



RTU Course "Methods and Evolution Trends of Applied Computer Science"

12306 Lietišķo datorzinātņu katedra

General data

Code	DPI508
Course title	Methods and Evolution Trends of Applied Computer Science
Course status in the programme	Compulsory/Courses of Limited Choice
Course level	Post-graduate Studies
Course type	Academic
Field of study	Computer Science
Responsible instructor	Osis Jānis
Volume of the course: parts and credits points	1 part, 4.0 Credit Points, 6.0 ECTS credits
Language of instruction	LV, EN, RU
Possibility of distance learning	Not planned
Abstract	This course introduces students to advanced techniques of applied computer sciences. Students are encouraged to analyze information from the Internet, periodic scientific publications and topical information presented in international scientific conferences and symposiums. Thus, students are able to keep track of trends of applied computer science elaboration and to assess their perspectives. Practical work encourages using and developing the latest results and trends of applied computer sciences in the Master Thesis.
Goals and objectives of the course in terms of competences and skills	The goal is to use and to evolve the latest achievements and trends of applied computer sciences in the master thesis. Students are encouraged to perform research within a Master Thesis. The research should be grounded on students' knowledge in software development. They should consider the latest results and discovered trends. Students can improve their competences in advanced software development techniques, skills in definition and formulation of technique similarities and differences, and assessment of perspectives of the new techniques.
Structure and tasks of independent studies	Independent studies include performing research within the Master Thesis with the aim to synthesize it with the information considered within the course.
Recommended literature	1. Arthur Riel. Object-Oriented Design Heuristics. Prentice-Hall, New Jersey, 2002 2. ECOOP rakstu krājumi, http://www.ecoop.org 3. Ivar Jacobson. The Unified Software Development Process. Addison-Wesley, 2002. 4. http://www.research.ibm.com/journal 5. The Object Management Group, http://www.omg.org 6. The Agile Alliance, http://www.agilealliance.org/ 7. Software Engineering Method and Theory, http://www.sem.at.org
Course prerequisites	Object Oriented Software Development, English language

Course outline

Theme	Hours
Insight into new trends in software development techniques	2
Analytical overview of international conference and workshop proceedings, periodicals, Internet sources	12
Novelties and trends in object-oriented software development	10
Novelties and trends in software modularization	8
Novelties and trends in model-driven software development: model creation, transformation, v&v, and quality	8
Novelties and trends in test-driven software development	2
Novelties and trends in agile software development, and its comparison with "hard-weight" software development	6
Synthesis of the considered trends and novelties with the Master Thesis research	8
Presentation of results of the synthesis	8

Learning outcomes and assessment

Learning outcomes	Assessment methods
To be able to analyze information from the Internet, periodicals, and international conference and workshop proceedings and to define novelties and trends in advanced software development techniques	Positively assessed report
To be able to synthesize the latest achievements and trends with the Master Thesis	Positively assessed report
To be able to formulate and explain similarities and differences of software development techniques	Positively assessed report
To be able to assess perspectives of advanced techniques and the latest achievements	Positively assessed report
To be able to present and to ground students' opinion about the synthesis results of novelties and trends with students' Master Thesis	Positively assessed presentation
To be able to formulate and explain novelties and trends in applied computer sciences	Successfully passed examination.

Study subject structure

Part	CP	ECTS	Hours per Week			Tests		
			Lectures	Practical	Lab.	Test	Exam	Work
1.	4.0	6.0	2.0	2.0	0.0		*	