

<p>Kingdom of Saudi Arabia Ministry of Higher Education Qassim University College of Engineering</p>		<p>المملكة العربية السعودية وزارة التعليم العالي جامعة القصيم كلية الهندسة</p>
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CE 681 Construction Engineering Management

College: Engineering

Department: Civil

First: Course Definition

1- Course Code: CE 681

2- Units: 3

3- Semester:

4- Prerequisite:

5- Co-requisite:

6- Location (if not on main Campus):

Second: Course Objectives

1. Develop an understanding of construction management responsibilities.
2. Analyzing the construction financing process.
3. Develop the construction safety, inspection and quality control issues.

1- Topics to be covered		
Subject	No of Weeks	Units
Introduction to construction industry, history.	1	3
Stakeholders in the industry, project management process and organization.	1	3
Project life cycle, contracts and project delivery.	1	3
Legal structures, construction issues, construction law, resolution and surety bonds.	2	6
Economic decisions, revenue sources dispute, interest/equivalence, present worth & cash flow.	2	6
Depreciation, accounting, rate of return, putting together a project package. Case studies	1	3

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Construction methods, equipment productivity, specifications and drawings, quantity take off, bidding and cost estimating.	2	6
Unit price estimates, critical path method, gantt charts, line of balance and work task optimization.	1	3
Productivity, project control and monitoring, safety, workforce, labor law and relations	2	6
Field Trip (Planned. Bring construction boots)*****	1	3

2- Course components (Total hrs in a semester): 42

Lecture	Excercise	Other
42	-	0

3- Intended Learning Outcomes of the Course (ILO's)

a. Knowledge

i) Description of the knowledge to be acquired:

- The complexity of the A/EC industry from an industry , enterprise and project perspective.
- Familiarity with different types of organizations; the different project delivery systems and contract types of the design, procurement, and construction processes; and the principal issues surrounding construction labor, materials and equipment management.
- The principal concepts and issues in construction economics; construction project planning; construction cost estimating , scheduling and cost/time control; quality; productivity; and construction safety.
- Application of the processes used in developing a project definition pacakage.

ii) Teaching strategies to be used to develop that knowledge

- Class lectures.
- Term projects.
- Student's presentations.
- Group discussion.

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iii) Methods of assessment of knowledge acquired

- Exams.
- Quizzes.
- Homework assignments.
- Term projects.

b- Cognitive (Intellectual) Skills

i) Cognitive skills to be developed

- The ability to plan a project in regard to construction method , resource and time constraint.
- The ability to analyze a project using the work breakdown structure (WBS) and the product breakdown structure (PBS).
- The ability to apply critical path method to projects and the line of balance method to repetitive work.
- The ability to perform a time-cost-performance-trade off.
- The ability to plan the setting up of site operations for a range of project types .
- The ability to plan on site production in accordance with the contract and quality plan.
- The ability to prepare project execution plan (PEP) for a range project types.
- The ability to determine appropriate levels of manpower and supervisory staff for a given project.
- The ability to undertake a risk and hazard assessment and take steps to mitigate identified risks.

ii) Teaching strategies to be used to develop these cognitive skills

- Case studies analysis.
- Class lectures.
- Term projects.

iii) Methods of assessment of students' cognitive skills

- Students' seminars and presentations.
- Term projects.
- Written reports.

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c. Interpersonal Skills and Responsibility

i) Description of the interpersonal skills and capacity to carry responsibility to be developed

- Communication skills.
- Decision making based on engineering analysis.
- Team work.

ii) Teaching strategies to be used to develop these skills

- Case studies analysis.
- Class lectures.
- Term projects.

iii) Methods of assessment of students' interpersonal skills and capacity to carry responsibility

- Term project.
- Students' seminars and presentations.
- Written reports.

d. Communication, Information Technology and Numerical Skills

i) Description of the skills to be developed in this domain

- Literature research.
- Problems modeling.
- Utilization of computer applications in Construction Engineering Management.

ii) Teaching strategies to be used to develop these skills

- Class lectures.
- Case studies analysis.
- Computer lab sessions.
- Term projects.

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iii) Methods of assessment of students numerical and communication skills

- Term projects.
- Written reports.
- Students' seminars and presentations.

e. Psychomotor (if applicable) & Other Non-cognitive Skills

i) Description of the psychomotor or other skills to be developed and the level of performance required

- NA
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ii) Teaching strategies to be used to develop these skills-

- NA
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iii) Methods of assessment of student's psychomotor skills

- NA

4- Student Assessment Schedule

<i>Serial</i>	<i>Assessment tool (test, group project, examination etc.)</i>	<i>Week due</i>	<i>Weight</i>
1	Term Project – 1	3 rd	15 %
2	Mid Term Exam -1	7 th	15 %
3	Term Project – 2	10 th	15 %
4	Term Project – 3	13 th	15 %
5	Final Exam	16 th	40 %

5- Student Support

- Providing electronic library of textbooks and scientific periodicals.
- Providing the necessary computer applications for the course.

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6- Learning Resources

i) Essential Books (References)

- Jackson, B. J. "Construction Management : Jump Start" , Wiley Publishing Inc., 2nd Edition, 2010. ISBN-10: 0470609990 , ISBN-13: 978-0470609996.
- Levy, S. "Project Management in Construction" , McGraw Hill. 6th Edition, 2011. ISBN-10: 0071753109, ISBN-13: 978-0071753104.

ii) Course Notes

- NA

iii) Recommended Books

- Gould, F. "Construction Project Management", Wiley & Sons Inc., 3rd Edition, 2008.
- Levy, S. "Project Management in Construction", McGraw Hill, 6th Edition, 2011.
- Nunnally W.S. "Construction Methods and Management", Prentice Hall, 8th Edition, 2010.
- Schaufelberger, J. E, & Holm, J. "Management of Construction Projects: A Construction", Prentice Hall, 2001
- Sears, K.S., Sears, A.S. & Clough, R.H. "Construction Project Management: A Practical Guide to Field Construction Management" , Wiley & Sons Inc., 5th Edition, 2008.

iv) Electronic Books & Web Sites:

- Scientific journals and forums.
- Instructor's instruction.

v) Periodicals

- ASCE *Journal of Construction Engineering and Management*
- International Journal of Construction Management
- Journal of Cost Analysis and Management.

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7- Course Evaluation and Improvement Processes

i) Strategies for Obtaining Student Feedback on Effectiveness of Teaching

- Students' questioners.
- Students' evaluation of course and instructor.

ii) Other Strategies for Evaluation of Teaching by the Instructor or by the Department

- Public faculty seminars.
- Assessment by external evaluators of students achievements.

iii) Processes for Improvement of Teaching

- Assessment of students' work by external examiners.
- Analysis of students' evaluation of course and instructor.
- Seminars by industry professionals.

iv) Processes for verifying standards of student achievement

- Check marking by an independent faculty member of a sample of student work.
- Periodic exchange and remarking of a sample of assignments/exams with a external evaluator.

v) Describe the planning arrangements for periodically reviewing course effectiveness and planning for improvement.

- Assessment and evaluation of the level of achieving the course outcomes through a continuous improvement process (part of a quality assurance system established by the university),
- Consequently, actions are to be taken to improve the course delivery when necessary.
- Review of the course objectives, outcomes and curriculum every 2 years.