

Incoming student mobility

Name of UNIOS University Unit: Mechanical Engineering Faculty in Slavonski Brod

COURSES OFFERED IN FOREIGN LANGUAGE FOR ERASMUS+ INDIVIDUAL INCOMING STUDENTS

Department or Chair within the UNIOS Unit	Department of Mechanical Constructions
Study program	Mechanical Engineering
Study level	Graduate (master)
Course title	Fracture Mechanics
Course code (if any)	D 802
Language of instruction	English
Brief course description	Introduce students to the analytical, numerical and experimental approach to structure analysis, when the planar failure, such as crack, is present. Define the finite elements features proper for the numerical analysis in linear-elastic and elastic-plastic fracture mechanics. Analysis of crack initiation and propagation in welded structures, pressure vessels, pipelines, etc. as well as the life cycle estimation and construction design by using of some contemporary procedures for structural integrity assessment, such as SINTAP procedure.
Form of teaching	Lectures and exercises. Analytical calculation of fracture mechanics parameters such as: stress intensity factor K , crack tip opening displacement CTOD, crack mouth opening displacement CMOD and determination of critical crack length a_c and critical crack opening stress σ_c . Numerical determination of the K -parameter and J -integral will be performed using commercial computer packages, based on the finite element method. The fracture toughness of material - K_{Ic} will be determined by testing of compact tension (CT) specimen. Critical value of J -integral will be experimentally determined in the case of three point bend specimen using the single specimen method.
Form of assessment	Two preliminary exams will be given in place of the written part of the exam. The exam could be passed also by solving of complex working examples, which consist also the theory needed for their solution.

ERASMUS+

EU programme for education, training, youth and sport

Number of ECTS	5
Class hours per week	2 hours of lectures + 2 hours of exercises
Minimum number of students	10
Period of realization	Winter semester
Lecturer	Full Prof. Dr. Dražan Kozak