John A. Reif, Jr. Department of Civil & Environmental Engineering

CE 611: Project Planning and Control

(Online Course)

Course Description:

Management tools as related to construction projects are analyzed and applied to individual projects. Emphasis is on network scheduling techniques, time-cost analysis, resource allocation and leveling, cost estimating, bidding strategy, and risk analysis.

Construction project schedules can quickly become overwhelming without careful oversight. This course provides a structured approach to building and managing schedules effectively. Through a combination of lectures, applied exercises, and interactive discussions, students will develop essential skills and best practices for planning and controlling projects of any scale. Topics include: work breakdown structures, scheduling techniques, software tools, cost allocation, and claims management. Students will also gain a strong foundation in project controls and scheduling principles. By the end of the course, students will be equipped to create, manage, and update schedules confidently, from initial design through project completion.

Course Pre-requisites:

CE 610

Course Learning Outcomes:

Upon successful completion of this course, students will be able to:

- Apply fundamental concepts and techniques for developing and managing construction schedules, including planning, scheduling, and control.
- Implement activity sequencing techniques across a wide range of project types.
- Apply the core principles of network analysis in project scheduling.
- Identify and prioritize scheduled tasks to enhance planning strategies, shorten project durations, and reduce costs.
- Acquire proficiency in industry-standard scheduling methods such as the Critical Path Method (CPM), Gantt charts, and network diagrams to create accurate and reliable project timelines.
- Develop a CPM schedule for a construction project and oversee its management from pre-construction through final completion.
- Have knowledge of allocation of resources to projects.
- Learn to track project progress, adjust schedules as needed, and apply effective strategies for cost control and delay mitigation.

Course Instructor:
Rayan H. Assaad, PhD, A.M.ASCE (Website: https://sciis.njit.edu)
Office: Room 207 Colton Hall
E-mail: rayan.hassane.assaad@njit.edu (or rh427@njit.edu)
Office Hours: By e-mail or appointment.

Course Textbook:
The textbook below is required for this course:

- Hinze, Jimmie, Construction Planning & Scheduling, 4th Edition, Pearson. ISBN: 13: 978-0132473989.

You can request an online access to the textbook through the NJIT library: https://library.njit.edu/

Canvas and Technology Requirement:
All course materials will be available on Canvas. It is the student's responsibility to check the course page on Canvas regularly.

Course Grade Breakdown:

Assignments/Homework	30%
Mid-Term Exam	35%
Final Exam	35%

Course Grading:
Cumulative points in all course requirements will be rounded to the next highest whole number (for example 84.1 will be rounded to 85 and 95.7 will be rounded to 96). Afterwards, the student's final grade will be determined according to the following scale:

≥90	A
≥85 and ≤89	B^+
≥80 and ≤84	B
≥75 and ≤79	C^+
≥70 and ≤74	C
<70	F

Withdrawals:
Please refer to the semester's withdrawals deadlines. To ensure consistency and fairness in application of the NJIT policy on withdrawals, student requests for withdrawals after the deadline will not be permitted unless extenuating circumstances (e.g., major family emergency or substantial medical difficulty) are documented. The course Professors and the Dean of Students are the principal points of contact for students considering withdrawals.

Course Specific Policies:

- I will be uploading the course lectures and materials on a weekly basis (typically by Sunday of each week).
- All assignments/homework should be submitted on Canvas.

- Assignments/homework are due on Sundays at 11:59 pm according to the course outline/schedule provided below. To avoid confusion, assignments' due dates will be posted on Canvas as well.
- The midterm and final exams will be taken online on Canvas.
- Professional conduct in all matters related to class activities is required at all times.
- Students are required to watch all lecture materials/recordings to maximize their benefit.
- Students need to complete ALL course requirements in order to earn a passing grade.
- Poor performance in the class (for example, not submitting at least two of the assignments/homework or recording less than 50% in two assignments/homework or obtaining a grade less than the average grade of the class minus twice the standard deviation, etc.) automatically warrants an academic alert. If your performance deems you under two academic alerts, you should automatically provide an improvement plan that is accepted by the instructor.
- The most reasonable human attention is provided in grading all course requirements but in the unlikely event that something is overlooked one way or the other, there will be no problem whatsoever to revise your grade on such submission.

Students with Disabilities:

NJIT is fully committed to providing students with documented disabilities equal access to programs and activities. If you have - or believe that you may have - a physical, medical, psychological, or learning disability that may require accommodations, please contact the Office of Accessibility Resources and Services (https://www.njit.edu/accessibility/).

Copyright:

All course content (including this syllabus, lecture materials, assignments/homework, and exams) is protected content. Students should not make copies of any course materials or distribute these materials in the public domain.

Generative Artificial Intelligence (AI):

This course expects students to work without artificial intelligence (AI) assistance in order to better develop their skills in this content area. As such, AI usage is not permitted throughout this course under any circumstance.

Academic Integrity:

Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf.

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. ***Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university.*** *If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu*

Tentative Course Outline/Schedule:**

**The Instructor reserves the full right to amend or change this tentative schedule.

Week	Topic	Notes
1	• Module 0: Class Introduction • Module 1: Project Planning and Scheduling	
2	• Module 2: Developing a Network Model	
3	• Module 3: Precedence Diagrams	Assignment/Homework 1
4	• Module 4: Determining Activity Durations	
5	• Module 5: Time in Contract Provisions	Assignment/Homework 2
6	• Module 6: Resource Allocation	
7	• Module 7: Money and Network Schedules	Assignment/Homework 3
8	• Module 8: Project Monitoring and Control	
9	Midterm (covers Modules 1-7)	To be taken online on Canvas
10	• Module 9: Computer Scheduling	
11	• Module 10: Earned Value	Assignment/Homework 4
12	• Module 11: Impact of Scheduling on Productivity	
13	• Module 12: CPM in Dispute Resolution and Litigation • Module 13: Short Interval Schedules	Assignment/Homework 5
14	• Module 14: Linear Scheduling • Module 15: PERT Method	
15	Final Exam (covers Modules 8-15)	To be taken online on Canvas

Fall 2025 University Calendar

Sept	1	Labor Day. University Closed
Sept	2	First Day of Classes
Sept	8	Last Day to Add/Drop a Class
Sept	8	Last Day for 100% Refund, Full or Partial Withdrawal
Sept	9	W Grades Posted for Course Withdrawals
Sept	15	Last Day for 90% Refund, Full or Partial Withdrawal - No Refund for Partial Withdrawal after this date
Sept	29	Last Day for 50% Refund, Full Withdrawal
Oct	2	Wellness Day
Oct	20	Last Day for 25% Refund, Full Withdrawal
Nov	10	Last Day to Withdraw from Classes
Nov	25	Thursday Classes Meet
Nov	26	Friday Classes Meet
Nov	27	Thanksgiving Recess Begins. No Classes
Nov	30	Thanksgiving Recess Ends
Dec	11	Last Day of Classes
Dec	12	Reading Day
Dec	13	Saturday Classes Meet
Dec	14	Final Exams Begin
Dec	20	Final Exams End
Dec	22	Final Grades Due