

<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 623 Computer Applications in Construction Engineering

College: Engineering

Department: Civil

First: Course Definition

1- Course Code: CE 623

2- Units: 3

3- Semester:

4- Prerequisite:

5- Co-requisite:

6- Location (if not on main Campus):

Second: Course Objectives

1. Apply the microcomputer applications in construction management, planning, scheduling, cost estimate, and risk analysis.
2. Use of expert systems, data bases and other integrated packages.
3. Develop teamwork and communication skills required for civil engineering projects.

Third: Course Specifications

1- Topics to be covered

Subject	No of Weeks	Units
Computer applications in construction management	2	6
Computer applications in planning	2	6
Computer applications in scheduling	1	3
Computer applications in cost estimate	2	6
Fundamentals of Expert systems	2	6
Implementation and use of Expert Systems programming techniques for Planning and organization	2	6

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Integrating Expert system and Decision support system	1	3
Other integrated packages.	2	6

2- Course components (Total hrs in the Semester: 42)

Lecture	Exercise	Other
42	-	0

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

a. Knowledge

i) Description of the knowledge to be acquired:

- Students will develop computer skills for engineering calculations and proficiency with mathematical tools used in computer based analysis
- Understand and be able to apply different computer application in construction management
- Understand the Fundamentals of Expert systems
- Able to use of Expert Systems programming techniques for Planning and organization
- Know how to use other integrated packages.

ii) Teaching strategies to be used to develop that knowledge

- Class lectures.
- Term projects.
- Students' presentations.
- Group discussion.

iii) Methods of assessment of knowledge acquired

- Exams.
- Quizzes.
- Homework assignments.
- Term projects.
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b- Cognitive (Intellectual) Skills

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i) Cognitive skills to be developed

- Advanced concepts of Expert systems
- Advanced Expert systems applications.

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

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

- Decision making based on engineering analysis.
- Communication skills.
- Team work.
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ii) Teaching strategies to be used to develop these skills

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

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

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

d. Communication, Information Technology and Numerical Skills

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

- Literature research.
- Problems modeling.

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- Utilization of computer applications in analysis and design.
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- ii) Teaching strategies to be used to develop these skills**
- Class lectures.
 - Case studies analysis.
 - Computer lab sessions.
 - Term projects.
- 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

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

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

4- Student Assessment Schedule

Serial	Assessment tool (test, group project, examination etc.)	Week due	Weight
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)

- Spindel, P. D. "Computer Applications in Civil Engineering," Van Nostrand Reinhold Co., 2008.
- Paulson, B. C. "Computer Applications in Construction," Mcgraw-Hill College, 1994. ISBN-10: 007048967X- ISBN-13: 978-0070489677

ii) Course Notes

- NA

iii) Recommended Books

- NA

iv) Electronic Books & Web Sites:

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

v) Periodicals

- ASCE scientific journals.

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.
- Instructor (Course) Report

iii) Processes for Improvement of Teaching

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

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- 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.