Study program: Environmental Protection

Course title: Corrosion and Protection of Materials

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 the material effect of external and internal factors on kinetics and the mechanism of corrosion processes, acquire knowledge necessary to protect the material from corrosion in practice.

Learning outcomes:
Student will be able to: define various forms of corrosion of metals and other materials, as well as the influence of external and internal factors, describe various forms of corrosion that occur in practice, describe the use of modern forms of corrosion protection.

Syllabus

Theoretical part

Fundamentals of chemical and electrochemical corrosion. Oxido-reductive potential of the metal. The corrosion rate, polarization and passivation. General corrosion. Differential aeration, cathodic and anodic protection. Kind (s) 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.

Practical part

Tour of welding, plumbing, and construction companies, and introduction to practical problems and ways of solving them.

Literature

1. Doc . Dr. . sc , Goran Jelić Mrčelić , Corrosion and Protection of Materials
2. Milenković M . , Vučković, 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 problems

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**