

COURSE SYLLABUS
The University of Texas at Arlington
College of Engineering
Department of Civil Engineering
CE 5379 – Construction Cost Estimating
(3 Credit Hours)

Name of Instructor: Dr. Mohammad Najafi, P.E.

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Office Hours: Monday and Wednesday: 2:00 – 5:00 PM – Additional Office Hours by Appointment.

Teaching Assistant: Jwala Raj Sharma, Office: CELB, Phone: 817-272-9164, Office Hours: Tu & Th – 2:30 to 4:30 PM.

Course Number, Section Number, and Course Title: CE 5379 – Construction Cost Estimating – Section 001 (Lecture 80492).

Time and Place of Class Meetings: Monday and Wednesday, 5:30 – 6:50 PM, NH 203, and Room 143 (Computer Lab), CELB (lab sessions to be announced in class).

Description of Course Content: Types of estimates, development of unit costs, quantity take-off, cost estimation using manual methods and computer software's, budgets and costs. Co-requisite: CE 5386.

Student Learning Outcomes: Upon completion of the course, the student will have:

- an ability to apply knowledge of mathematics, science, and engineering
- an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- an ability to identify, formulate, and solve engineering problems
- an understanding of professional and ethical responsibility
- an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

Requirements: Graduate Standing and concurrent enrollment in CE 5386.

Reference Books:

- Holm, L., Schaufelberger, J.E., Griffin, D., and Cole T. (2005). "Construction Cost Estimating Process and Practices," Prentice Hall
- Timberline, WinEstimator, and Heavy Bid Software.
- Blackboard (course management)
- Means' Construction Cost Data and other Means' Publications.
- Mehta, M., Scarborough, W., and Armpriest, D. (2010). Building Construction: Principles, Materials, and Systems, Pearson Prentice Hall, Upper Saddle River, New Jersey.
- Spence, W. P. and Kultermann, E. (2011). "Construction Materials, Methods, and Techniques," Third Edition, Delmar Publishing.
- Simmons, H.L. (2001). "Construction Principles, Materials, and Methods," Seventh Edition, John Wiley and Sons, New York.
- Adrian, J. (1993). "Construction Estimating," Stipes.
- Ostwald, P.F., and McLaren, T.S. (2004). "Cost Analysis and Estimating for Engineering and Management, Prentice Hall.

- Peurifoy, R.L. and Oberlander, G.D. (2002). Estimating Construction Costs,” McGraw-Hill.
- Pratt D. (2004). “Fundamentals of Construction Estimating,” 2nd Edition, Thomson.
- Caterpillar Performance Handbook
- Clough R.H. and Sears, G.A. (1994). “Construction Contracting,” Sixth Edition, Wiley.
- Oglesby, C.H., Parker, H.W., and Howell, G.A. (1989). “Productivity Improvement in Construction,” McGraw-Hill, New York, NY.
- Fisk, E.R. (2007). “Construction Project Administration,” Seventh Edition, Prentice Hall.
- Halpin, D.W. (2006). “Construction Management,” Third Edition, Wiley.

Descriptions of major assignments and examinations with due dates: There will be two exams (one close to midterm and one final which will be comprehensive), several lab and homework assignments and one project. See Course Outline for specific dates.

Grading Policy: Grades will be determined according to the following scale (the grading scale may be lowered at the discretion of the instructor, but will not be raised):

Grade	% Required
A	90 -100
B	80-89
C	70-79
D	60-69
F	Less than 60

Students will be required to accumulate points from the following:

Homework	15%
Class Attendance & Participation	10%
Midterm Exam	20%
Lab Assignments	15%
Project & Presentation	15%
Final Exam (Comprehensive)	25%
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Total	100%

Attendance Policy: Students are expected to attend all classes. For total professional development, class participation and oral discussions will be encouraged. Everyone is asked to arrive and be seated promptly for duration of class to minimize the disruption to others.

Drop Policy: Students need to consult UTA Web site for information on the university drop policy.

Americans with Disabilities Act: The University of Texas at Arlington is on record as being committed to both the spirit and letter of federal equal opportunity legislation; reference Public Law 92-112 - The Rehabilitation Act of 1973 as amended. With the passage of federal legislation entitled *Americans with Disabilities Act (ADA)*, pursuant to section 504 of the Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens.

As a faculty member, I am required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty of their need for accommodation and in providing authorized documentation through designated administrative channels. Information regarding specific diagnostic criteria and policies for obtaining academic accommodations can be found at www.uta.edu/disability. Also, you may visit the Office for Students with Disabilities in Room 102 of University Hall or call them at (817) 272-3364.

Academic Integrity: It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University.

"Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, and the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts." (Regents' Rules and Regulations, Series 50101, Section 2.2)

Student Support Services Available: The University of Texas at Arlington supports a variety of student success programs to help you connect with the University and achieve academic success. These programs include learning assistance, developmental education, advising and mentoring, admission and transition, and federally funded programs. Students requiring assistance academically, personally, or socially should contact the Office of Student Success Programs at 817-272-6107 for more information and appropriate referrals.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week unless specified in the class syllabi. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. Classes are held as scheduled during this week and lectures and presentations may be given.

