

**Undergraduate programme - COMPUTER SCIENCE - study mode: full-time**

Applicable from the academic year 2022/23 (for elective and specialization courses - from the 2021/22 academic year)

|  | Course Name  | code | hrs.  |           | 1st YR |    | 2nd YR |    | 3rd YR |    | 4th YR |  | ECTS score |
|--|--|------|-------|-----------|--------|----|--------|----|--------|----|--------|--|------------|
|  |  |      | lect  | class/lab | 1      | 2  | 3      | 3  | 5      | 6  | 7      |  |            |
| 1                                      | Calculus   | AM   | 30    | 30        | EZ     |    |        |    |        |    |        |  | 6          |
| 2                                      | Foundations of Java Programming                              | PPJ  | 30    | 60        | EZ     |    |        |    |        |    |        |  | 6          |
| 3                                      | Computer Techniques and Architecture                         | TAK  | 30    | 0         | E      |    |        |    |        |    |        |  | 4          |
| 4                                      | Introduction to Management                                   | WDZ  | 30T   | 30        | Z      |    |        |    |        |    |        |  | 3          |
| 5                                      | Introduction to Information Systems                          | WSI  | 16    | 30        | EZ     |    |        |    |        |    |        |  | 5          |
| 6                                      | History and Culture of Japan                                 | HKJ  | 30    | 0         | Z      |    |        |    |        |    |        |  | 3          |
| 7                                      | English  | ANG  | 0     | 60        | Z      |    |        |    |        |    |        |  | 3          |
| 8                                      | Occupational Health and Safety                               | BHP  | 4     | 0         | Z      |    |        |    |        |    |        |  | 0          |
| 9                                      | Linear Algebra with Geometry                                 | ALG  | 30    | 30        |        | EZ |        |    |        |    |        |  | 5          |
| 10                                     | Discrete Mathematics   | MAD  | 30    | 30        |        | EZ |        |    |        |    |        |  | 5          |
| 11                                     | Relational Databases   | RBD  | 30    | 30        |        | EZ |        |    |        |    |        |  | 5          |
| 12                                     | Object Oriented-Programming and Graphical User Interface     | GUI  | 30    | 30        |        | Z  |        |    |        |    |        |  | 4          |
| 13                                     | Programming in C and C++                                     | PJC  | 30    | 30        |        | Z  |        |    |        |    |        |  | 4          |
| 14                                     | Operating Systems  | SOP  | 30    | 15+15int  |        | Z  |        |    |        |    |        |  | 4          |
| 15                                     | English  | ANG  | 0     | 60        |        | Z  |        |    |        |    |        |  | 3          |
| 16                                     | Algorithms and Data Structures                               | ASD  | 30    | 30        |        |    | EZ     |    |        |    |        |  | 5          |
| 17                                     | Statistical Data Analysis                                    | SAD  | 30    | 30        |        |    | EZ     |    |        |    |        |  | 5          |
| 18                                     | Database Systems   | SBD  | 30    | 30        |        |    | EZ     |    |        |    |        |  | 6          |
| 19                                     | Digital Systems and Foundations of Electronics               | SYC  | 30    | 30        |        |    | Z      |    |        |    |        |  | 4          |
| 20                                     | Universal Programming Techniques                             | UTP  | 30    | 30        |        |    | Z      |    |        |    |        |  | 4          |
| 21                                     | Computer Networks and Network Programming in Java            | SKJ  | 30    | 30        |        |    | EZ     |    |        |    |        |  | 5          |
| 22                                     | English  | ANG  | 0     | 60        |        |    | Z      |    |        |    |        |  | 3          |
| 23                                     | Artificial Intelligence Tools                                | NAI  | 30    | 30        |        |    |        | EZ |        |    |        |  | 7          |
| 24                                     | Fundamentals of Python Programming                           | PPY  | 30    | 30        |        |    |        | Z  |        |    |        |  | 4          |
| 25                                     | Physical Education   | WF   | 0     | 30        |        |    |        | Z  |        |    |        |  | 0          |
| 26                                     | Information Systems Design                                   | PRI  | 30    | 30        |        |    |        | EZ |        |    |        |  | 7          |
| 27                                     | Legal Foundations of Business                                | PPB  | 16int | 0         |        |    |        | Z  |        |    |        |  | 3          |
| 28                                     | Multimedia   | MUL  | 30    | 30        |        |    |        | Z  |        |    |        |  | 7          |
| 29                                     | Foreign language   | LEK  | 0     | 60        |        |    |        | Z  |        |    |        |  | 3          |
| 30                                     | Project 1 (for each specialization)                          | PRO1 | 30    | 30        |        |    |        |    | Z      |    |        |  | 7          |
| 31                                     | Specialization-specific course 1                             | /    | 30    | 30        |        |    |        |    | EZ     |    |        |  | 6          |
| 32                                     | Computer Graphics  | GRK  | 30    | 30        |        |    |        |    | EZ     |    |        |  | 6          |
| 33                                     | Software Engineering   | BYT  | 30    | 30        |        |    |        |    | EZ     |    |        |  | 6          |
