



## Course Specifications

<b>Course Title:</b>	Design Project II
<b>Course Code:</b>	CE 453
<b>Program:</b>	B.Sc. in Civil Engineering
<b>Department:</b>	Civil Engineering
<b>College:</b>	Jubail University College
<b>Institution:</b>	Jubail University College

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## A. Course Identification

<b>1. Credit hours:</b>	3
<b>2. Course type</b>	
a.	University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Others <input type="checkbox"/>
b.	Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
<b>3. Level/year at which this course is offered:</b>	Level 7, Fourth Year
<b>4. Pre-requisites for this course (if any):</b>	CE 452 Design Project I
<b>5. Co-requisites for this course (if any):</b>	None

### 6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	✓	100
2	Blended		
3	E-learning		
4	Correspondence		
5	Other		

### 7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
<b>Contact Hours</b>		
1	Lecture	30
2	Laboratory/Studio	45
3	Tutorial	
4	Others (specify)	
	<b>Total</b>	<b>75</b>

## B. Course Objectives and Learning Outcomes

### 1. Course Description

*CE 453 Design Project II (2-3-3)*

*Prerequisite: CE 452 Design Project I*

The course integrates various components of the curriculum in a comprehensive engineering experience so that the basic sciences, mathematics and engineering sciences which the student has learned in his freshman-to-senior years of study can be applied. It considers design of a complete project or system, including consideration of alternative solutions, feasibility considerations and detailed engineering designs. The design should take into consideration appropriate constraints such as economic factors, safety, reliability, ethics and environmental and social impact.

## 2. Course Main Objective

The main purpose of this course is to enable the students to design a civil engineering system/component incorporating appropriate engineering standards and constraints by utilizing the knowledge and skills gained through prior courses in the program.

## 3. Course Learning Outcomes

CLOs		Aligned PLOs
1	<b>Knowledge and Understanding</b>	
2	<b>Skills</b>	
2.1	Analyze and design project problems using standard code of practice	1
2.2	Use modern techniques, skills and computer applications software to solve design project problems	1
2.3	Use the safety, economy, environmental and sustainability issues to prepare the design project	2
2.4	Show good presentation and communication skills while doing the design project presentations	3
2.5	Organize the data collections or lab experiments	6
2.6	Function effectively within the team members and provide leadership to organize the work assigned, to establish the goals and meet the objectives of design project..	5
3	<b>Values</b>	
3.1	Express the ethical responsibilities and professionalism while conducting the design project	4
3.2	Acquire the new knowledge required and apply it for achieving the design project objectives	7

## C. Course Content

No	List of Topics	Contact Hours
1	<b>Unit 1.</b> Review of constraints, objectives and design methodology	5
2	<b>Unit 2.</b> Judging possible solutions in relation to constraints	5
3	<b>Unit 3.</b> Data Collection	10
4	<b>Unit 4.</b> Experimentation and Analysis	15
5	<b>Unit 5.</b> Design & Modelling , Midterm Presentation	20
6	<b>Unit 6.</b> Evaluation & verification of results	10
7	<b>Unit 7.</b> Report Preparation & Submission , Final Presentation	10
<b>Total</b>		<b>75</b>

## D. Teaching and Assessment

### 1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	<b>Knowledge and Understanding</b>		
2.0	<b>Skills</b>		
2.1	Analyze and design project problems using standard code of practice	Collaborative learning	<ul style="list-style-type: none"> <li>• weekly log sheet/ reports</li> <li>• Evaluation of midterm report</li> <li>• Evaluation of project final report</li> </ul> Final Presentation and oral exam
2.2	Use modern techniques, skills and computer applications software to solve design project problems		<ul style="list-style-type: none"> <li>• weekly log sheet/ reports</li> <li>• Evaluation of midterm report</li> <li>• Evaluation of project final report</li> </ul> Final Presentation and oral exam
2.3	Use the safety, economy, environmental and sustainability issues to prepare the design project		<ul style="list-style-type: none"> <li>• Weekly log sheet/ reports</li> <li>• Evaluation of project final report</li> </ul>
2.4	Show good presentation and communication skills while doing the design project presentations		<ul style="list-style-type: none"> <li>• Oral examinations and discussions</li> </ul> Evaluation of presentations
2.5	Organize the data collections or lab experiments		<ul style="list-style-type: none"> <li>• Weekly log sheet/ reports</li> </ul> Evaluation of midterm presentation <ul style="list-style-type: none"> <li>• Evaluation of project final report</li> </ul>

