UNIVERSITY OF NIŠ

Course Unit Descriptor	**Faculty**	Faculty of Mechanical Engineering

GENERAL INFORMATION			
Study Program	**Mechanical Engineering**		
Study Module (if applicable)	-		
Course Title	Behaviour of Materials in Usage		
Level of Study	☐ Bachelor	☐ Master's	☒Doctoral
Type of Course	Obligatory	X Elective	
Semester	x Autumn	Spring	
Year of Study	II		
Number of ECTS Allocated	10		
Name of Lecturer/Lecturers	Assoc. Prof. Goran Radenković		
Teaching Mode	☐ Lectures	☐ Group tutorials	☒ Individual tutorials
	☐ Laboratory work	☐ Project work	☒ Seminar
	☐ Distance learning	☐ Blended learning	☐ Other

Purpose and Overview (max. 5 sentences)

Introducing students to the structural changes in materials due to corrosion or other processes that may take place during the application of the material.

Syllabus (brief outline and summary of topics, max. 10 sentences)

Contents of the course:

Theoretical classes

The structure of materials, mechanisms of corrosion destruction due to the chemical and electrochemical influence of environment with or without simultaneous action of tensile stresses. The influence of various factors on the rate of the corrosion process, for example the temperature, type and concentration of aggressive ions, the presence of an inhibitor of the corrosion and the like.

Test methods for corrosion resistance, stress corrosion test methods and corrosion fatigue.

Study research work

Collection and processing of literature data relating to a specific selected materials and method of tests and making of seminar work. Selection of equipment for experimental testing of corrosion, perform experiments and analysis of results, all related to the topic in the framework of the doctoral thesis.

Recommended reading:

Journals: **Corrosion Science, Werkstoff und Korrosion, Materisal Science and Engeneering, Progress in Materials Science, Electrochimica Acta, Metallurgical transaction A**, etc.

Language of Instruction		
☒Serbian (complete course)	☒English (complete course)	☐ Other _____ (complete course)
☐Serbian with English mentoring	☐Serbian with other mentoring _____	

Assessment Methods and Criteria
Based on the content of seminar work, oral defense of seminar work and demonstrated knowledge in consultation.