

COURSE GUIDE – short form

Academic year 2014-2015

Course name	FRACTURE MECHANICS				Course code		MDET.DI.DF.103		
Course type	DF	Category	DI	Year of study	1	Semester	1	Number of credit points	8

Faculty	Mechanics	Number of teaching and learning hours							
Field	Mechanical Engineering	Total	L	T	LB	P	IS		
Specialization	Master- Diagnosis and technical expertise	56	28		28		140		

Pre-requisites from the curriculum	Compulsory	Strength of materials
	Recommended	Theoretical mechanics

General objective	Background and use of Strength of Materials, Mechanics and Theory of elasticity theory in order to establish relations underlying computing in machine design; Familiarity with basic concepts introduced Fracture mechanics: toughness to cracking, cracking, breaking, full J, etc.
Specific objectives	<ul style="list-style-type: none"> - Study of static and dynamic fracture mechanisms in materials and structures; - Criteria for fracture toughness for a more precise definition of resistance to different requests; - Learning of new concepts, specific fracture mechanics: defects, degradation, life, failure, risk engineering, etc.; - Background and use of material strength and elasticity theory to establish relations underlying computing in machine design; - Familiarity with basic concepts introduced fracture mechanics; - Calculation of the theoretical and experimental determination of mechanical properties for materials containing defects; - Possibility of diagnosis and expertise in mechanical engineering based on knowledge gained in this discipline.
Course description	During the course, students will acquire new concepts, such as: <ul style="list-style-type: none"> - Real behavior of materials and the notion of defect; - Ductile and brittle fracture nucleation mechanisms; - Represents statistical dispersion characteristics defective materials; - Cracks in materials and their propagation conditions; - Calculation of resistance based on the concepts of fracture mechanics; - Criteria for breaking tenacity to cracking.

Assessment			Schedule	Percentage of the final grade (minimum grade)
Continuous assessment	Class tests along the semester		Week 9	15%
	Activity during tutorials/laboratory works/projects/practical work		Continuous	20%
	Assignments		Weeks 12-13	15%
Final assessment	Final assessment form	Exam	Session	50%
	Examination procedures and conditions: Paper 50 %			

Course organizer	Prof. univ. dr. ing. Viorel Goanță		
Teaching assistant	Prof. univ. dr. ing. Viorel Goanță		