

|   |                      |                                |  |   |     |     |  |  |  |  |
|---|----------------------|--------------------------------|--|---|-----|-----|--|--|--|--|
| Software Engineering Institute  |                      |                                | Semester 1. of the curriculum<br>2025-26-2 |   |     |     |  |  |  |  |
| Name of the subject:  | Code of the subject: | Credits:                       | Weekly hours:                              |   | lec | sem |  |  |  |  |
|   |                      |                                |  |   |     |     |  |  |  |  |
| Software technology   | NSXST1EBNF           | 5                              | full-time                                  | 2 | 0   | 0   |  |  |  |  |
| Responsible person for the subject: Prof. Dr. habil Zoltán Imre Vámossy |                      |                                | Classification: university professor       |   |     |     |  |  |  |  |
| Subject lecturer(s): Zsolt Krutilla                                     |                      |                                |  |   |     |     |  |  |  |  |
| Prerequisites:  | NSXSFAEBNF           | Basics of Software Development |  |   |     |     |  |  |  |  |
| Way of the assessment:  | Exam                 |                                |  |   |     |     |  |  |  |  |

### Course description

|                     |   |
|---------------------|---|
| Goal:               | The aim of this course is to provide students with practical foundations in modern software engineering, covering software size measurement and estimation, sequential and iterative development models, and agile methodologies supported by software metrics. Throughout the semester, students will learn UML-based planning from basic to advanced level, and gain hands-on experience with version control using Git, including multi-branch workflows. In addition, the course develops core project management skills, introduces industrial development tools, and prepares students to organize, coordinate, and manage software teams effectively in a realistic development environment. |
| Course description: | The presentation provides a comprehensive overview of modern software development tools and methodologies, version tracking, project management, and the basics of organizing and managing development teams.   |

### Lecture schedule

| Education week | Topic                           |
|----------------|---------------------------------|
| 1.             | Size of software, estimation    |
| 2.             | Sequential models               |
| 3.             | Iterative models                |
| 4.             | Agile methodologies             |
| 5.             | Software metrics                |
| 6.             | UML-based planning basics       |
| 7.             | Rector's break                  |
| 8.             | UML-based planning advanced     |
| 9.             | Version tracking with Git       |
| 10.            | Using Git for multiple branches |
| 11.            | Project management basics       |
| 12.            | Organizing and managing teams   |
| 13.            | Industrial development tools    |
| 14.            | Pre-exam                        |

### Mid-term requirements

|   |  |
|---|--|
| Conditions for obtaining a mid-term grade/signature | For the signature the students need to write an online (Moodle-based) test during the semester and need to reach at least 50%. At the end of the semester there is a possibility to write a pre-exam |
|---|--|

### Assessment schedule

| Education week | Topic    |
|----------------|----------|
| 14.            | Pre-exam |
|                |          |
|                |          |

| <b>Type of the replacement</b>   |   |
|--|---|
| Type of the replacement of written test/mid-term grade/signature   | The Moodle test can be retaken once during the semester. If the test is failed a second time, it can be retaken at the beginning of the exam period as a signature replacement. |
| <b>Type of the exam</b> (to be filled out only for subjects with exams)  |   |
| Personally written (test-based) exam paper during the exam period.   |   |
| <b>Calculation of the exam mark</b> (to be filled only for subjects with exams)  |   |
|  |   |
| <b>Final grade calculation methods:</b>  |   |
| <ul style="list-style-type: none"> <li>- Excellent: above 85%</li> <li>- Good: above 73%</li> <li>- Medium: above 62%</li> <li>- Sufficient: above 50%</li> <li>- Insufficient: below 50%</li> </ul> |   |
| <b>References</b>  |   |
| Obligatory:  | <ul style="list-style-type: none"> <li>- Moodle (E-learning) learning materials</li> </ul>  |
| Recommended:   | <ul style="list-style-type: none"> <li>- Ian Sommerville - Software engineering Pearson Education Limited 2015</li> </ul>   |
| Other references:  |   |