

Department of Civil Engineering
 College of Engineering
 King Saud University



CE 496 Graduation Project - 1

Credit and Contact hours	2 / 2 (Lectures), 0 (Tutorials), 0 (Laboratory)
Instructors- Coordinators	Prof. A. Al-Suhaibani (2A43/2), Prof. Shehab Mourad (2A38), Prof M. Iqbal Khan (2A83)
Textbook(s) and Other Required Material	Codes, Text Books, Published Research Papers and Design Manuals relevant to the assigned Project Topic.
SPECIFIC COURSE INFORMATION	
Course Description	This is the first phase of the capstone design project that is a continual project over two semesters, and involves number of students working as one team tackling different aspects of the civil engineering works. This phase introduces knowledge of ethical responsibilities, public policies, administration, leadership, and contemporary issues related to Civil Engineering practice. It also includes project selection, data collection, identification of real-life constraints (e.g. economy, environmental, global, and contemporary issues), generation of possible design alternatives considering client needs, selection of the preferred alternative, and preparation of a work plan for implementing and completing the project. All work conducted during the semester must be compiled in a final report and orally presented to the examining committee.
Prerequisites or Co-requisites	All Engineering General Courses, All Civil Engineering Core Courses
Required, Elective, or Selected Elective	Required for a BSCE degree

SPECIFIC GOALS FOR THE COURSE

<p>Course Learning Outcomes</p>	<p>Students completing this course successfully will be able to</p> <p>CLO 1 - Recognize the professional and ethical responsibility, key concepts used in management, business, public policy, public administration, leadership principles and licensure</p> <p>CLO 2 - Identify the problem based on realistic needs and operation constraints</p> <p>CLO 3 - Acquire the related background information, data, knowledge and experiences from credible sources</p> <p>CLO 4 - Formulate the problem, covering methodology of integrating knowledge drawn from previous courses and information and address the realistic constraints</p> <p>CLO 5 - Generate design alternatives, set methods for their evaluation (covering the design viability and evaluation criteria), and select the preferred alternative</p> <p>CLO 6 - Develop an effective plan for the project using planning techniques to ensure proper project timing and budgeting</p> <p>CLO 7 - Work effectively as a member of the project team</p> <p>CLO 8 - Prepare the project report and present the results orally</p>
<p>Student Outcomes</p>	<p>SO 1 - An ability to apply knowledge of mathematics, science, and engineering</p> <p>SO 3 - An ability to design a system, component, or process to meet desired needs with realistic constraints such as economic, environmental, social, ethical, health and safety, and sustainability</p> <p>SO 4 - An ability to function on multi-disciplinary teams</p> <p>SO 5 - An ability to identify, formulate, and solve engineering problems including the ability to evaluate and synthesize information and develop alternative solutions</p> <p>SO 6 - An understanding of professional and ethical responsibility</p> <p>SO 7 - An ability to articulate professional ideas clearly and prepare written materials, graphical communications and make oral presentations</p> <p>SO 11 - An ability to use the techniques, skills and modern engineering tools necessary to civil engineering practice</p> <p>SO 12 - An ability to understand and explain the key concepts used in management, business, public policy, public administration, leadership principles, and licensure</p>
<p>Topics Covered</p>	<p>In this course, the student is introduced to knowledge of professional and ethical responsibilities, public policies, administration, leadership, and contemporary issues related to Civil Engineering practice. The student tasks, also, include project selection, data collection, identification of real-</p>

	<p>life constraints (e.g. economy, environmental, global, and contemporary issues), generation of possible design alternatives considering client needs, and preparation of a work plan for implementing and completing the project. All work conducted during the semester must be compiled in a final report</p>
<p>Grading System</p>	<p>Supervisor: 40% Based on Student's Semester Work (Motivation, Progress, Participation and Overall performance) (Final Report (Report Organization and Main Body))</p> <p>Examination Committee: 60% Mid-Term- 20%, Final – 40%) <i>Presentation Evaluation</i> (Style, Organization, Technical Content and Presentation Skills and Student's competency) <i>Report Evaluation</i> (Report Organization, Writing Quality, Main Body of the Report, Design Methodology, Results and Discussions, Capstone Aspect, Terminal Sections)</p> <p>Proposal/First lecture attendance (5%)</p>

CE 497 Graduation Project - 2

Credit and Contact hours	2 / 2 (Lectures), 1 (Tutorials), 0 (Laboratory)
Instructors- Coordinators	Prof. A. Al-Suhaibani (2A43/2), Prof. Talal Al-Refeai (2A14), Prof. Shehab Mourad (2A38), Prof M. Iqbal Khan (2A83)
Textbook(s) and Other Required Material	Codes, Text Books, Published Research Papers and Design Manuals relevant to the assigned Project Topic.
SPECIFIC COURSE INFORMATION	
Course Description	This is the implementation phase of the capstone design project. It includes necessary design calculations and/or use of experimental tools to design the preferred alternative that was selected in CE 498. The final report to be submitted by the team includes project title, description, objectives and constraints, data and assumption; design alternatives and analyses, details of preferred design along with pertinent drawings, and summary and conclusions. In addition, the student team should orally present the project to the examining committee.
Prerequisites or Co-requisites	CE 496
Required, Elective, or Selected Elective	Required for a BSCE degree
SPECIFIC GOALS FOR THE COURSE	
Course Learning Outcomes	Students completing successfully the course will be able to: CLO 1 - Design the preferred alternative based on calculations and/or experimental tools CLO 2 - Evaluate the impact of the selected design on economical, environmental, and social issues CLO 3 - Evaluate sustainability, health and safety issues CLO 4 - Work effectively as a member of the project team CLO 5 - Present the project professionally by submitting necessary design reports and drawings as well as making an oral presentation
Student Outcomes	SO 3 - An ability to design a system, component, or process to meet desired needs with realistic constraints such as economic, environmental,

	<p>social, ethical, health and safety, and sustainability</p> <p>SO 4 - An ability to function on multi-disciplinary teams</p> <p>SO 7 - An ability to articulate professional ideas clearly and prepare written materials, graphical communications and make oral presentations</p> <p>SO 8 - The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context for serving the society</p> <p>SO 9 - A recognition of the need for, and an ability to engage in life-long learning</p> <p>SO 10 - A knowledge of contemporary issues</p> <p>SO 11 - An ability to use the techniques, skills and modern engineering tools necessary to civil engineering practice</p>
Topics Covered	<p>This is the implementation phase of the capstone design project. It includes utilizing design criteria, parameters and constraints for the design alternatives to select the preferred option, and design calculation and/or use of experimental tools (if required) to refine design.</p>
Grading System	<p>Supervisor: 40%</p> <p>Based on Student's Semester Work (Motivation, Progress, Participation and Overall performance) (Final Report (Report Organization and Main Body)</p> <p>Examination Committee: 60%</p> <p>Mid-Term- 20%, Final – 40%)</p> <p><i>Presentation Evaluation</i> (Style, Organization, Technical Content and Presentation Skills and Student's competency)</p> <p><i>Report Evaluation</i> (Report Organization, Writing Quality, Main Body of the Report, Design Methodology, Results and Discussions, Capstone Aspect, Terminal Sections)</p>