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Department of Building Engineering	
Modern Structural Systems (68510)	
Total Credits	**3**
major elective	
Prerequisites	P1 : Structural Analysis II (61317)

Course Contents

Introduction to precast and prestressed concrete technology, introduction to composite construction, and introduction to formwork systems particularly wooden formwork.

	Intended Learning Outcomes (ILO's)	Student Outcomes (SO's)	Contribution
1	1) An ability to analyze the response determinate prestressed concrete, composite and formwork systems.	A E	25 %
2	2) An ability to design determinate prestressed concrete, composite and formwork systems to meet specified requirements	C	25 %
3	3) An ability to identify, formulate, and solve problems related to these modern structural systems.	E	35 %
4	4) An ability to effectively participate in teamwork.	G	5 %
5	5) An ability to use Microsoft Excel to solve design problems	K	10 %

Textbook and/ or Refrences

Segui, W. T. (2007), Steel Design, 4th edition, Cengage Learning, Stamford, CT, US., ASCE 7-05. (2005), Minimum Design Loads for Buildings &Other Structures: Revisions of ANSI/ASCE 7-05, American Society of Civil Engineers, Reston, VA.

Assessment Criteria	Percent (%)
First Exam	17 %
Second Exam	18 %
Projects	15 %
Final Exam	50 %

Course Plan

Week	Topic
1-7	[1] Introduction to precast and prestressed concrete technology. Prestressed and Precast technology, stress limits, ultimate bending capacity, ultimate shear capacity, and introduction to deflection calculations. MIDTERM EXAM 1,
8-12	[2] Introduction to composite construction. Moment capacity of composite beams, and axial force capacity of columns. MIDTERM EXAM 2
13-15	[3] Introduction to formwork systems particularly wooden formwork.
16	Final Exam