

GE 402 MANAGEMENT OF ENGINEERING PROJECTS	
Department of Civil Engineering King Saud University	
Course Description: GE 402 Management of Engineering Projects (Required for a BSCE degree)	Introduction for project management objectives. Planning construction projects. Scheduling using arrow networks. Scheduling using activity-on-node and precedence methods. Scheduling using Program Evaluation and Review Technique. Resource levelling and allocation. Project time-cost trade-off. Contractual and organizational approaches. Financial management. Updating construction schedules. Project cost control. Engineering administration. Introduction to computer applications. 3 (3,1,0)
Prerequisite	Ninth level
Course learning Objectives	Students completing this course successfully will be able to <ol style="list-style-type: none"> Formulate a complete plan for an engineering project. Apply the following methods to prepare project schedules: arrow networks, activity-on-node, precedence diagram, PERT and bar chart. Determine project schedule for purpose of resource levelling and allocation and time-cost trade-off. Monitor an engineering project for purpose of time and cost control. Understand principles of project organization and contractual relationships. Analyse project cash flow. Analyse work changes and delays. Use computer software for preparing project schedules.
Topics Covered	<ol style="list-style-type: none"> Introduction for management of engineering projects (3 hours). Planning with bar chart (3 hours). Critical path method using activity-on-arrow network and Time-scaled network (6 hours). Activity-on-node and precedence diagramming (3 hours). Analysis of work changes and delays (3 hours). Resource levelling and allocation (5 hours). Time-cost trade-off (3 hours). Contractual and organizational approaches (3 hours). Cash flow analysis (3 hours). Time and cost control (4 hours). Engineering contracts (3 hours). Programme evaluation and review technique (3 hours).
Class/ tutorial Schedule	Class is held three times per week in 50-minute lecture sessions. There is also a 50-minute weekly tutorial associated with this course.
Computer Applications	Microsoft Project is encouraged to be used during the course.
Contribution of Course to Meeting the Professional Component	The course prepares students for engineering practice.
Relationship of Course to Program Outcomes	<ol style="list-style-type: none"> Students will be able to prepare a construction plan for an engineering project in the form of CPM network, get the corresponding activity schedule that satisfies a certain

	<p>specified duration and update schedules in order to get satisfactorily completion.</p> <ol style="list-style-type: none"> 2. Students will be able to identify and solve engineering problems such as resource allocation, resource leveling and time/cost trade-off. 3. Students will be able to understand engineering practice in procurement of engineering work and professional responsibility through organizational structures and types of engineering contracts. 4. Students will be able to understand impact of engineering in global and economic context through relationship of project cost to its time and how to keep construction cost within a specified budget as a key for a profitable contracting. 5. Students will be able to analyze project cash flow in order to calculate financial charges and effect of delay in payments to contractors. 6. Students will be able to analyze effect of work changes and delays and determine each party responsibility towards delayed completion of a project.
Textbook(s) and/or Other Required Material	<p>- Moder, J.; Phillips, C. and Davis, E., <i>Project Management with CPM, PERT and Precedence Diagramming</i>, 3rd Edition, Van Nostrand Reinhold, 1982. - Eldosouky, A.I., <i>Principles of Construction Project Management</i>, Tanta University, 2001.</p>
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Date of Preparation	June 13, 2017

Grade Distribution

Mid-term exams	35%
Lecture Quiz and Attendance	5%
Tutorial	10%
Final Exam	50%

Midterm Exams

First Exam	Tuesday 2/ 4 /1438	4.30 -6.00 pm
Second Exam	Sunday 13/ 5 /1438	4.30-6.00 pm

