

Course Descriptor CVEN442 Design of Concrete Structures II

Proposed Academic Year	2019/20	Last Reviewed Academic Year	2020/21
Course Code	CVEN442	Course Title	Design of Concrete Structures II
Credit hours	3	Level of study	Level 4
College / Centre	College of Engineering	Department	Civil Engineering
Co-requisites	None	Pre-requisites	CVEN301

1. COURSE OUTLINE

This course discusses vital information on structural systems for buildings, details of types of floors and stairs, types of foundation, framed and shear walled buildings under vertical and horizontal loads, Detailing of Reinforced Concrete Members and Structures economy in Building Design and Computer applications in Structural design of buildings.

2. AIMS

This course aims to equip students with the knowledge and understanding of various structural systems of buildings and expose the students to various design codes of practice to develop Understanding of the action of framed buildings under vertical and horizontal loads. Various aspects of detailing and Economy in Building Design is also discussed.

3. LEARNING OUTCOMES, TEACHING, LEARNING and ASSESSMENT METHODS

Learning Outcomes (Definitive)	Teaching and Learning methods (Indicative)	Assessment (Indicative)
Upon successful completion of this course, students will be able to:		
1. Understand the behavior of various Structural systems of Buildings	Lecture, Presentation	<i>Assignment, Midterms, and Final Exam</i>
2. Know the design philosophy of ACI/BS Design Building Code	Lecture, Presentation	<i>Assignment, Midterms, and Final Exam</i>
3. Understand the action of framed buildings under vertical and horizontal loads	Lecture, Presentation	<i>Assignment, Midterms, and Final Exam</i>
4. Perform detailing of Reinforced Concrete Members and Structures	Lecture, Presentation	<i>Assignment, Midterms, and Final Exam</i>
5. Perform reinforcing bar cutoffs, splicing and bond capacity	Lecture, Presentation	<i>Assignment, Midterms, and Final Exam</i>
6. Design floors, stairs and footings.	Lecture, Presentation	<i>Assignment, case study report Midterms, and Final Exam</i>



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4. ASSESSMENT WEIGHTING

Assessment	Percentage of final mark (%)
Assignments	20%
Mid-term Examination	40%
Final Examination	40%
TOTAL	100%

5. ACHIEVING A PASS

Students will achieve 3 credit hours for this course by passing **ALL** of the course assessments [Assignment, Midterms, and Final Exam *] and achieving a **minimum overall score of 50%**
NB *Ensure that ALL learning outcomes are taken into account

6. COURSE CONTENT (Indicative)

1. Introduction to Multi-Storied Buildings – 8 Hours	
2. Structural Systems for Buildings - 7 Hours	
3. Types of Floors and design - 7 Hours	
4. Types of Stairs and design – 8 Hours	
5. Types of Foundation – 8 Hours	
6. Framed Buildings under Vertical Loads – 8 Hours	
7. Framed Buildings under Horizontal Loads - 7 Hours	
8. Shear Walled Buildings under Horizontal Loads – 8 Hours	
9. Shear Wall Frame Interaction - 7 Hours	
10. Detailing of Reinforced Concrete Members and Structures - 7 Hours	
11. Economy in Building Design - 7 Hours	
12. Computer applications in Structural Design of buildings – 8 Hours	
TOTAL HOURS	90
Plus RECOMMENDED INDEPENDENT STUDY HOURS	45
TOTAL COURSE HOURS	135

**Course Descriptor**
CVEN442 Design of Concrete Structures II**7. RECOMMENDED REFERENCES****Core text/s:**

1. Fintel, M., 1985. Handbook Of Concrete Engineering. New York: Van Nostrand Reinhold.
2. 2. McCormac, J. C. and Brown, R. H. (2008). Design of Reinforced Concrete, 8th Ed, ACI 318-08 Code Edition, John Wiley and Sons, Inc., New York, NY. (ISBN 978-0-470-27927
3. American Concrete Institute (ACI) (2008). ACI 318-08 Building Code Requirements for Structural Concrete (ACI 318-08) and Commentary (ACI 318R-08), American Concrete Institute, Farmington Hills, MI. (ISBN 0-87031-171-9)

other supplemental materials:

Standards codes of practice. – British BS8110 or American Concrete Codes.

Library + online resources:

www.nptel.com

Open Educational Resources:

<https://www.pdfdrive.com/handbook-of-concrete-engineering-e34318830.html>