C O U R S E G U I D E – s h o r t f o r m

Academic year 2014-2015

Course name	**Fatigue and Fracture mechanics of materials**				Course code		IM.309.DI.DS		
Course type	DS	Category	DI	Year of study	3	Semester	2	Number of credit points	3

Faculty	Mechanics	Number of teaching and learning hours					
Field	Mechanical Engineering	Total	L	T	LB	P	IS
Specialization	**Mechanical Engineering**	42	28		14		28

Pre-requisites from the curriculum		
	Compulsory	Strength of materials
	Recommended	Materials Science

General objective	Background and use of material strength and elasticity theory to establish relations underlying computing in machine design; Familiarity with basic concepts introduced Fatigue Fracture mechanics and materials.
Specific objectives	• Background and use of material strength and elasticity theory to establish relations underlying computing in machine design; • Familiarity with the basic concepts introduced Fatigue Fracture mechanics and materials; • Calculation of theoretical and experimental determination of mechanical properties for materials containing defects; • Ability for diagnosis and expertise in mechanical engineering based on knowledge gained in this discipline; It wills itself failure risk prediction methodology that combines statistical analysis of In-Service Inspection post-factum. They have learned new concepts that variability and uncertainty associated with any expertise on highlighting the risk of component failure. It will highlight and will clarify the influence of size parts, manufacturing defects, structural steels of cleavage, fatigue and stress corrosion cracking on disposal tear.
Course description	• Fatigue fracture. physical phenomenon • Continuously variable periodic cycle characteristics • The curve of fatigue durability: Wöhler • Fatigue Resistance Charts • Factors influencing the fatigue fracture • Fatigue safety factor • Fatigue Durability of materials at high • Calculation at constant amplitude varying loads. Safety coefficient. Probability of failure • Fatigue behavior of materials for real applications • Estimated life at varying loads with constant amplitude • Fatigue crack propagation. characteristic sizes

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	