

MSET5200 Advanced Construction Scheduling

Instructor: Zhenhua Huang
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Spring 2024
Time: (M,W) 4:00 - 5:20 pm

Meeting Place: F185

Course Description:

Advanced concepts on construction planning and scheduling: Topics include developing a network model with precedence diagrams and arrow diagrams, activity durations and floats, resource allocation and leveling, cash flow, monitoring and control, program evaluation and review technique, computer scheduling (PRIMAVERA), and research topics on civil/construction/management.

Course Objectives

By the end of the course, you will be able to:

- Understand the basic and advanced concepts of project scheduling.
- Know how to develop and analyze a network model (precedence and arrow).
- Understand the basic and advanced concepts of project duration, resources, and expenses.
- Know how to develop and analyze PERT (Program Evaluation and Review Technique).
- Know how to use PRIMAVERA to develop and analyze schedules and control the project progress.
- Develop research ability on civil/construction/management topics.

Course Requirements:

Attendance – Attendance is mandatory. More than 6 absences will be an “F” grade. Lectures, projects, and class discussions will contain vital information needed to do well on the exams.

Required text Construction Planning and Scheduling (4th)

Jimmie W. Hinze

Pearson Prentice Hall; ISBN: 978-0-13-247398-9

Exams: There will be two quizzes, each quiz worth 25 points. Quizzes will be based on text readings, handouts, class exercises, videos, and class lectures and discussions. Students are responsible for all text material, regardless of whether we review the text material in class or not.

Missed Exams: You will be allowed to make up a missed exam during the first week after the missed exam only if you have a documented university excused absence. If you know in advance that you will miss an exam, you **MUST** contact me before the scheduled exam. Make-up exams will not contain the same questions and may contain only essay and short answer questions.

Grades will be based on:

Class Attendance, Participation, Professionalism @ 10	=	10 pts
Primavera assignments @ 10	=	10 pts
2 quizzes @ 25	=	50 pts
Research project presentation and report @ 25	=	25 pts
Final Project Primavera @ 5	=	5 pts

100 pts

Extra credit: Good research topic, presentation, and questions.

Grade Distribution

90 - 100 = A
80 - 89 = B
70 - 79 = C
60 - 69 = D
Below 60 = F

Disabilities Accommodation:

The University of North Texas complies with Section 504 of the 1973 Rehabilitation Act and with the Americans with Disabilities Act of 1990. The University of North Texas provides academic adjustments and auxiliary aids to individuals with disabilities, as defined under the law. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring accommodation, please see the instructor and/or contact the Office of Disability Accommodation at 940-565-4323 during the first week of class.

Additional Policies and Procedures:

Tardiness: If you arrive late, please enter quietly and sit down. Do not walk in front of speakers or disrupt the class in any other way.

Cell Phones: Please remember to turn off phones prior to class.

Extra Help: PLEASE DO NOT WAIT UNTIL THE LAST MINUTE. If you are having trouble with this class, please come by my office during office hours. I am also available by email at zhenhua.huang@unt.edu.

This Class meets on Monday & Wednesday	TOPIC	BOOK CHAPTER
Class Week 1	Introduction	1
Class Week 2	Bar Charts/Network Model	2
Class Week 3	Precedence Diagram/Duration	3, 4
Class Week 4	Resource Allocation	6
Class Week 5	Resource Leveling	6
Class Week 6	Quiz 1	
Class Week 7	Money	7
Class Week 8	Earned Value	10
Class Week 9	PERT	15
Class Week 10	Arrow Diagram	16
Class Week 11	Quiz 2	
Class Week 12	Civil/Construction Research Topics	-
Class Week 13	Civil/Construction Research Topics	-
Class Week 14	Civil/Construction Research Topics	-
Class Week 15	Final Project Presentation	
Class Week 16		

Construction/Civil Research Topics:

1. Search journals to define an **interesting topic**: for example, ASCE Journal of Construction Engineering and Management, ASCE Journal of Performance of Constructed Facilities, Engineering Structures
2. Find **40 papers** on this topic and read through
3. **Discuss** with Dr. Huang
4. Prepare a **report (15 pages)** and **presentation (20 min)**
 - 1) Why you are interested in this topic?
 - 2) Why this topic is important for civil/construction engineering/management?
 - 3) Objectives
 - 4) Research methods
 - 5) Results
 - 6) Future research
 - 7) Primavera scheduling