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| **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty** | Faculty of Mechanical Engineering |
| **GENERAL INFORMATION** |
| Study Program | **Manufacturing & Information Technologies** |
| Study Module (if applicable) | - |
| Course Title | Biomaterials |
| Level of Study | ☐Bachelor | ☒Master’s | ☐ Doctoral |
| Type of Course | ☐ Obligatory | ☒ Elective |
| Semester | ☒Autumn | ☐Spring |
| Year of Study | I |
| Number of ECTS Allocated | 6 |
| Name of Lecturer/Lecturers | Miroslav Trajanovic |
| Teaching Mode | ☒ Lectures | ☐Group tutorials | ☐ Individual tutorials |
| ☒ Laboratory work | ☐Project work | ☒ Seminar |
| ☐ Distance learning | ☐ Blended learning | ☐ Other |
| **Purpose and Overview (max. 5 sentences)** |
| *The aim of this course is to introduce students to the characteristics and behaviour of different types of biomaterials and their potential application in medicine.Students are able to identify the basic properties of biomaterials, describe forms of biodegradation of biomaterials, examine the mechanical properties of biomaterials, recognize the basic interactions of biomaterials and the environment, making the right selection for a specific application of biomaterials.* |
| **Syllabus (brief outline and summary of topics, max. 10 sentences)** |
| 1)General introduction tobiomaterials, 2)The properties and characteristics of human tissue,3) Types and the properties of biomaterials, 4) The application of biomaterials (fixators, implants, scaffold, medical devices, etc.), 5) Biomaterials in orthopedics. Biomaterials in tissue engineering, 6) Biomaterials for making scaffold (biocompatibility, biodegradability, meh. characteristics), 7) Biomaterials in dentistry, 8) Biomaterials and cardiovascular system (materials for implants, stents, etc.), 9) The mechanical properties of biomaterials, 10) The surface properties of biomaterials, 11) Problems of application of biomaterials (all aspects, Case Studies), 12) New alloys and future trends in the development of biomaterials. |
| **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** | **40** |
| **Practical Teaching** | **40** | **Oral Examination** | **0** |
| **Teaching Colloquia** | **10** | **Overall Sum** | **100** |
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