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|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty** | Faculty of Mechanical Engineering |
| **GENERAL INFORMATION** |
| Study program  | **Mechanical Engineering** |
| Study Module (if applicable) | - |
| Course title | Д.3.2И.4.24 – Stochastic control systems  |
| Level of study | ☐Bachelor ☐ Master’s ☒Doctoral |
| Type of course | ☐ Obligatory☒ Elective |
| Semester  | ☒ Autumn ☐ Spring |
| Year of study  | II |
| Number of ECTS allocated | 10 |
| Name of lecturer/lecturers | Vlastimir D. Nikolić |
| Teaching mode | ☒Lectures ☐Group tutorials ☐ Individual tutorials☐Laboratory work ☐ Project work ☒ Seminar☐Distance learning ☐ Blended learning ☐ Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| *Introduce students to the basics of the analysis and designing of the modern stochastic control systems, for various classes of mechatronic objects.**The course is targeting the training students for the calculation and design of multivariable, continuous and discrete, lineal stochastic systems, as well as nonlinear stochastic systems with a constant and variable structure.* |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| *1) Random variables. 2) Stochastic processes. 3) Polynomial form of scalar continuous and discrete stochastic systems models. 4)* *Polynomial form of multivariable continuous and discrete stochastic systems models. 5) Analysis of continuous and discrete linear stochastic systems. 6) Design of scalar continuous and discrete linear stochastic systems.* 7*) Design of multivariable continuous and discrete linear stochastic systems. 8) Analysis and design of linear stochastic systems with delay. 9) Optimal control of stochastic systems with delay. 10) Optimal control of nonlinear stochastic systems with a constant and variable structure.* |
| **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** | **0** | **Written examination** | **50** |
| **Practical teaching** | **0** | **Oral examination** | **50** |
| **Teaching colloquia** | **0** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |