King Fahd University of Petroleum & Minerals
College of Environmental Design
Construction Engineering & Management Department

Construction Planning & Scheduling
CEM 510 (071)
SYLLABUS

Instructor: Dr. Mohammed AlKhalil
Office # 19/432
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Synopsis:
Planning, scheduling, and control of construction projects using Critical Path Method (CPM) and Project Evaluation and Review Technique (PERT); Resource leveling; Scheduling with limited resources; Time-cost tradeoffs, Introduction to complex networks, short interval production scheduling, and related Computer applications.
Prerequisite: Graduating Standing

Textbook:
James J. Obrien & Fredric L. Potnick; "CPM in Construction Management", 6th edition, 2005; McGraw Hill.

Reference:
Harris, Robert; "Precedence and Arrow Networking Techniques for Construction", 1978, John Wiley.

Amos, Scott J., editor; "Skills & Knowledge of Cost Engineering; 5th edition, 2004; AACE International.

Grade Structure:

Home-work	15%
Project	10%
Article Presentation	5%
2 Exams	20% each
Final Exam	30%

Objectives:
After successfully completing the course, the students will:
- Understand the process of planning for construction projects.
- Have the ability to utilize the network techniques (both arrow and precedence diagramming methods) to schedule projects.
- Have the ability to compute project activity times and floats.
- Become familiar with the methods of resource leveling and scheduling
- Learn and utilize methods of project control
- Become familiar with the PERT technique of scheduling
- Become familiar with project management software, its capabilities, and requirements.

Relationship of Course to program outcomes

This course supports the following outcomes out of eleven outcomes overall program outcomes.

Outcome 1: Ability to apply knowledge of mathematics, science, engineering
Outcome 2: Ability to identify, formulate, and solve engineering problems.
Outcome 3: Education necessary to understand the impact of engineering solutions
Outcome 1: Recognition of the need for, and the ability to engage in life-long learning.
Outcome 4: Knowledge of contemporary issues.
Outcome 5: Ability to use the techniques, skills and modern engineering tools.

Schedule:

Meeting #	Date	Topic
1	9 September	Introduction
2	11	Basic Arrow Diagramming
3	16	Basic Precedence Diagramming
4/5	18/25	Scheduling Computations for Arrow Networks
6/7	30/2(O)	Scheduling Computations for Precedence Networks
		Id Alfitr Break
8/9	21/23	Computer Application
10	28	Exam 1
11	30	Multiple Activity Precedence Relationships
12	4(N)	Work Breakdown Structure
13	6	Resource Planning
14/15	11/13	Resource Leveling & Scheduling
16/17	18/20	Computer Applications
18	25	Updating & Revising the Schedule
19	27	Exam 2
20/21	2/4(D)	Project Control
22/23	9/11	PERT
		Id Aladha Break
24/25	30/1(J)	Computer Application
26	6(J)	Article Presentation
27/28	8/13	Project Presentation
29	15	Review
	20 January	Final Exam (7 PM)