

# Civil Engineering Construction Management (CENG 4339)

**Term:** Fall 2024

**Course Times:**

- Tuesday and Thursday: 3:30 PM to 4:50 PM
- RBN 3040

**Professor:** Dr. Chi Tian

**Email:** [ctian@uttyler.edu](mailto:ctian@uttyler.edu) (Preferred communication method)

**Email subject:** [#Course + #HW]

**Office Hours:** Monday & Wednesday, 12:30 PM to 2:00 PM or by appointment

**Office:** RBS 1006

**Course Dates:** Aug. 26, 2024 – Dec. 14, 2024

## Course Overview

In this course, we will explore all phases of construction project management, starting with the owner feasibility study and ending with the contractor completing the project. In doing so, this course will integrate a variety of topics in the fields of construction management and engineering economics. I am confident that you will find this course to be interesting, challenging and rewarding.

Within the project management portion of the course, you will learn several aspects of construction management including estimating, scheduling, administration, project control techniques, quality, and safety. Engineering economics includes annual-cost, present-worth, capitalized cost, and rate-of-return applications.

A tentative schedule for this course is attached in the Section of Calendar of Topics, Readings, and Due Dates.

## Student Learning Outcomes

After successfully completing this course, you will be able to:

- Explain the characteristics and challenges of the construction industry within the U.S.
- Explain concepts of construction administration, including project delivery systems, contracting requirements, project control, dispute resolution, safety, and quality assurance and control.
- Solve large earth construction problems including earthwork volumes and flow, machine power, and equipment cycle time.

- Generate building construction estimates for time, labor, and materials.
- Apply principles of project scheduling.
- Apply principles of project control and tracking.
- Solve engineering economics problems with compounding interest.
- Apply equivalence approaches in forming engineering economics decisions.
- Assess risks and uncertainty associated with engineering economics decisions.

### Course Materials

- **Textbook (Optional):**
  - Construction Management Fundamentals, Second Edition by Knutson, Schexnayder, Fiori, and Mayo, 2009, ISBN 978-0-07-340104-1.
  - Engineering Economics (Schaum's Outlines), First Edition by Sepulveda, Souder, and Gottfried, 1984, ISBN 0-07-023834-0. (SCH)
  - Basics of Engineering Economy, First Edition by Leland Blank and Anthony Tarquin, 2008, ISBN 978-0-07-340129-4. (BEE)

### Course Structure

- This course is mainly lectures and projects. You are required to attend each lecture, participate in the class discussion, and actively contribute to your group project.
- This course includes several homework assignments and quizzes.
- Two exams (exam 1 and exam 2) are scheduled in class and the final exam is scheduled in the final week of this course.

### Graded Course Requirements Information

#### Homework Assignments and Pop-up Quizzes

- The homework assignments cover all contents from lectures, textbooks, readings and class discussion.
- The quizzes are unannounced. **Please note, there will be no chances for a pop-up quiz make up. Attending all lectures is the only way to not miss a pop-up quiz.**

#### Exams

- Two exams cover lectures, textbook, lectures, textbook, readings and class discussion.
- The final exam is scheduled for this class in the final exam week.

#### Professional Practice

- During the semester, a portion of your grade in this course will be derived from a level of professional practice expectations. These expectations include a professional demeanor and work ethic (attitude), consistent daily preparation (assignment reading, homework completed on time,

etc.), commitment to learning and fulfilling the assigned projects (such as Cardboard Canoe Project).

- 10% is allocated for cardboard canoe.
- 5% is allocated for ASCE lecture.

### AI Policies:

- You can only use AI for grammar checking for this course assignment.
- You need to clearly acknowledge the use of AI in your homework.

### Grading Policies

- Late submissions: It is a basic principle of professionalism that “Professionals are not late”. Deductions to your assignments grade for late submission will be given as follows:
  - 0-24 hours late a deduction of **25%** of the earned grade
  - 24-48 hours late a deduction of **50%** of the earned grade
  - More than 48 hours late **No credit. Assignments must still be submitted to get a grade for this course.**
- Re-grade requests: You must come to my office hours if you have questions about your grades within **15 days** after they are posted. You should check your posted grades on Canvas regularly to track your progress.

