UNIVERSITY OF NIŠ

Course Unit Descriptor	Faculty	Faculty of Mechanical Engineering

GENERAL INFORMATION			
Study Program	Manufacturing & Information Technologies		
Study Module (if applicable)	-		
Course Title	Technology of Surface Strengthening		
Level of Study	☐ Bachelor	☒Master's	☐ Doctoral
Type of Course	Obligatory	X Elective	
Semester	x Autumn	Spring	
Year of Study	I		
Number of ECTS Allocated	6		
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)

Introduction to methods of forming a coating on the metal surfaces and procedures to strengthen the surface layer of metal.

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

Theoretical classes:

Introduction, content and significance of the matter.

Definition of coatings, classification, properties, advantages and disadvantages.

Galvanic coatings: types, mechanism and procedures of application, the characteristics of the coating and the object.

Coating methods by ionized gas (plasma). Types, mechanism and procedures of coating, characteristics

coating and the coated object.

Other methods of metal coating (by dipping, spraying of molten metal and arc). Types, mechanism and procedures of coating, the characteristics of coating and the object.

Procedures to strengthen the metal surface, the type of mechanism and procedures reinforcement layer and features

the coated object.

Thermal processes to strengthen the surface. Types, mechanism and procedures of reinforcement layer and features

the coated object.

Thermo-chemical methods of surface hardening. Types, mechanism and procedures of reinforcement layer and features

the coated object.

Other methods of surface hardening (hardening by laser, electron beam, ultrasound, etc.).

A comparative analysis of the considered procedures and guidelines for application.

Practical teaching:

The performance of procedures for coating and reinforcing steel in the laboratory.

Visits factories to learn about technologies of coating and the surface hardening.

Language of Instruction

☒Serbian (complete course) English (complete course) ☐ Other _____ (complete course)

☐Serbian with English mentoring ☐Serbian with other mentoring _____

Assessment Methods and Criteria

Pre exam Duties	**Points**	**Final Exam**	**Points**
Activity During Lectures	**10**	**Written Examination**	**50**
Practical Teaching	**10**	**Oral Examination**	**Max. 35 (depending on Teaching Colloquia)**
Teaching Colloquia	**30**	**Overall Sum**	**100**

***Final examination mark is formed in accordance with the Institutional documents**