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
			•Final Presentation and oral exam
2.6	Function effectively within the team members and provide leadership to organize the work assigned, to establish the goals and meet the objectives of design project..		Weekly log sheet/ reports Form2 & form 7
<b>3.0</b>	<b>Values</b>		
3.1	Express the ethical responsibilities and professionalism while conducting the design project	Collaborative learning	<ul style="list-style-type: none"> <li>• Weekly log sheet/ reports</li> <li>• Evaluation of project final report</li> </ul> Final presentation
3.2	Acquire the new knowledge required and apply it for achieving the design project objectives		Evaluation of project final report Final presentation and oral exam

## 2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Midterm Report	8 <sup>th</sup>	20 %
2	Final Report	16 <sup>h</sup>	50%
3	Oral Examination	17 <sup>th</sup>	30 %

\*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

## E. Student Academic Counseling and Support

**Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :**

- Office hours 5 hr/week; students can go in times of office hours for teacher to explain what could not be understood from the lesson.
- Students can communicate with a staff member outside the official working hours by email.
- Students are also encouraged to visit their academic advisors.

## F. Learning Resources and Facilities

### 1.Learning Resources

Required Textbooks	N/A
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<b>Essential References Materials</b>	<a href="#">Braja, M.D.</a> (2010), <i>Principles of Foundation Engineering</i> , USA: Wadsworth Publishing Co. inc <a href="#">McCormack, J. C.</a> and <a href="#">Brown, R. H.</a> (2014). <i>Design of Reinforced Concrete</i> , USA: John Wiley & sons, Inc.
<b>Electronic Materials</b>	<a href="http://www.howstuffworks.com">www.howstuffworks.com</a> <a href="http://www.engineerstoobox.com">www.engineerstoobox.com</a>
<b>Other Learning Materials</b>	AutoCad, WaterCad, Primavera, STAAD pro, P-Frame etc. AISC. (2010), <i>Steel Construction Manual</i> , USA, The American Institute of Steel Construction (AISC), handouts ACI 318-08, <i>Building Code Requirement for Structural Concrete</i> , American Concrete Institute, USA.

## 2. Facilities Required

Item	Resources
<b>Accommodation</b> (Classrooms, laboratories, demonstration rooms/labs, etc.)	Conference room with at least 6 seats and fitted with multimedia projector and a PC.
<b>Technology Resources</b> (AV, data show, Smart Board, software, etc.)	Computer lab with minimum 5 Pc's and design software (AutoCAD, STAAD pro, and Water CAD etc.)
<b>Other Resources</b> (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	N/A

## G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment as per QMS-Policy-006 Feedback Survey, QMS-QAP-116 Monitoring Students' Satisfaction	Students	Indirect: Analyzing the results of the following surveys Course Evaluation Survey (CES), Program Evaluation Survey (PES), Student Experience Survey (SES)
Quality of Exam papers and Verifying Standards of Student Achievement as per QMS-Policy-004 Policy for Examinations and Marking, QMS-ACP-102 Procedure for Marking Examinations	Examination Committee	Direct: Peer review of examination papers and review or double check a minimum of three or 10% of answer papers. Verifying the entries in the Activity Mark Sheet.
Achievement of learning outcomes as per QMS-Policy-001 Course Review, QMS-CDP-106, QMS-CDP-112 Curriculum Review	Faculty	Direct: Course Report (Section B-3)

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Implementation of the action plans based on previous semester as per QMS-Policy-001 Course Review, QMS-CDP-106 Procedure for Course Review, QMS-CDP-112 Procedure for Curriculum Review	Faculty	Direct and Indirect: Course report (Section G-1, G-2)
Monitoring Teaching and Learning as per QMS-Policy-005 Monitoring of Teaching and Learning	Chairperson/Program Director/Course Director	Indirect: Feedback by Chairperson/Program director/Course director. Program Delivery Record.
Effectiveness of planned Teaching Strategies QMS-Policy-001 Course Review	Faculty	Indirect: Course Report (Section B-4)
Course effectiveness and planning for improvement as per QMS-Policy-001 Course Review, QMS-CDP-106 Procedure for Course Review, QMS- CDP-112 Procedure for Curriculum Review	Faculty	Direct and Indirect: Course report (Section G-3)
Verifying Standards of Student Achievement and Quality of Exam papers as per QMS-ACP-119 External Assessment Review	Assessment External Reviewer	Direct: Report of assessment external reviewer. Review of sample of ten or 10% of student's assessments and coursework scripts.

**Evaluation areas** (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)

**Evaluators** (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

**Assessment Methods** (Direct, Indirect)

## H. Specification Approval Data

<b>Council / Committee</b>	Civil Engineering Department Council
<b>Reference No.</b>	REG MIN-CED-10
<b>Date</b>	27-04-2020

## Appendix A Revision Details

Revision no.	DESCRIPTION	Reference MoMs			
		DC		CDC	
		Sem	#	Sem	#



1	Revision of Course Teaching Strategies and action verbs based on the comments of NCAAA reviewer	392	4	392	4
2	Course Specification Template 2018	402			