UNIVERSITY OF NIŠ

Course Unit Descriptor	Faculty	Faculty of Mechanical Engineering

GENERAL INFORMATION	
Study Program	Mechanical Engineering
Study Module (if applicable)	-
Course Title	Manufacturing of medical devices and implants
Level of Study	☐ Bachelor ☐ Master's ☒ Doctoral
Type of Course	☐ Obligatory ☒ Elective
Semester	☐ Autumn ☒ Spring
Year of Study	I
Number of ECTS Allocated	10
Name of Lecturer/Lecturers	Miodrag T. Manić
Teaching Mode	☐ Lectures ☐ Group tutorials ☒ Individual tutorials ☒ Laboratory work ☒ Project work ☒ Seminar ☐ Distance learning ☐ Blended learning ☐ Other

Purpose and Overview (max. 5 sentences)

Acquiring knowledge to analyze, design and manufacture medical devices and implants, with a special emphasis on prosthetic devices in skeletal prosthetics.

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

1)Medical supplies, bionics, prostheses, implants and osteo fixation materials, 2)The life cycle of medical devices and implants: preliminary concept, design and development, production, service and maintenance and recycling devices, 3)Legal and ethical standards in the production and application of medical devices and implants, 4)Software systems for modeling, design and analysis of prosthetic devices, 5)Materials for prosthetic devices, the criteria for the selection and testing of materials. Biocompatible and biodegradable materials , 6)Additive technology for manufacturing of implants and devices, 7)Surface treatment of prosthetic devices, 8)Techniques of design and production of customized prosthetic devices and implants, 9)Tissue engineering , Scaffold manufacturing, 10)Contollable and intelligent medical devices, 11)The algorithm for achieving the CE mark. European directives and national legislation.

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	**5**	**Written Examination**	**50**
Practical Teaching	**10**	**Oral Examination**	**Max. 35 (depending on Teaching Colloquia)**
Teaching Colloquia	**35**	**Overall Sum**	**100**
***Final examination mark is formed in accordance with the Institutional documents**			