**DESCRIPTION OF A STUDY COURSE – SYLLABUS**

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| **Title of a course** | **Systems and Process Control** | | | | |
| **Study programme** | **Professional undergraduate study Telematics** | | | | |
| **Status of a course** | Obligatory | | | | |
| **Year of study** | 3 | **Semester** | W | **ECTS credits** | 5 |
| **Goals of a course** | | | | | |
| Introduce students to the practical aspects of automation systems in industrial and general applications. | | | | | |
| **Conditions for enrolling course** | | | | | |
| No conditions | | | | | |
| **Learning outcomes on a level of a study programme which includes course** | | | | | |
| Outcome 2: Link mathematical methods, engineering principles and computer simulations from the signal and system theory with applications in telematics systems.  Outcome 6: Design and implement desktop, web and mobile computer applications and computer programs for microcomputers and microcontrollers, with or without a database.  Outcome 9: Explain the basic methods of automatic system control and apply them to telematics systems.  Outcome 13: Design and develop solutions for components, circuits and software for application in regulation systems and production processes, with the preparation of supporting project documentation.  Outcome 15: Participate in teamwork and independently present professional content in written and spoken form in Croatian and English. | | | | | |
| **Expected learning outcomes on a level of a course** | | | | | |
| 1. Apply the basic principles of selecting the elements of automation and elaboration of program logic 2. Create partial elements of automation system documentation - P&ID, datasheets, program view 3. Independently create a simple LADDER PLC program according to a functional specification 4. In a team, wire and connect the hardware elements of a practical problem exercise. 5. In a team, create the assigned program of a practical problem exercise for specific development platforms. | | | | | |
| **Content of a course** | | | | | |
| Introductory discussions and basic notions. Electrical engineering and electrical systems base. Consumer plants, systems, installations and devices. Structure and architecture of electrical systems management. Classification and formal presentation of electrical systems management. Mathematical modelling. Interface of system processes – binary, impulse, analogue and commands. System components for electrical systems management. Digital automatic control systems. Usage of programmable logic controllers. Examples of usage and system management. | | | | | |