SUBJECT TEACHING GUIDE

616 - Structural Integrity

Master's Degree in civil Engineering, Canal and Port Engineering

Academic year 2023-2024

1. IDENTIFYING DATA					
Degree	Master's Degree in civil Engineering, Canal and Port Engineering			Type and Year	Optional. Year 2
Faculty	School of civil Engineering				
Discipline	SPECIALITY IN STRUCTURES, MATERIALS AND GEOTECHNICS				
Course unit title and code	616 - Structural Integrity				
Number of ECTS credits allocated	3	Term		Semester based (2)	
Web					
Language of instruction	Spanish	English Friendly	Yes	Mode of delivery	Face-to-face

Department	DPTO. CIENCIA E INGENIERIA DEL TERRENO Y DE LOS MATERIALES
Name of lecturer	JOSE ALBERTO ALVAREZ LASO
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Other lecturers	ROBERTO LACALLE CALDERON

3.1 LEARNING OUTCOMES

- Correct application of models, theories and criteria to assess the strenght and safety of cracked structures.
- Correct application of failure models in fatigue, creep and strees corrossion cracking scenarios.

4. OBJECTIVES

Obtain a proper knowledged in order to carry out structural integrity analysis in metallic structures and components.

6. COURSE ORGANIZATION

CONTENTS	
1	Introduction to structural integrity. Preliminary concepts.
2	Fracture.
3	Fatigue.
4	Creep.
5	Environmental affection of materials.

7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Description final exam	Written exam	Yes	Yes	50,00
Description Solving a real practical case (project)	Work	No	No	30,00
Description continuous evaluation	Others	No	No	20,00
TOTAL				100,00

Observations

the final exam will consist of a written practical final evaluation.
The contiuous evaluation will be a theorical test.
The project will consist of solving a practical case.

Observations for part-time students

Final evaluation will consist of a final written exam and a project about a practical case. For this type of students, the final exam can contain a theorical part for those that couldn't do the continuous evaluation tests.

8. BIBLIOGRAPHY AND TEACHING MATERIALS

BASIC

FITNET Fitness-for-Service (FFS) Procedure - Volume 1, M. Kocak, S. Webster, J.J. Janosch, R.A. Ainsworth, R. Koers, eds., ISBN 978-3-940923-00-4, Printed by GKSS, Germany, 2008.
- BS7910:2005, Guide to methods for assessing the acceptability of flaws in metallic structures, British Standards, 2005.
- R6: Assessment of the Integrity of Structures Containing Defects, British Energy Generation, Report R/H/R6, Revision 4, 2001.
- R5, Assessment Procedure for the High Temperature Response of Structures , Procedure R5 Issue 3, British Energy, Gloucester, UK, 2003.
- Bergman, M., Brickstad, B., Dahlberg, L., AProcedure for Safety Assessment of Components with Cracks-Handbook, SAQ/FoU Report, 91/01, AB Svensk Anläggningsprovning, Swedish Plant Inspection Ltd, 1991.