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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty** | Faculty of Electronic Engineering |
| **GENERAL INFORMATION** |
| Study program  | Control Systems |
| Study Module (if applicable) | Automatic Control |
| Course title | Operational Research |
| Level of study | ☐Bachelor ☒ Master’s ☐ Doctoral |
| Type of course | ☐ Obligatory☒ Elective |
| Semester  | ☒ Autumn ☐Spring |
| Year of study  | I |
| Number of ECTS allocated | 4 |
| Name of lecturer/lecturers | Kocić M. Ljubiša, Marinković D. Slađana |
| Teaching mode | ☒Lectures ☐Group tutorials ☐ Individual tutorials☐Laboratory work ☒ Project work ☐ Seminar☐Distance learning ☐ Blended learning ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| Acquiring theoretical knowledge and practical skills. Ability to recognize and implement appropriate tool for the given task in real life problems. Adoption of basic knowledge necessary for implementing programs for interactive modeling of free form curves and for fractal modeling. |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| Elements of convex analysis. Optimization problems. Linear programming, Simplex method,Duality method. Unconstrained nonlinear programming. Gradient methods, Conjugate directionsmethods. Constrained nonlinear programming. Penalty function method. Flexible tolerance method.Elements of Game theory. Optimal strategies. Elements of dynamic programming. Networkingalgorithms. |
| **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** | **30** |
| **Practical teaching** |  | **Oral examination** | **20** |
| **Teaching colloquia** | **40** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |