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| Course title |

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| **Programming Basics**  |
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| Semester | Winter semester  |
| Faculty / Department | Faculty of Computer Science  |
| Professor |

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| Professor Goran Slavković, PhD  |

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| ECTS credits | 7 |
| Language of instruction | English |
| Level of study | Bachelor |
| Content | Basic syntax and semantics of a higher programming language, Variables, types of expressions and command of delegation, Control structures for conditional branching and interation, Functions and parameter transfer, Structural decomposition, Strategies for problem solving, role of algorithms in the problem-solving process, Implementation strategies for algorithms, debugging strategies Concept and properties of algorithms, primitive types, sets, concept of recursion, recursive mathematical functions, simple recursive procedure, Divide-and-conquer strategy, Recursive bektraking, implementation of recursion, Sets, syllables, strings and string processing, presentation of data in memory, static, stack and hip allocation, memory management during execution of the program, pointers and references, principles of graphic user interfaces (GUI), the GUI tools, methods of processing events Historical examples of software risks (such Therac-25 case), Implications of software complexity, Assessment and Risk Management, Fundamentals of intellectual property, copy, patents and trade secrets, software piracy, software patents, transnational issues regarding intellectual property rights, ethical and legal basis for the protection of privacy, Iimplications of the massive database on privacy, Technology strategy for the protection of privacy, Freedom of expression in cyberspace, International and intercultural implications, Risks and responsibilities of computer-based systems, Intellectual Property. Independent production of various simpler programming in C ++ (or related). Mastering all the elements of writing, fixing and using the program. |
| Learning outcomes | At the end of the course, it is expected that a successful student demonstrates a deep understanding of programming concept, the ability to understand and analyze problems and solutions implementation by using procedure style of programming by including elements of the graphical interface. Mastering the complete process of developing applications. |
| Length | One semester. |
| General information | The course represents the first programming course, provides the basics of imperative programming, |
| Restrictions to mobile students and availability before the signature of the learning agreement | There is no any restrictions. |