



GE 404: ENGINEERING MANAGEMENT
2st Semester 1440/1441H (2019/2020)

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Catalog Course Description:

Engineering management course introduces techniques that provide rational solutions to a range of project management decisions encountered in engineering projects. Students are expected to gain a detailed understanding of some; of the techniques, tools and processes available and their application in starting, planning, managing and finishing engineering projects; The course covers project management fundamentals including projects life cycle, project planning and scheduling techniques, cash flow forecasting, performance evaluations, estimating and cost control; project organizations; Introduction to risk management.

Textbook: Project Management with CPM, PERT, and Precedence Diagramming, 3rd Edition, by Moder J., Phillips, C., and Davis, E.

Software:

- Copies of *Microsoft Project* are available to ksu engineering students at all Collage of Engineering labs.
- A tutorial manual on MS Project is available LMS (blackboard). Refer to this manual before using the software for your homework and integrated project.

Course Expectations and Policies:

Course Expectations: To ensure a cooperative learning environment, each student is expected to read the text before each class meeting time, and prepare to actively participate during class discussions, team-related activities, presentations and writings.

Attendance Policy:

- It is expected that students will attend class regularly and participate in the class discussion throughout the semester.
- The attendance will be recorded from the first lecture in the 1st week. Therefore, any excuses related to registration issues from absent students should not be accepted since all registration requests have been resolved.
- Students not allowed to evacuate the classroom after recording the attendance without instructor permission.
- If the students escape or left class without instructors' permission, the instructor has the right to raise this issue to the disciplinary committee, as a result the student is not allowed to attend the subsequent lectures until a decision is issued by the disciplinary committee.
- Any verbal or physical violence, unrespectful behavior and/or disruption in the educational process is totally unacceptable. Any case will be raised to the disciplinary committee and the student will be punished with a penalty ranging from expelling from the course, or entire semester or from the university system.

Due Dates/Make up Work: Exams must be taken as scheduled. Assignments are due as scheduled. Make-ups will be allowed only if the student has contacted the professor before the due date, detailing a serious problem.

Academic Integrity: KSU seeks to maintain an optimal learning environment. General Principles of academic honesty include the concept of respect for the intellectual property of others, the expectation that individual work will be submitted unless otherwise allowed by an instructor, and the obligations both to protect one's own academic work from misuse by others as well as to avoid using another's work as one's own. All students are expected to understand and abide by these principles.

Electronic Device Policy: You are allowed to use Laptop/Tablet to access lecture slides, retrieve information, and take notes. However, you are not allowed to use mobile phone and the like during class.

Course Learning Outcomes (CLO)

CLO1	Recognize the different available planning techniques such as arrow networks, activity-on-node, and precedence diagram, and time-scaled
CLO2	Recognize the procedures used for resource levelling and allocation
CLO3	Recognize the relationships between project time and its cost
CLO4	Describe the techniques for project time control
CLO5	Recognize the principles of project organization and contractual relationships
CLO6	Describe the fundamental of project cash flow
CLO7	Outline the main features of commercial computer software for preparing project schedules

Student Learning Outcomes

SO1	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics. [ABET 1]
SO 2	An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, sustainability and welfare, as well as global, cultural, social, environmental, and economic factors. [ABET 2]
SO 3	An ability to communicate effectively with a range of audiences. [ABET 3]
SO 4	An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts. [ABET 4]
SO 5	An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives. [ABET 5]
SO 6	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions. [ABET 6]
SO 7	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies. [ABET 7]

Grading procedure and Assessment Methods:

The final course grade will be determined based on the following weights:

1 st and 2 nd Mid-term Exam	40%
Tutorial (Homeworks and Quizzes)	10%
MS Project Assignments	10%
Final Examination	40%

Exams:

Exams consist of multiple-choice questions. If you cannot take an exam on the scheduled date and time, you must provide documents from a responsible party (doctor, court, police, etc.) and you must arrange to take the exam before the following class meeting. The final exam date/time is set KSU and cannot be rescheduled.

First Mid-Term	Wednesday	18 March 2020	6:30 – 8:15 pm
Second Mid-Term	Wednesday	15 April 2020	6:30 – 8:15 pm
Final Exam	Wednesday	6 May 2020	1:00 – 3:00 pm

Assignment Submission:

Homework descriptions and due dates will be posted on blackboard and or given by instructors during classes. You are encouraged to submit your assignments online. Electronic submission must be in MS Office formats. Your presentations can be of any format you deem appropriate.

MS Project Assignments:

This assignment familiarizes you with the project management software **Microsoft Project**. You will manage a *multi-phase multi-task* project. You will learn how to create graphic output about your project, and learn how to read information produced by **Microsoft Project**. What you learn in class should be applied to the management of your Project.

Study Hints:

- Do not hesitate to ask questions in person during office hours or via email.
- Read the text before you come to each class meeting.
- Participate in class discussions.

Tentative Course Outline¹:

Lecture	Topic	Reading Assignment	Duration “Weeks”
INTRODUCTION & PROJECT ORGANIZING			
1	Introduction for Engineering Management	Ch. 1 & Class Notes	1.0
2	Contractual and Organizational Approaches	Ch. 1 & Class Notes	0.5
3	Project Participants and Project Life Cycle	Class Notes	0.5
PROJECT TIME PLANNING AND SCHEDULING			
4	Processes, and Bar (Gantt) Chart	Ch. 1	1.0
5	Activity-On-Node (AON)	Ch. 2 (pp. 37-43) Ch. 4 (pp. 93-107)	1
6	Precedence Diagramming, and Time scaled network		1.5
RESOURCE MANGEMENT			
7	Resource Leveling	Ch. 7 (pp. 191-210)	1.5
8	Resource Allocation	Class Note	1.0
<i>1st Mid term exam at week 8 covering from lecture 1 to the end of lecture 6</i>			
PROJECT FINANCIAL MANAMGEMENT AND CONTROL			
9	Cashflow Forecasting	Class Notes	1.5
10	Time Control	Ch. 5 (pp. 133-163) & Class Notes	1.0
11	Cost Control	Ch. 5 (pp. 133-163) & Class Notes	1.0
12	Time-Cost Trade-Offs	Ch. 8 (pp. 237-249)	1.5
<i>2st Mid term exam at week 12 covering from lecture 7 to the end of lecture 10</i>			
13	Outlines on MS project	Class Notes	2.0

**For any issues regarding exams date and time you must send an email to the course leader Dr Bin Welah (bfahad@ksu.edu.sa) within the 1st week*