



Subject card

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|---|---|--|----------------------------|-------------------------------------|--|------------|-----|
| Subject name and code | Information Systems Evolution Management, PG_00048283 | | | | | | |
| Field of study | Informatics, Biomedical Engineering, Biomedical Engineering, Biomedical Engineering | | | | | | |
| Date of commencement of studies | February 2022 | Academic year of realisation of subject | | | 2022/2023 | | |
| Education level | second-cycle studies | Subject group | | | Optional subject group Subject group related to scientific research in the field of study | | |
| Mode of study | Full-time studies | Mode of delivery | | | at the university | | |
| Year of study | 1 | Language of instruction | | | Polish | | |
| Semester of study | 2 | ECTS credits | | | 2.0 | | |
| Learning profile | general academic profile | Assessment form | | | exam | | |
| Conducting unit | Department of Software Engineering -> Faculty of Electronics, Telecommunications and Informatics | | | | | | |
| Name and surname of lecturer (lecturers) | Subject supervisor | | dr inż. Andrzej Wardziński | | | | |
| | Teachers | | dr inż. Andrzej Wardziński | | | | |
| Lesson types and methods of instruction | Lesson type | Lecture | Tutorial | Laboratory | Project | Seminar | SUM |
| | Number of study hours | 15.0 | 0.0 | 0.0 | 15.0 | 0.0 | 30 |
| | E-learning hours included: 0.0 | | | | | | |
| Learning activity and number of study hours | Learning activity | Participation in didactic classes included in study plan | | Participation in consultation hours | | Self-study | SUM |
| | Number of study hours | 30 | | 4.0 | | 16.0 | 50 |
| Subject objectives | The goal of this course is to develop understanding of the role and scope of the processes of information systems evolution, to acquire knowledge of the methods and techniques of IT systems operational management, their modifications, integration, migration, support services and continuity management | | | | | | |

| Learning outcomes | Course outcome | Subject outcome | Method of verification |
|-------------------|--|--|--|
| | [K7_K02] is ready to provide critical evaluation of received content and to acknowledge the importance of knowledge in solving cognitive and practical problems | The student can analyze the system architecture in terms of ease of evolution and scalability | [SK5] Assessment of ability to solve problems that arise in practice |
| | [K7_U42] can solve engineering and research problems including design, assessment and maintenance of information systems and applications, using experimental methods and management techniques | The student can plan the work the information system change management and assurance of service level and business continuity. | [SU1] Assessment of task fulfilment |
| | [K7_W41] Knows and understands, to an increased extent, the standards, production methods, life cycle and development trends of software as well as information systems and applications. | The student knows and understands the main processes of system evolution management (ITIL) and evolutionary software development processes (SCRUM). | [SW1] Assessment of factual knowledge |
| | [K7_U08] while identifying and formulating engineering tasks specifications and solving these tasks, can: n- apply analytical, simulation and experimental methods, n- notice their systemic and non-technical aspects, n- make a preliminary economic assessment of suggested solutions and engineering workn | The student can analyze the processes of information system change management, business continuity and service level including aspects of business processes, organization, location, data, applications and infrastructure. | [SU1] Assessment of task fulfilment |
| | [K7_W03] Knows and understands, to an increased extent, the construction and operating principles of components and systems related to the field of study, including theories, methods and complex relationships between them and selected specific issues - appropriate for the curriculum. | The student knows the properties of system architectures and their components and is able to apply them to ensure ease of evolution, maintenance and scalability | [SW1] Assessment of factual knowledge |

| Subject contents | <p>Lecture</p> <p>The scope of the lectures includes:</p> <ul style="list-style-type: none"> - Information systems evolution process - software quality and maintainability - Change analysis and management - Architecture and design patterns - Data quality - Configuration and release management, Continuous integration - Quality assurance, software code quality - Evolutionary software development model - Agile methodologies, XP, SCRUM - IT services management, ITIL, DevOps <p>Student project</p> <p>During this project students work in groups. Groups receive a task requiring analysis in the areas like system changes (integration, migration), or management of system continuity or service level. The aim of the project is to use the knowledge acquired during the course to analyze the problem for a particular information system and determine organizational and technical solutions.</p> | | | | | | | | | | | |
|--|---|---|--|--------------------------|-------------------|-------------------------------|---------|-------|-------|--------|-------|-------|
| Prerequisites and co-requisites | No prerequisites | | | | | | | | | | | |
| Assessment methods and criteria | <table border="1"> <thead> <tr> <th data-bbox="453 1337 794 1368">Subject passing criteria</th> <th data-bbox="799 1337 1141 1368">Passing threshold</th> <th data-bbox="1145 1337 1490 1368">Percentage of the final grade</th> </tr> </thead> <tbody> <tr> <td data-bbox="453 1375 794 1406">Project</td> <td data-bbox="799 1375 1141 1406">50.0%</td> <td data-bbox="1145 1375 1490 1406">50.0%</td> </tr> <tr> <td data-bbox="453 1413 794 1444">Theory</td> <td data-bbox="799 1413 1141 1444">50.0%</td> <td data-bbox="1145 1413 1490 1444">50.0%</td> </tr> </tbody> </table> | | | Subject passing criteria | Passing threshold | Percentage of the final grade | Project | 50.0% | 50.0% | Theory | 50.0% | 50.0% |
| Subject passing criteria | Passing threshold | Percentage of the final grade | | | | | | | | | | |
| Project | 50.0% | 50.0% | | | | | | | | | | |
| Theory | 50.0% | 50.0% | | | | | | | | | | |
| Recommended reading | Basic literature | <ol style="list-style-type: none"> 1. ISO/IEC 20000-1:2011 (IEEE 20000-1:2011), "Information technology - Service management", 2011 2. Ken Schwaber, Jeff Sutherland, SCRUM Guide, SCRUM Alliance, 2017 3. Martin Fowler, Kent Beck, John Brant, William Opdyke, Don Roberts, „Refactoring: Improving the Design of Existing Code”, Addison-Wesley 2012 | | | | | | | | | | |
| | Supplementary literature | <ol style="list-style-type: none"> 1. T. Mens, S. Demeyer, Software Evolution, Springer-Verlag, 2008 2. Steve McConnell, „Software Estimation: Demystifying the Black Art”, Microsoft Press, 2006 3. J. Hurwitz, R. Bloor, M. Kaufman, F. Halper, "Service Oriented Architecture For Dummies", Wiley, 2009 4. Jurgen Appelo, „Management 3.0: Leading Agile Developers, Developing Agile Leaders", Addison-Wesley, 2011 5. John van Bon, "Foundations of IT Service Management: based on ITIL", Van Haren Publishing, 2005 | | | | | | | | | | |
| | eResources addresses | | | | | | | | | | | |
| Example issues/ example questions/ tasks being completed | <ul style="list-style-type: none"> - measures of ease of maintenance and changes (evolution) of the system - design patterns used in the evolutionary software development - architectural patterns for the evolution of systems and their scalability - service level management (SLA) | | | | | | | | | | | |
| Work placement | Not applicable | | | | | | | | | | | |