### Grading Structure

Content	Percentage %
Professional practice expectations	15%
Homework and Quizzes	20%
Exam 1	20%
Exam 2	20%
Final exam	25%
<b>Total</b>	<b>100%</b>

### Grading Scale

- A - (90% or higher)
- B - (80 - 89%)
- C - (70 - 79%)
- D - (60 - 69%)

→ F - (Below 60%)

**A grade of 69 (D) or below will be a failure to complete the course for graduation in the department.**

**Attendance Policy:**

Regularly attending lectures is essential for success in this class. Punctual attendance at all lectures is mandatory.

**Calendar of Topics, Readings, and Due Dates**

Please note, the schedules are tentative and subject to change.

## Civil Engineering Construction Management (CENG 4339)

<i>Week #</i>	<i>Date</i>	<i>Class Topic</i>	<i>Readings</i>	<i>Assignments Due</i>
Week 1	T 8/27	Foundations of engineering economy	BEE Ch. 1	
	Th 8/29	Annual Compounding Interest	SCH. Ch. 1-3	
Week 2	T 9/3	Discrete and Continuous Compounding	SCH. Ch. 4-5	
	Th 9/5			
Week 3	T 9/10	Equivalence, present & Future Worth	SCH. Ch. 6, 7	
	Th 9/12	Benefit/Cost, MARR, Economic Lift	SCH. Ch. 8, 9, 10	
Week 4	T 9/17	Depreciation	SCH. Ch. 11	
	Th 9/19	Economics assessment	SCH. Ch. 1-11	
Week 5	T 9/24	Introduction to Construction Management	Ch. 1	
	Th 9/26	Overview of Construction Industry	Ch. 2	
Week 6	T 10/1	Project Delivery Systems	Ch. 3 (58-75, 89-91)	
	Th 10/3	Construction Administration	Ch. 8	
Week 7	T 10/8	Estimating Earthwork Construction	Ch. 6 (169-183)	
	Th 10/10	Mass Haul, Cycle Time	Ch. 6 (183-196)	
Week 8	T 10/15	<b>Exam #1</b>		
	Th 10/17	Machine Power	Ch. 10	
Week 9	T 10/22	Equipment Selection	Ch. 11	
	Th 10/24	Equipment Costs, Cost Estimates	Ch. 12	
Week 10	T 10/29	Understanding the Drawings	Ch. 7 (212 - 228)	
	Th 10/31	Estimating Costs, Cost Estimates	Ch. 7 (227 - 265)	
Week 11	T 11/5	<b>Exam #2</b>		
	Th 11/7	Equipment Quantities, Labor, Cost	Ch. 5, Ch. 6 (196-208)	
Week 12	T 11/12	Project Scheduling, Critical Path Method	Ch. 4	
	Th 11/14			
Week 13	T 11/19	Project Control and Tracking	Ch. 3 (76-89), Ch. 4	
	Th 11/21	Construction Safety	Ch. 16	
Week 14	T 11/26	<b>Thanksgiving holidays!</b>		
	Th 11/28			
Week 15	T 12/3	Quality and Productivity	Ch. 15	
	Th 12/5	Wrap up and survey		

<b>Final Exam</b>	<b>The detailed time can be determined later.</b>			

Note: This is a tentative schedule, and subject to change as necessary – monitor the course page for current deadlines. In the unlikely event of a prolonged university closing, or an extended absence from the university, adjustments to the course schedule, deadlines, and assignments will be made based on the duration of the closing and the specific dates missed.

## Student Resources:

### Resources available to UT Tyler Students

- [UT Tyler Counseling Center](#) (available to all students)
- [MySSP App](#) (24/7 access to Student Support Program counseling through phone or chat and online wellness resources available in a variety of languages)
- [Student Assistance and Advocacy Center](#)
- [Military and Veterans Success Center](#) (supports for our military-affiliated students)
- [UT Tyler Patriot Food Pantry](#)
- [UT Tyler Financial Aid and Scholarships](#)
- [UT Tyler Student Business Services](#) (pay or set up payment plans, etc.)
- [UT Tyler Registrar’s Office](#)
- [Office of International Programs](#)
- [Title IX Reporting](#)
- [Patriots Engage](#) (available to all students. Get engaged at UT Tyler.)

## University Policies and Information

### Withdrawing from Class

Students may [withdraw](#) (drop) from this course using the [Withdrawal Portal](#). Withdrawing (dropping) this course can impact your Financial Aid, Scholarships, Veteran Benefits, Exemptions, Waivers, International Student Status, housing, and degree progress. Please speak with your instructors, consider your options, speak with your advisor, and visit the One-Stop Service Center (STE 230) or email [enroll@uttyler.edu](mailto:enroll@uttyler.edu) to get a complete review of your student account and the possible impacts to withdrawing. We want you to make an informed decision. UT Tyler faculty and staff are here for you and often can provide additional support options or assistance. Make sure to carefully [read the implications for withdrawing from a course and the instructions](#) on using the [Withdrawal portal](#)..

Texas law prohibits students from dropping more than six courses during their entire undergraduate career\*. The six courses dropped includes those from other 2-year or 4-year Texas public colleges and universities. Consider the impact withdrawing from this class has on your academic progress and other areas, such as financial implications. We encourage you to consult your advisor(s) and Enrollment Services for additional guidance. **CAUTION #1:** Withdrawing before census day does not mean you get a full refund. Please see the [Tuition and Fee Refund Schedule](#). **CAUTION #2:** All international students must

check with the [Office of International Programs](#) before withdrawing. All international students are required to enroll full-time for fall and spring terms. **CAUTION #3:** All UT Tyler Athletes must check with the Athletic Academic Coordinator before withdrawing from a course. **CAUTION #4:** All veterans or military-affiliated students should consult with the [Military and Veterans Success Center](#).

\* Students who began college for the first time before 2007 are exempt from this law.

### Artificial Intelligence Statement

UT Tyler is committed to exploring and using artificial intelligence (AI) tools as appropriate for the discipline and task undertaken. We encourage discussing AI tools' ethical, societal, philosophical, and disciplinary implications. All uses of AI should be acknowledged as this aligns with our commitment to honor and integrity, as noted in UT Tyler's Honor Code. Faculty and students must not use protected information, data, or copyrighted materials when using any AI tool. Additionally, users should be aware that AI tools rely on predictive models to generate content that may appear correct but is sometimes shown to be incomplete, inaccurate, taken without attribution from other sources, and/or biased. Consequently, an AI tool should not be considered a substitute for traditional approaches to research. You are ultimately responsible for the quality and content of the information you submit. Misusing AI tools that violate the guidelines specified for this course is considered a breach of academic integrity. The student will be subject to disciplinary actions as outlined in UT Tyler's Academic Integrity Policy. Refer to the About This Course section of the UT Tyler Syllabus Module for specific information on appropriate use of AI in your course(s).

### Final Exam Policy

Final examinations are administered as scheduled. If unusual circumstances require that special arrangements be made for an individual student or class, the Dean of the appropriate college, after consultation with the faculty member involved, may authorize an exception to the schedule. Faculty members must maintain student final examination papers for a minimum of three months following the examination date.

### Incomplete Grade Policy

If a student, because of extenuating circumstances, is unable to complete all of the requirements for a course by the end of the semester, then the instructor may recommend an Incomplete (I) for the course. The "I" may be assigned in place of a grade *only when **all** of the following conditions are met:* (a) the student has been making satisfactory progress in the course; (b) the student is unable to complete all coursework or final exam due to unusual circumstances that are beyond personal control and are acceptable to the instructor, and (c) the student presents these reasons before the time that the final grade roster is due. The semester credit hours for an Incomplete will not be used to calculate the grade point average.

The student and the instructor must submit an Incomplete Form detailing the work required and the time by which the work must be completed to their respective department chair or college dean for approval. The time limit established must not exceed one year. Should the student fail to meet all of the work for the course within the time limit, then the instructor may assign zeros to the unfinished work, compute the course average for the student, and assign the appropriate grade. If a grade has yet to be assigned within one year, then the Incomplete will be changed to an F, or NC. If the course was initially taken under the CR/NC grading basis, this may adversely affect the student's academic standing.

## Grade Appeal Policy

Disputes regarding grades must be initiated within sixty (60) days from the date of receiving the final course grade by filing a Grade Appeal Form with the instructor who assigned the grade. A grade appeal should be used when the student thinks the final course grade awarded does not reflect the grades earned on assessments or follow the grading scale as documented in the syllabus. The student should provide the rationale for the grade appeal and attach supporting document about the grades earned. The form should be sent via email to the faculty member who assigned the grade. The faculty member reviews the rationale and supporting documentation and completes the instruction section of the form. The instructor should return the form to the student, even if a grade change is made at this level. If the student is not satisfied with the decision, the student may appeal in writing to the Chairperson of the department from which the grade was issued. In situations where there is an allegation of capricious grading, discrimination, or unlawful actions, appeals may go beyond the Chairperson to the Dean or the Dean's designee of the college from which the grade was issued, with that decision being final. The Grade Appeal form is found in the [Registrar's Form Library](#).

NOTE: The Grade Appeal Form is different from the Application for Appeal form submitted to the Student Appeals Committee, which does not rule on grade disputes as described in this policy.

## Disability/Accessibility Services

In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA), the University of Texas at Tyler offers accommodations to students with learning, physical, and/or psychological disabilities. If you have a disability, including a non-visible diagnosis such as a learning disorder, chronic illness, TBI, PTSD, ADHD, or a history of modifications or accommodations in a previous educational environment, you are encouraged to visit <https://hood.accessiblelearning.com/UTTyler/> and fill out the New Student application. The Student Accessibility and Resources (SAR) office will contact you when your application has been submitted and an appointment with the Assistant Director Student Accessibility and Resources/ADA Coordinator. For more information, including filling out an application for services, please visit the SAR webpage at <https://www.uttyler.edu/disability-services>, the SAR office located in the Robert Muntz Library, LIB 460, email [saroffice@uttyler.edu](mailto:saroffice@uttyler.edu), or call 903.566.7079."

## Military Affiliated Students

UT Tyler honors the service and sacrifices of our military-affiliated students. If you are a student who is a veteran, on active duty, in the reserves or National Guard, or a military spouse or dependent, please stay in contact with your faculty member if any aspect of your present or prior service or family situation makes it difficult for you to fulfill the requirements of a course or creates disruption in your academic progress. It is important to make your faculty member aware of any complications as far in advance as possible. Your faculty member is willing to work with you and, if needed, put you in contact with university staff who are trained to assist you. The [Military and Veterans Success Center \(MVSC\)](#) has campus resources for military-affiliated students. The MVSC can be reached at [MVSC@uttyler.edu](mailto:MVSC@uttyler.edu) or via phone at 903.565.5972.

## Students on an F-1 Visa

To remain in compliance with Federal Regulations requirements you must do the following:



- Traditional face-to-face classes: Attend classes on the regular meeting days/times.
- Hybrid Classes: Attend all face-to-face classes convened by the instructor according to the schedule set for your specific course.
- Online course: Only one online course can count toward your full-time enrollment. Students are expected to be fully engaged and meet all requirements for the online course.

### **Academic Honesty and Academic Misconduct**

The UT Tyler community comes together to pledge that "Honor and integrity will not allow me to lie, cheat, or steal, nor to accept the actions of those who do." Therefore, we enforce the [Student Conduct and Discipline policy](#) in the Student Manual Of Operating Procedures (Section 8).

### **FERPA**

UT Tyler follows the Family Educational Rights and Privacy Act (FERPA) as noted in [University Policy 5.2.3](#). The course instructor will follow all requirements to protect your confidential information.

### **Absence for Official University Events or Activities**

This course follows the practices related to [Excused Absences for University Events or Activities](#) as noted in the Catalog.

### **Absence for Religious Holidays**

This course follows the practices related to [Excused Absences for Religious Holy Days as noted in the Catalog](#).

### **Absence for Pregnant Students**

This course follows the requirements of Texas Laws SB 412, SB 459, SB 597/HB 1361 to meet the needs of pregnant and parenting students. Part of the supports afforded pregnant students includes excused absences. Faculty who are informed by a student of needing this support should make a referral to the Parenting Student Liaison. NOTE: Students must work with the Parenting Student Liaison in order to receive these supports. Students should reach out to the Parenting Student Liaison at [parents@uttyler.edu](mailto:parents@uttyler.edu) and also complete the [Pregnant and Parenting Self-Reporting Form](#).

### **Campus Carry**

We respect the right and privacy of students who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at <http://www.uttyler.edu/about/campus-carry/index.php>.