
UNIVERSITY of ILLINOIS CHICAGO
CME 587 Construction Estimating and Scheduling
Course Purpose Document

Catalog Description

Cost and schedule estimations per project specifications. Construction quantity take-offs, cost estimation, scheduling through deterministic and probabilistic methods, resource management, accelerated construction, and schedule updating.

Textbooks and Other Course Materials

Hinze, J.W. “**Construction Planning and Scheduling**”, Prentice Hall, Inc., New Jersey.

Optional Supplement References:

R.S. Means Building Construction Cost Data.

Other References:

1. Harris R.B., 1978, “**Precedence and Arrow Networking Techniques for Construction**”, John Wiley & Sons, Inc. N.Y.
2. Callahan, M.T., Quackenbush, D.G. and Rowings, J.E., 1992, “**Construction Project Scheduling**”, Irwin McGraw-Hill, Inc. N.Y.
3. Barrie, D.S. and Paulson, B.C., 1994, “**Professional Construction Management**”, 3rd edition, McGraw-Hill, Inc. N.Y.
4. Clough, R.H. and Sears, G.A., 1991 “**Construction Project Management**”, 3rd edition, John Wiley & Sons, Inc. N.Y.

Course Objectives

Upon successful completion of this course students will have:

I.

1. Understand the concepts of project definition, systems, value engineering;
2. Develop competency in project scope, work definition, and work breakdown structure (WBS);
3. Analyze the complex tasks of time estimation and project scheduling, including PDM, PERT and CPM;
4. Learn how to solve limited resource scheduling through resource allocation and resource leveling techniques;
5. Develop competencies in project costing, budgeting, and financial appraisal;
6. Analyze linear scheduling method for repetitive-unit construction.
7. Learn the effective use of scheduling control techniques
8. Learn construction project planning and scheduling software programs.

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Online Content

I will upload certain lectures into Blackboard. I will advise the class via email when a lecture is available for viewing. Students are expected to view the lectures in preparation for the in-class discussions. *Online lectures are like any other lecture, i.e., they are of equal importance to in-class lectures and I will include the content on exams.*

Guest Lectures

For certain topics, I will invite industry practitioners to speak to the class. Students are expected to read assigned materials in preparation of the lecture. Additionally, each student is **required** to ask the speaker at least one question relevant to the presentation. *Guest lectures are like any other lecture, i.e., they are of equal importance to our lectures and I will include the content on exams.*

Exams/Assignments/Projects

Performance will be evaluated based on exams, homework assignments, projects, and class participation.

Assignments: As your assignments, I will assign various deliverables throughout the term. They

Course & Instructor Policies

Attendance: You are allowed two grace absences, so use them judiciously. I will reduce your final grade by 3% for each absence thereafter. Students are responsible for any information disseminated in classes from which they were absent.

Individual Meeting: Students with questions or wishing any kind of follow-up from class should speak with the instructor during class or during regular office hours. If you wish to meet with your instructor outside of regular office hours, you should email your instructor to make an appointment. Although email is commonly used, sometimes it can limit the effectiveness of the communication and may not be the best way for instructors to respond to some student questions, especially those requiring a demonstration of concepts or models covered in the course or if there are some more personal concerns. Depending on the nature of your situation, your instructor may ask that you follow up with a telephone call or personal meeting.

Communication: I use Blackboard extensively, so check the class website often. Also, confirm that your email address in BannerWeb is correct, as I will frequently use email to communicate with the class.

I receive numerous emails every day, some of it SPAM. Consequently, it is important that the emails received from students are clear and to the point; i.e., businesslike. Communications regarding the class must be treated as if sent to a client or employer (as opposed to as if in a chat room). Emails from students must include a descriptive subject line, a proper honorific, a clear and concise message, and a signature. When you send an email to your instructor, put the course code on the subject line: “ECE3213: Question about data collection for project”, then follow the rules explain in the following link:

<http://www.wikihow.com/Email-a-Professor>

Internet & Electronic Communication Devices: Any surfing of the Internet during lectures that is not directly related to the class discussion is distracting and forbidden. Additionally, the use of any electronic devices (e.g., cellular phones) for e-mailing, text-messaging, etc. is ALLOWED for emergency purposes. However, these electronic devices should be used in SILENT MODE! In this regard, it is within the discretion of the instructor to determine the appropriate grade for the “class participation” component. The instructor reserves the right to ask students to leave the classroom before continuing lecture if they are being disruptive.

Grading Policy

Class Points	Grade Letter
90 and above	A
80 – 89	B
70 – 79	C
61 – 69	D
60 and below	F

Tentative Schedule

Week	Topic
1	Course Outline & Overview
	Introduction to Planning and Scheduling
2	Work Breakdown Structure and Activity List
	Estimating Activity Cost and Duration
3	Job Logic and Precedence Relationships
	Bar Charts
	Group Project Session -1
4	Limited Resource Scheduling & Resource Leveling
5	Network Scheduling Techniques
	Uncertainty in Scheduling (PERT)
6	Exam (1)
7	Group Project Session -2
8	Computer Scheduling
9	Line of Balance Scheduling & Linear Scheduling Method
10	Schedule Optimization & Time-Cost Tradeoff Analysis
11	Cash Flow Analysis
12	Integrated Time and Cost Control & Lean Engineering
	Term Paper Presentations
13	Exam (2)
14	Team Project Presentations