students in paid leadership positions who are required to report sexual misconduct to the Office of Equal Opportunity and Affirmative Action per university regulations. Examples of mandatory reporters include:

- Professors and other faculty
- Administration and staff (non-mental health)
- Resident Advisors
- Student employees
- Campus Police or Campus Security officials
- Athletic Coaches/Assistants

Zoom Conference Calls with Dr. Bartlett

Monday, August 21, 2023 1:48 PM

Join Zoom Meeting

<https://utah.zoom.us/j/9131248772?omn=95385285921>

Meeting ID: 913 124 8772

One tap mobile

+16699006833,,9131248772# US (San Jose)

+17193594580,,9131248772# US

Join by SIP

- 9131248772@zoomcrc.com

Join instructions

<https://utah.zoom.us/meetings/95385285921/invitations?signature=seYrMfsBtAhALL1Hw3seLmW PgUNUHGDsJG7BGU66aY>

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