

<b>Department of Civil Engineering</b>			
<b>Conceptual Design (61511)</b>			
<b>Total Credits</b>	<b>3</b>		
<b>major elective</b>			
<b>Prerequisites</b>	P1 : Structural Analysis Lab. (61318) OR Structural Analysis II (61316) P2 : Design of Reinforced Concrete Structures I (61390) OR Structural Design of Buildings I (68401)		
<b>Course Contents</b>			
Importance of conceptual design. Conceptual design requirements. Loads calculations. Design of several structural elements. 2 and 3 dimensional design of structures. Develop and invent new structural systems			
<b>Intended Learning Outcomes (ILO's)</b>		<b>Student Outcomes (SO's)</b>	<b>Contribution</b>
1	Ability to analyze and design elements conceptually.	A	20 %
2	Ability to use modern techniques, skills, and tools necessary for three dimensional static analyses of structures.	K	40 %
3	Ability to design conceptually a system to meet desired architectural, structural, electrical and mechanical needs.	C	30 %
4	Ability to function on multi-disciplinary teams.	D	5 %
5	Ability to communicate effectively, both orally and in writing.	G	5 %
<b>Textbook and/ or References</b>			
1. James K. Wight and James G. MacGregor, Reinforced Concrete Mechanics and Design, fifth edition, Prentice Hall, 2009. 2. ACI Committee 318, Building Code Requirements for Structural Concrete, (ACI 318-08), Farmington Hills, MI, 2008. 3. ETABS, Computers and structures, 2006.			
<b>Assessment Criteria</b>		<b>Percent (%)</b>	
Mid. Term Exam		25 %	
Projects		25 %	
Laboratory Work		50 %	
<b>Course Plan</b>			
<b>Week</b>	<b>Topic</b>		
1 & 2	Introduction		
3	Conceptual analysis		
4	Design methodology		
5	Loadings, submission of first part of project		
6	EXAM1: evaluation of project		
7	Element design: columns		
8	Element design: beams		
9	Element design: footings		
10	System design: regular		
-	EXAM 2		
11	System design: ribbed slab		
12-13	System design: two way		
14-15	System design: general and without vertical continuity		
16	Final Exam		