

COURSE Syllabus

Course Name: Reinforced Concrete 1

Course Number: 403430 & 4034141

General Information and Course Details:

Course title	Reinforced Concrete I
Course number	403430 & 04034141
Credit hours (theory)	3
Contact hours (theory)	3
Prerequisites/corequisites	Structural Analysis II
Program title	Civil engineering
Program code	40
Awarding institution	Isra university
Faculty	Engineering
Department	Civil engineering
Level of course	Bachelor
Year of study and semester (s)	2020 Second
Final Qualification	
Other department (s) involved in teaching the course	
Language of Instruction	English
Date of production/revision	12/3/2021

Course Coordinator:

Instructor's Name: Dr. Mohammed Al-lami
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Other Instructors:

Office No.:
Email:
Office Hours:

Course Description:

Flexural analysis and design of reinforced concrete beams including singly and doubly reinforced rectangular beams and T-beams, shear and diagonal tension, bond, anchorage and development length, short columns

Text Book: Author(s), Title, Publisher, Edition, Year, Book website.

1. Jack C. McCormac, and Russell H. Brown "Design of Reinforced Concrete "Ninth Edition, Wiley, 2014

References: Author(s), Title, Publisher, Edition, Year, Book website.

Required book (s), assigned reading and audio-visuals:

1. Edward G. Nway, "Reinforced Concrete A Fundamental Approach" Pearson Printice Hall, 2009
2. James K. Wight and James MacGregor "Reinforced Concrete Mechanics and Design" Sixth Edition copyright 2012
3. ACI, "American Concrete Institute Building Code," ACI 318-11

Course Educational Objectives (CEO): Maximum six brief educational goals.

1.	To develop an understanding of basic concepts in the behavior and design of reinforced concrete systems and elements.
2.	To introduce the basic concepts and steps for reinforced concrete sectional design mainly in accordance with ultimate strength design.
3.	To provide a coherent development to the students for the courses in sector of Reinforced Concrete Designing.
4.	To give an experience in the implementation of designing concepts which are applied in field of structural engineering.
5.	

Intending Learning Outcomes (ILO's): Please write no more than 8 learning outcomes

	Intending Learning Outcomes (ILO's)	Relationship to CEO	Contribution in Program PLOs
1.	Identify the properties of the materials, type of applied loads, and design codes used in reinforced concrete.	1	1
2.	Identify the flexural behavior of reinforced concrete beams at cracking, uncracking and ultimate strength stages.	1,2	1,2,7
3.	Identify the flexural behavior of reinforced concrete beams at cracking, uncracking and ultimate strength stages.		
4.	Ability to apply the strength method to analyze and design R.C rectangular beams for flexure.	2,3,4	1,2,7

5.	Ability to apply the strength method to analyze and design R.C T-beams for flexure.	2,3,4	1,2,7
6.	Ability to apply the strength method to analyze and design R.C. beams for shear.	2,3,4	1,2,7
7.	Ability to apply the strength method to analyze and design short R.C. compression members.	2,3,4	1,2,7
8.			
9.			

Topic Outline and Schedule:

Topic	Weeks	Achieved ILOs	Evaluation Methods	Reference
Introduction to Engineering Design, Loads, Properties of concrete and steel and Design Codes	2	1	1,4,-3	CH 1
Flexural behavior of reinforced concrete beams, Cracking, uncracking ultimate strength sections	2	1,2	1,3,4	CH 2
Flexural Analysis and Design of Rectangular Beams According to ACI Code	3	3,4	1,2,3,4	CH 3 and 4
Flexural Analysis and Design of T-Beams According to ACI Code.	2	3,4	2,3,4	CH 5
Shear in Beams	2	4	2,3,4	CH 8
Design of Short Columns	2	5	3,4	CH 9 and 10
Bond, Anchorage, and Development Length	2		3,4	CH 7
Final exam				

Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

- Lectures
- Lab hands on
- Lab hands on & on line

Evaluation Methods and Course Requirements:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

- Homework hand in on line
- Quizzes
- Written Exam
- On line Exams

Course Policies:

A- Attendance policies:

25% of absence from the total hours of lectures in the semester leads to the denial of the course

B- Absences from exams and handing in assignments on time:

Exam can retake based on approval of excuse from dean

Not handing assignment on time will result in zero mark

C- Health and safety procedures: NA

D- Honesty policy regarding cheating, plagiarism, misbehaviour:

Cheating, plagiarism, misbehaviour may result in zero grade

E- Grading policy:

- All homework are posted on line
- All quizzes and exams are provided with solution for perfect score

Required equipment:

Labs,

Software :

Hardware:

Assessment Plan for the Course Learning Outcome (just select):

1	First Written Exam.
2	Second Written Exam.
3	Final Written Exam.
4	Quizzes.
5	Homework.
6	Participation in Lecture.
7	Integrative Projects.

Program Student Outcome (POs):

Student Outcomes describe what students are expected to know and be able to do by the time of graduation. These relate to the knowledge, skills, and behaviours that students acquire as they progress through the program. A graduate of the civil engineering program will demonstrate	
1	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2	An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3	An ability to communicate effectively with a range of audiences
4	An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5	An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Responsible Persons and their Signatures:

Course Coordinator		Completed Date	/ /
		Signature	
Received by (Department Head)		Received Date	/ /
		Signature	

