

Study program: Industrial Engineering			
Course title: Corrosion and Material Protection			
Professor/assistant: Slađana Nedeljković			
Type of course: elective			
ECTS credits: 6			
Pre-requisites:			
Aims of the course: Prepare students to: integrate concepts of corrosion, material protection; understand the basics of thermodynamics of metal corrosion; learn about various forms of corrosion and material effects of external and internal factors on kinetics and mechanism of corrosion processes; acquire knowledge necessary to protect the material from corrosion in practice.			
Learning outcomes: After taking the course, students will be able to: define various forms of corrosion of metals and other materials, as well as understand the influence of external and internal factors; describe various forms of corrosion that occur in practice, and describe the use of modern forms of corrosion protection.			
Syllabus <i>Theoretical part</i> Fundamentals of chemical and electro-chemical corrosion. Oxidoreductive (electro) potential of the metal. Corrosion rate, polarization and passivation. General corrosion. Differential aeration, cathodic and anodic protection. Kinds of corrosion: intercrystalline, spotted, worm-like, attack in the form of a blade. Local forms of corrosion of metals and alloys. Corrosion of non-metals (concrete, ceramics, glass, ...) and organic materials (wood, plastic, ...). Corrosion: electrochemical plating protection, alloying metals, and other. Corrosion test. Products for the construction and protection of building materials. Practical classes. Tour of welding, plumbing, and construction companies. Introduction to practical problems and ways of their solving			
Literature 1 Doc. Dr. sc., Goran Jelic Mrčelić, Corrosion and Protection of Materials 2 With Mladenovic, Milenkovic M., Vuckovic, Corrosion and Protection, Technical Books			
Number of active classes			Other forms of teaching:
Lectures: 2	Practical classes: 2	Research work:	
Teaching methods Combined, interactive classes with solving practical examples			
Grading system (maximum 100 points), grading scale from 5 to 10: below 51 points grade 5, grade 6 from 51-60 points, grade 7 from 61-70 points, grade 8 from 71-80 points, grade 9 from 81-90 points, grade 10 from 91-100 points.			
Pre-exam obligations	points	Final exam	points
activity during theoretical lectures	10	written exam	40
practical training	10	oral exam	
colloquium(s)/seminar papers	40		
Sum	60	Sum	40