|  |
| --- |
|  **UNIVERSITY OF NIŠ** |
| **Course Unit Descriptor** | **Faculty**  | Faculty of technology |
| **GENERAL INFORMATION** |
| Study program  | **Technological Engineering** |
| Study Module (if applicable) |  |
| Course title | Advanced modelling and process control |
| Level of study | [ ] Bachelor [ ]  Master’s [x]  Doctoral |
| Type of course | [ ]  Obligatory [x]  Elective |
| Semester  |  [x]  Autumn [x] Spring |
| Year of study  | II |
| Number of ECTS allocated | 8 |
| Name of lecturer/lecturers | Sreten Stojanovic |
| Teaching mode |  [x] Lectures [ ] Group tutorials [ ]  Individual tutorials [ ] Laboratory work [x]  Project work [x]  Seminar [ ] Distance learning [ ]  Blended learning [ ]  Other |
| **PURPOSE AND OVERVIEW (max. 5 sentences)** |
| *Getting to know students with methods of modelling and process control. Point out to individual features, benefits and implementation of these methods. Acquiring skills in the application of Matlab software for modelling, identification and synthesis of control systems.* |
| **SYLLABUS (brief outline and summary of topics, max. 10 sentences)** |
| **Modelling and identification system based on classic optimization algorithms. Black-box and grey-box models. Linear and nonlinear models. Use of System Identification Toolbox for the modelling and system identification. Modelling and identification system based on artificial neural network. Classification of neural networks. Neural network learning. Static neural networks. Dynamic neural networks. Application of Neural Network Toolbox for the modelling of static and dynamic systems. Advanced control systems. Control systems based on neural networks.** |
| **LANGUAGE OF INSTRUCTION** |
| [x] 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** | **20** | **Written examination** |  |
| **Practical teaching** |  | **Oral examination** | **30** |
| **Teaching colloquia** | **50** | **OVERALL SUM** | **100** |
| **\*Final examination mark is formed in accordance with the Institutional documents** |