Engineering Librarian:

Sylvia George-Williams, Engineering Librarian
UT Arlington Science & Engineering Library

Mailing address: B03D Nedderman Hall, Arlington, TX 76019. Phone: (817) 272 7519, Email: sylvia@uta.edu

E-Culture Policy: The University of Texas at Arlington has adopted the University email address as an official means of communication with students. Through the use of email, UT-Arlington is able to provide students with relevant and timely information, designed to facilitate student success. In particular, important information concerning registration, financial aid, payment of bills, and graduation may be sent to students through email.

All students are assigned an email account and information about activating and using it is available at www.uta.edu/email. New students (first semester at UTA) are able to activate their email account 24 hours after registering for courses. There is no additional charge to students for using this account, and it remains active as long as a student is enrolled at UT-Arlington. Students are responsible for checking their email regularly.

Laptop use in the classroom: In order to minimize distraction, the use of laptop and/or any other digital device (except standard scientific calculators) in the classroom is NOT allowed.

Make-up Exam Policy: All students must take the final exam. Only extenuating circumstances will be accepted as excuse for missing the exam. Health related excuses require medical reports and the signature of a physician that provided treatment.

Grade Grievance Policy: Refer to UTA Catalog.

CE 5379 – Construction Cost Estimating
TENTATIVE COURSE OUTLINE

Day	Date	Topic	Description	Assignments Due	
Week 1					
Mon	Aug 29	Introduction to the Course & Construction Cost Estimating Process	Discussion on the course content, and introduction to cost estimating		
Wed	Aug 31	Types of Cost Estimates and Timberline	Programming, schematic, and design development cost estimates. Definition, requirements, and processes of budget estimate	Assignment 1	
Week 2					
Mon	Sept 5	Labor Day Holiday			
Wed	Sept 7	Building Construction Principles Timberline	Introduction to building construction materials and principles. Timberline is a cost estimating software widely used in the industry	Assignment 2	
Week 3					
Mon	Sept 12	Lab Assignment – 1			
Wed	Sept 14	Estimates For Preconstruction Services	Definition, requirements, and processes of preconstruction estimate	Assignment 3	
Week 4					
Mon	Sept 19	Pre-Estimate Activities	Introduction to pre-estimating activities, bid process, bid documents, and work breakdown structure	Assignment 4	
Wed	Sept 21	Guest Speaker Presentation			
Week 5					
Mon	Sept 26	Quantity Take-off	Basic procedures, quantity take-off for different structure elements, completion, and final checking	Assignment 5	
Wed	Sept 28	Pricing Self-Performed Work	Recapitulation sheet, materials quantity take-off, labor quantity take-off, and summary recap		
Week 6					
Mon	Oct 3	Estimating Subcontractor Work	Subcontractor work, and estimate for subcontractor work	Assignment 5	
Wed	Oct 5	Lab Assignment – 2			
Week 7					
Mon	Oct 10	Midterm Exam			
Wed	Oct 12	Estimating General Conditions	Introduction, alternative techniques, and elements of general conditions estimate	Assignment 7	
Week 8					
Mon	Oct 17	Lab Assignment – 3 (Heavy Bid)			
Wed	Oct 19	Completing the Estimate	Final document review, final bid summary, first-run estimate, final markups, and validation	Assignment 8	
Week 9					
Mon	Oct 24	Lab Assignment – 4			
Wed	Oct 26	Lab Assignment – 5			Assignment 9
Week 10					
Mon	Oct 31	Unit Price Estimates	Direct cost estimation, markup determination, and bid finalization		
Wed	Nov 2	Pre-Bid Day Activities	Setting of bid room, bid teams, and bid evaluation forms	Assignment 10	
Week 11					
Mon	Nov 7	Bid Day Activities	Receiving bids, evaluation of received bids, and additional bid issues		
Wed	Nov 9	Post-Bid Day Activities	Bid opening, post-bid analysis, post-bid ethics, and post-bid negotiations	Assignment 11	

Day	Date	Topic	Description	Assignments Due
Week 12				
Mon	Nov 14	Guaranteed Maximum Price Estimates	Contract procurement process, strategies, estimating process, and contingencies	
Wed	Nov 16	Fee Determination for Negotiated Contracts	Reimbursable & non-reimbursable costs, home-office overhead, and fee structure,	Assignment 12
Week 13				
Mon	Nov 21	Cost Proposal for Negotiated Contracts	Strategies to respond to RFPs, documents to be included with written proposal, interview, and selection process	
Wed	Nov 23	Automated Estimating Techniques, Other Types of Estimates, Project Management Issues	Automated estimate techniques, estimate completion, project management automation tools, different types of estimates, change order estimate, as-built estimate, buyout process, cash flow curves, and cost control	Project Due
Week 14				
Mon	Nov 28		Select Topics	
Wed	Nov 30		Project Presentations	Project Due
Week 15				
Mon	Dec 5		Project Presentations	
Wed	Dec 7		Project Presentations	
Week 16				
Monday, December 12, 5:30 – 8:00 PM			Final Exam (Comprehensive)	