

COURSE INFORMATION					
Course Title	Code	Semester	L+P Hour	Credits	ECTS
Nondestructive Testing	CHBE 569	1 or 2	3+0	3	10

Prerequisites	NONE
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Language of Instruction	English
Course Level	Master's Degree (Second Cycle Programmes)
Course Type	Technical Elective
Course Coordinator	
Instructors	-
Assistants	
Goals	To introduce the control test methods which can be applied without damaging the structure depending on the material, production and usage and to show the test methods that can detect the damage.
Content	Basic principles. Visual inspection, magnetic particle testing. Penetrating test. Ultrasonic testing. Radiographic testing. Surface control with micro control, neutron radiography. Acoustic emission method. Thermography method. Advantages and disadvantages of non-destructive testing methods

Course Learning Outcomes	Program Learning Outcomes	Teaching Methods	Assessment Methods
1) to know and classify the application areas of non-destructive materials inspection methods.	2,4	1,2	A,C
2) to learn how to use non-destructive material inspection methods.	2,5	1,2	A,B
3) to learn the advantages and disadvantages of non-destructive testing methods.	2,5	1,2,3	A,C
4) Ability to communicate effectively in English	8	1,2	A,C

Teaching Methods:	1: Lecture, 2: Question-Answer, 3: Lab, 4: Case-study
Assessment Methods:	A: Testing, B: Experiment, C: Homework, D: Project

COURSE CONTENT		
Week	Topics	Study Materials
1	Non-destructive testing methods, principles and application areas	Lecture Notes/Web
2	Visual Inspection Method	Lecture Notes/Web
3	Microscope Examination Method	Lecture Notes/Web
4	Radiographic Examination	Lecture Notes/Web
5	Radiographic Examination	Lecture Notes/Web
6	Liquid Penetrating Method	Lecture Notes/Web
7	Ultrasonic Inspection Method	Lecture Notes/Web
8	MIDTERM EXAM	Lecture Notes/Web
9	Magnetic Particle Method	Lecture Notes/Web
10	Magnetic Particle Method	Lecture Notes/Web
11	Thermography method	Lecture Notes/Web
12	Acoustic Emission Method	Lecture Notes/Web
13	Advantages and disadvantages of non-destructive testing methods	Lecture Notes/Web
14	students homework and report presentations	Lecture Notes/Web

RECOMMENDED SOURCES	
Textbook	Lecture Notes
Additional Resources	Web Resources

MATERIAL SHARING	
Documents	
Assignments	
Exams	

ASSESSMENT			
	IN-TERM STUDIES	NUMBER	PERCENTAGE
Mid-term		1	60
Reports		3	30
Homework		1	20
	Total		100
CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE			40
CONTRIBUTION OF IN-TERM STUDIES TO OVERALL GRADE			60
	Total		100

COURSE CATEGORY	Field Courses
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COURSE'S CONTRIBUTION TO PROGRAM						
No	Program Learning Outcomes	Contribution				
		1	2	3	4	5
1	Acquire expanded and in-depth information via performing scientific research in the field of Chemical Engineering, evaluate, interpret and implement knowledge.					
2	Be knowledgeable in the contemporary techniques and methods applied in Chemical Engineering and their respective constraints.					+
3	Be cognizant of the novel and developing applications of his/her profession, study and learn them as required.					
4	Formulate Chemical Engineering problems, develop methods to solve them and implement innovative techniques in solutions					+

