RTU Course "Software Quality"

12306 Lietišķo datorzinātņu katedra

General data

Code	DPI538
Course title	Software Quality
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	Asņina Ērika
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	Within this course students get acquainted with foundations of quality assurance and all-embracing quality control. Quality management at enterprises and projects, including software verification and validation, reviews and external/internal audits, configuration management and document control are considered. The course presents information about standard taxonomy, national standards and regulations, international and national systems of standards. Questions on legal protection of software developers and their clients, different models of quality management and their application in IT industry are discussed.
Goals and objectives of the course in terms of competences and skills	The goal is to raise student competence in the methods of quality assurance at enterprises and at the project level, to improve skills in adaptation and application of standards and models, which state requirements for enterprise quality management systems, knowledge about rights and legal protection of software product authors, developer companies and customers.
Structure and tasks of independent studies	Independent work includes study of international and national standards and comparison of quality management models in order to discover opportunities of the shared use of standards in the IT industry.
Recommended literature	1. Darrel Ince. Software Quality Assurance - A Students Introduction. MsGraw-Hill, 1995. 2. IEEE Software & Systems Engineering Standards Collection: VuSpec, 2008 Edition. The Institute of Electrical and Electronics Engineers, Inc. 3. Darja Šmite, Dainis Dosbergs, Juris Borzovs. Informācijas un komunikācijas tehnoloģiju nozares tiesību un standartu pamati. 2005, 208 lpp., LU akadēmiskais apgāds. 4. Latvijas Republikas likums „Autortiesību likums" un „Patentu likums", www.likumi.lv 5. The capability maturity model : guidelines for improving the software process / Boston [etc.]: Addison-Wesley, 2001. 6. ITIL, http://www.best-management-practice.com/IT-Service-Management-ITIL/ 7. SPICE Document Suite, http://www.sqi.gu.edu.au/spice/suite/ 8. J.M. Siviy, M. Lynn Penn, R.W. Stoddard „CMMI and Six Sigma. Partners in Process Improvement", Addison-Wesley, 2007.
Course prerequisites	Software engineering, English

Course outline

Theme	Hours
International and national quality assurance systems, organizations of standardization	2
Basic concepts of quality, organization of the quality management system. Standards	2
Intellectual property rights and safety. Licenses and license contracts. Relations between an employer and employees	4
Software development processes, ISO 12207, forms of process description	8
Software development documents and their quality. Computer program (software) contracts	4
Software development tasks and quality assurance, Requirements for quality management systems – ISO 9001	6
Analysis and measuring of enterprise processes and establishing of the quality management system	20
Audits	4
Quality models and their comparison	14

Learning outcomes and assessment

Learning outcomes	Assessment methods
To be able to adapt standards for quality management systems to the suggested organization	Passed laboratory work
To be able to compare quality models and to evaluate their application fields in software development	Passed laboratory work
To be able to recognize a type of a software development process and to evaluate activities for improving its quality	Passed laboratory work
To be able to evaluate eligibility of the quality management system to the adopted quality standard	Passed laboratory work
To be able to explain the impact of quality assurance activities on software development, quality improvement approaches and legal aspects of software development	Passed exam

Study subject structure

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