0

Department of Civil Engineering	
Design of Reinforced Concrete Structures III (61513)	
Total Credits	**3**
major elective	
Prerequisites	P1 : Structural Analysis II (61316) OR Structural Analysis II (61317) P2 : Design of Reinforced Concrete Structures II (61412) OR Design of Reinforced Concrete Structures II (61490)

Course Contents

Design of footings, design of retaining walls, design of simple water tanks, and use of membrane theory to analyze and design thin structures and domes.

	Intended Learning Outcomes (ILO's)	Student Outcomes (SO's)	Contribution
1	Design of footing systems including the computation of the allowable bearing capacity of shallow and deep footings	C	40 %
2	Design of special structures (e.g. retaining walls, spherical domes, conical shells, cylindrical, folded plate roofs and water tanks)	C	45 %
3	An ability to effectively participate in team work.	G	5 %
4	Solve problems concerning the above subjects using computer software such as SAP2000.	K	10 %

Textbook and/ or Refrences

[1] Nilson A., Darwin D., and Dolan C. (2010), Design of Concrete Structures, 14th edition in SI units, Pearson. [2] White J. and Macgregor R. (2008), Reinforced Concrete Mechanics and Design, 5th edition, Prentice Hall, New Jersey. [3] Das B.M. (2007), Principles of Foundation Engineering, 6th edition, Nelson, Thomson Canada Limited, Toronto, Canada. [4] Kelkar V. and Sewell R. (1987), Fundamentals of the Analysis and Design of Shell Structures, Prentice Hall, New Jersey. [5] Nawy E. G. (2009), Reinforced Concrete A fundamental Approach, 5th edition, Prentice Hall, Upper Saddle River, New Jersey. [6] Bowels J. (1996), Analysis and Design, 5th edition, McGraw-Hill. [7] ACI 318 (2008), Building Code Requirements for Structural Concrete (ACI 318-08) and Commentary (ACI 318R-08), American Concrete Institute, Farmington Hills, MI. [8] ACI 350 (2006), Code Requirements for Environmental Engineering Concrete Structures and Commentary (ACI 350-06), American Concrete Institute, Farmington Hills, MI. [9] IBC (2009), International Building Code.

Assessment Criteria	Percent (%)
First Exam	20 %
Second Exam	15 %
Projects	25 %
Final Exam	40 %

Course Plan

Week	Topic
1 to 7	[1] Analysis and design of footings
8-10	MIDTERM EXAM 1 [23 / 9 /2013 at 4:30 pm] [2] Analysis and design of retaining walls
11 &12	[3] Analysis and design simple water tanks
13-15	MIDTERM EXAM 2 [11 / 11 /2013 at 4:30 pm] [4] Analysis and design of thin shell structures and domes