RTU Course "Software Evolution Technologies"

12306 Department of Applied Computer Science

General data

Code	DPI349
Course title	Software Evolution Technologies
Course status in the programme	Compulsory/Courses of Limited Choice
Course level	Undergraduate Studies
Course type	Academic
Field of study	Computer Science
Responsible instructor	Oksana Ņikiforova
Volume of the course: parts and credits points	1 part, 3.0 Credit Points, 4.5 ECTS credits
Language of instruction	LV, EN
Annotation	1968 is the year of identification of software crisis and software engineering was recognized as an engineering discipline, which enables to view software development as an engineering process. The course deals with modern software development techniques and technologies used in different stages of software development process. In general, software development can be divided into the following components: life cycle, process, analysis and design tools, programming environment, quality assurance, project management, team work. These components are discussed during the course, showing their evolution, solved and unsolved problems.
Goals and objectives of the course in terms of competences and skills	The goal is to gain experience in evolution of software development process models and in using advanced software development technologies . Objectives: - to learn to define advantages and disadvantages of software development process models. - to learn to define activities and artefacts of software development stages. - to learn to prepare a report about a problem existing in the field of software development, its solutions, different view points on the problem from other researchers and one's own opinion.
Structure and tasks of independent studies	Students prepare reports on the defined problem and present it during workshop sessions.
Recommended literature	1. Schach S. R. Object-Oriented & Classical Software Engineering, McGraw-Hill International Edition, Seventh Edition, 2007 2. Pressman R. S. Software Engineering A Practitioner's Approach, McGraw-Hill International Edition, Sixth Edition, 2005 3. Cockburn A. Agile Software Development. The Cooperative Game, Second Edition, Pearson Education Inc, 2007 Tekošajā gadā aktuālie konferenču rakstu krājumi.
Course prerequisites	None

Course outline

Theme	Hours
Course introduction and requirements.	2
Organization of software development process and its life-cycle.	6
Disciplined software development models.	8
Agile software development models.	8
Advanced approaches to software development.	8
Insight into software development quality and standards.	4
Professions in software development.	4
Team work. Insight into software management.	8

Learning outcomes and assessment

Learning outcomes	Assessment methods
Is able to define advantages and disadvantages of software development process models.	Tests.
Is able to define activities and artefacts of software development stages.	Tests.
Is able to prepare a report about a problem existing in the field of software development, its solutions, different view points on the problem from other researchers and one's own opinion.	Presentation is evaluated by other students and the instructor.
Is able to demonstrate the knowledge acquired within the scope of the course by answering questions and solving practical tasks.	Examination

Study subject structure

Part	CP	Hours per Week			Tests		
		Lectures	Practical	Lab.	Test	Exam	Work
1.	3.0	2.0	1.0	0.0		*	