| 34                                     | IT Project Management  | ZPR  | 30    | 30        |        |    |        |    | EZ     |    |        |  | 4          |
| 35                                     | Foreign language   | LEK  | 0     | 60        |        |    |        |    | Z      |    |        |  | 3          |
| 36                                     | Physical Education   | WF   | 0     | 30        |        |    |        |    | Z      |    |        |  | 0          |
| 37                                     | Project 2 (for each specialization)                          | PRO2 | 30    | 30        |        |    |        |    |        | Z  |        |  | 7          |
| 38                                     | Specialization-specific course 2                             | /    | 30    | 30        |        |    |        |    |        | EZ |        |  | 6          |
| 39                                     | Modeling and analysis of information systems                 | MAS  | 30    | 30        |        |    |        |    |        | EZ |        |  | 6          |
| 40                                     | Information Systems Security                                 | BSI  | 30    | 15+15int  |        |    |        |    |        | EZ |        |  | 6          |
| 41                                     | Foreign language   | LEK  | 0     | 60        |        |    |        |    |        | Z  |        |  | 3          |
| 42                                     | Project 3 (for each specialization)                          | PRO3 | 30    | 30        |        |    |        |    |        |    | Z      |  | 9          |
| 43                                     | Internship   |      |       | 160h      |        |    |        |    |        |    |        |  | 6          |
| 44                                     | Human-Computer Interaction                                   | ICK  | 30    | 30        |        |    |        |    |        |    | EZ     |  | 4          |
| 45                                     | Foreign language   | LEK  | 0     | 30        |        |    |        |    |        |    | Z      |  | 3          |
| <b>Elective courses (6 required)</b>   |  |      |       |           |        |    |        |    |        |    |        |  | X          |
| 1                                      | Foundations of Computer Simulations                          | PSM  | 30    | 30        |        |    |        | EZ |        |    |        |  | 4          |
| 2                                      | Database Applications  | APBD | 30    | 30        |        |    |        | EZ |        |    |        |  | 4          |
| 3                                      | Distributed Programming Technologies                         | TPO  | 30    | 30        |        |    |        | EZ |        |    |        |  | 4          |
| 4                                      | Knowledge Engineering Methods*                               | MIW  | 30    | 30        |        |    |        |    |        | EZ |        |  | 4          |
| 5                                      | Machine Learning Foundations*                                | PUM  | 30    | 30        |        |    |        |    |        | EZ |        |  | 4          |
| 6                                      | Basics of Bioinformatics**                                   | PBIO | 30    | 30        |        |    |        |    |        | EZ |        |  | 4          |
| 7                                      | Business Process Engineering**                               | IPB  | 30    | 30        |        |    |        |    |        | EZ |        |  | 4          |
| 8                                      | Machine learning deployment and AutoML****                   | SUML | 30    | 30        |        |    |        |    |        |    | EZ     |  | 4          |
| 9                                      | Automata and Grammars***                                     | AUG  | 30    | 30        |        |    |        |    |        |    | EZ     |  | 4          |
| 10                                     | Machine learning operations and system architectures***      | ASI  | 30    | 30        |        |    |        |    |        |    | EZ     |  | 4          |
| 11                                     | Content Management Systems****                               | CMS  | 30    | 30        |        |    |        |    |        |    | EZ     |  | 4          |
| <b>Specialization-specific courses</b> |  |      |       |           |        |    |        |    |        |    |        |  | X          |
| 1                                      | Internet Technologies (specialization codes: A, IO, E, G)    | TIN  | 30    | 30        |        |    |        |    |        | EZ |        |  | 6          |
| 2                                      | Advanced Computer Networks (specialization codes: B, H, C)   | ZSK  | 30    | 30        |        |    |        |    |        | EZ |        |  | 6          |
| 3                                      | Intelligent Control Systems (specialization codes: D, F)     | ISS  | 30    | 30        |        |    |        |    |        | EZ |        |  | 6          |
| 4                                      | Participatory Game Design (specialization code: J)           | PAPG | 30    | 30        |        |    |        |    |        | EZ |        |  | 6          |
| 5                                      | Database Administration (specialization codes: A, IO)        | ABD  | 30    | 30        |        |    |        |    |        |    | EZ     |  | 6          |
| 6                                      | Advanced Operating Systems (specialization codes: B, C)      | ZSO  | 30    | 30        |        |    |        |    |        |    | EZ     |  | 6          |
| 7                                      | Machine Vision (specialization codes: D, E, F)               | WMA  | 30    | 30        |        |    |        |    |        |    | EZ     |  | 6          |
| 8                                      | Unity - Design Patterns and Programming Practices (spec.: J) | UWP  | 30    | 30        |        |    |        |    |        |    | EZ     |  | 6          |
| 9                                      | Mobile Programming (specialization codes: G, H)              | PRM  | 30    | 30        |        |    |        |    |        |    | EZ     |  | 6          |

T - course conducted remotely using teleconferencing platform

ECTS required: 229

\*Student may choose only one course from each pair marked with the same number of asterisks.

E - exam

Z - graded credit