

COURSE PLAN

FIRST: BASIC INFORMATION

College

College : Karak University College
 Department : Department of Basic and Informatics Sciences

Course

Course Title : Non-Destructive Test
 Course Code : 020112234
 Credit Hours :2 (1 Theoretical, 1 Practical)
 Prerequisite :020112285

Instructor

Name : Rozan Sameer ali alhunifat
 Office No. : -
 Tel (Ext) : -
 E-mail : rozan.sameer@bau.edu.jo
 Office Hours : -
 Class Times

Text Book

- Title: Muhammad Rjoub, “Rehabilitation of Reinforced Concrete Structures” Al-Hafez Publishers, 2nd Amman – Jordan, 2nd ed. 2015. (Arabic Language)

References

- تأهيل منشآت مباني – م.منى الفاعوري، مكتبة المجتمع العربي للنشر والتوزيع 2015.

SECOND: PROFESSIONAL INFORMATION

COURSE DESCRIPTION

This course covers practical knowledge for judging the safety of structures without destroying building materials. And, it cover the use and judgment methods of various non-destructive equipment.

COURSE OBJECTIVES

The objective of this course is to enable the student to do the following:

- Recognize the defects of the material.
- Perform the non-destructive testing techniques.
- Evaluate facilities and determine their need for non-destructive examinations.

-Distinguish the structure by considering if it needs to be evaluated and non-destructive tests carried out.

COURSE LEARNING OUTCOMES

Upon the completion of this course students will be able to:

- CLO1. Distinguish between **types** of defects detected in materials
- CLO2. Compare non-destructive to destructive test
- CLO3. Apply the safety methods during non-destructive examinations
- CLO4. Recognize steps to perform visual inspection in non-destructive testing
- CLO5. Perform the magnetic particle test
- CLO6. Perform the Penetration test
- CLO7. Perform the rebar locator test steps
- CLO8. Perform the Eddy currents test steps
- CLO9. Perform the ultrasound test
- CLO10. Perform the Schmidt hammer test
- CLO11. Perform rust inspection
- CLO12. Perform color inspection

COURSE SYLLABUS

Week	Topic	Topic details	LEARNING OUTCOMES	Proposed assignments
1	Introduction	<ul style="list-style-type: none"> • Concrete crack • Concrete delamination • Concrete spalling • Concrete disintegration • Classification of cracks by cause and type 	CLO1	
2	Structural cracks	<ul style="list-style-type: none"> • Techniques used to detect subsurface defects • Structural cracks <ul style="list-style-type: none"> a) Collision cracks b) Creep c) Increasing the loads beyond the design limits 	CLO1	
3	Non-destructive test	<ul style="list-style-type: none"> • Introduction to non-destructive testing <ul style="list-style-type: none"> a) Introduction to non-destructive testing b) Disadvantages of non-destructive testing c) What are the uses of non-destructive tests? 	CLO2	
4	Non-destructive test	<ul style="list-style-type: none"> • Comparing non-destructive testing with non-destructive test: <ul style="list-style-type: none"> a) Introduction to destructive testing of concrete b) Introduction to non-destructive testing of concrete 	CLO2	

Week	Topic	Topic details	LEARNING OUTCOMES	Proposed assignments
		c) Identify the advantages and disadvantages of destructive examinations		
5	Non-destructive test	• Safety methods during non-destructive examinations	CLO3	
6	Non-destructive test	• visual test a) Disadvantages of the visual test method b) Advantages of the visual test method c) Identify the surfaces on which the visual test can be applied	CLO4	
7	Non-destructive test	• Magnetic particle test a) Introducing magnetization b) Currents used in magnetic particle devices c) Magnetic particle test rules d) A practical procedure for experimenting with magnetic particles in laboratories	CLO5	
8		Midterm exam		
9	Non-destructive test	• Penetration test a) properties of hardened concrete b) Tests on hard concrete c) Conducting a penetration resistance test (Windsor probe test) on hardened concrete in laboratories in practice	CLO6	
10	Non-destructive test	• Rebar locator test a) Lab Test Procedure b) Applications c) Advantages d) Disadvantages	CLO7	
11	Non-destructive test	• Ultrasonic test: a) Lab Test Procedure b) Applications c) Advantages d) Disadvantages	CLO8	
12	Non-destructive test	• Eddy currents test.: a) Lab Test Procedure b) Applications c) Advantages d) Disadvantages	CLO9	
13	Non-destructive test	• Schmidt hammer test: a) Lab Test Procedure b) Applications c) Advantages d) Disadvantages	CLO10	

Week	Topic	Topic details	LEARNING OUTCOMES	Proposed assignments
14	Non-destructive test	<ul style="list-style-type: none"> • Rust check and color check <ol style="list-style-type: none"> a) Lab Test Procedure b) Applications c) Advantages d) Disadvantages 	CLO11	
15	Non-destructive test	<ul style="list-style-type: none"> • Color check: <ol style="list-style-type: none"> a) Lab Test Procedure b) Applications c) Advantages d) Disadvantages 	CLO12	
16		Final Exam		

COURSE LEARNING RESOURCES

Teaching will be achieved using available resources including Lectures, data show and materials uploaded to the e-learning system and term projects.

ONLINE RESOURCES

A lot of references and learning videos and codes are available on the internet. The student could refer to them for more information.

ASSESSMENT TOOLS

ASSESSMENT TOOLS		%
Projects and Quizzes		20
Mid Exam		30
Final Exam		50
TOTAL MARKS		100

THIRD: COURSE RULES

ATTENDANCE RULES

Attendance and participation are extremely important, and the usual University rules will apply. Attendance will be recorded for each class. Absence of 10% will result in a first written warning. Absence of 15% of the course will result in a second warning. Absence of 20% or more will result in forfeiting the course and the student will not be permitted to attend the final examination. Should a student encounter any special circumstances (i.e. medical or personal), he/she is encouraged to discuss this with the instructor and written proof will be required to delete any absences from his/her attendance records.

GRADING SYSTEM

Example:

Grade	points
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REMARKS

Use of Mobile Devices, Laptops, etc. During Class, unexpected noises and movement automatically divert and capture people's attention, which means you are affecting everyone's learning experience if your cell phone, laptop, etc. makes noise or is visually disturbing during class. For this reason, students are required to turn off their mobile devices and close their laptops during class.

Academic Integrity. Copying assignments, allowing assignments to be copied, will fail the assignment on the first offense. Cheat in tests, or copying assignments for the second time.

Cite all sources consulted to any extent (including material from the internet), whether or not assigned and whether or not quoted directly.

Project: Students will undertake a term project to study in detail one of the course topics. The project may involve a critical literature review or a case study. The students should consult at least five (5) references or journal articles. A written project report of 10 pages maximum will be submitted in nominated dates. Ten-minute presentation will be given to the rest of the class during the last two weeks of the semester.

Formats, Rules, Topics, submission and presentation dates are illustrated in project form.

COURSE COORDINATOR

Course Coordinator

Department Head:

Signature:

Signature:

Date:

Date: