COURSE UNIT DESCRIPTION

Course unit title	Course unit code
Software Quality	**PMSK7134**

Lecturer(s)	Department where the course unit is delivered
Coordinator: assoc. prof. dr. Sigitas Dapkūnas **Other lecturers: –**	Department of Software Engineering Faculty of Mathematics and Informatics Vilnius University

Cycle	Level of course unit	Type of the course unit
Second		Optional

Mode of delivery	Semester or period when the course unit is delivered	Language of instruction
Face-to-face	Spring semester, first year of study	Lithuanian, English

Prerequisites and corequisites	
Prerequisites: –	**Corequisites (if any):** –

Number of ECTS credits allocated	Student's workload	Contact hours	Self-study hours
5	130	66	64

Purpose of the course unit: programme competences to be developed		
To acquire skills in the software quality assessment methods, information about the standards relating to the software product quality and its assessment, learn to analyze scientific literature relating to this topic. To develop skills in selecting and applying appropriate software quality evaluation methods in practice.		
Learning outcomes of the course unit: students will be able to	**Teaching and learning methods**	**Assessment methods**
Characterize the software quality problems, explain their causes and solution methods.	Lectures, literature analysis	Exam (written)
Explain and evaluate the software product quality models and quality assurance methods.	Lectures, individual work, consultations	Exam (written)
Analyse the scientific literature on software product quality, prepare reports and answer questions, discuss.	Individual work, information retrieval and study, report preparation and presentation on the seminar, discussion	Report on the seminar, answer to the teacher and students' questions

Course content: breakdown of the topics	**Contact hours**							**Self-study work: time and assignments**	
	Lectures	Tutorials	Seminars	Practice	Laboratory work	Practical training	**Contact hours**	**Self-study hours**	**Assignments**
1. The concept of quality, software quality models, standards	4		4				**8**	**7**	Reading and analysis of scientific literature, report preparation

2. Software quality evaluation methods, evaluation standards	12	1	9				**22**	**19**	Reading and analysis of scientific literature, report preparation
3. Software measurement	6	1	7				**14**	**12**	Reading and analysis of scientific literature, report preparation
4. Function point analysis	4		4				**8**	**9**	Reading and analysis of scientific literature, report preparation
5. Quality management tools and support costs	4		2				**6**	**6**	Reading and analysis of scientific literature, report preparation
6. Prevention means and methods	2		4				**6**	**6**	Reading and analysis of scientific literature, report preparation
7. Preparing for the exam and taking the final exam (written)							**2**	**5**	Self-study of literature
Total	**32**	**2**	**30**				**66**	**64**	

Assessment strategy	**Weight %**	**Deadline**	**Assessment criteria**
Auditory work during seminars	40	During the semester	Up to four points for presentation of a selected scientific topic during seminar. Assessment is performed after presentation regarding to the completeness of topic (up to 2 points) and to the answers to the questions (up to 2 points).
Written exam	60	Spring exam session	Six open-ended questions during the exam. Up to one point for the answer to each question. It is assessed the completeness and correctness of the answers.

Author	**Publishing year**	**Title**	**Number or volume**	**Publisher or URL**
Required reading				
Taz Daughtrey (Ed)	2002	Fundamental Concepts for the Software Quality Engineer		ASQ Quality Press
Stephen H. Kan	2002	Metrics and Models in Software Quality Engineering		Addison Wesley
Linda M. Laird, M. Carol Brennan	2006	Software Measurement and Estimation: A Practical Approach		Wiley-IEEE Computer Society Press
Ian Sommerville	2007	Software Engineering (8th Edition)		Addison Wesley
G. Gordon Schulmeyer	2008	Handbook of Software Quality Assurance		Artech House
Recommended reading				
René Braungarten, Martin Kunz, Reiner Dumke	2005	An Approach to Classify Software Measurement Storage Facilities		Otto-von-Guericke University Magdeburg
Isabel Evans	2004	Achieving Software Quality through Teamwork		Artech House
Cem Kaner	1996	Quality Cost Analysis: Benefits and Risks	Software QA, Volume 3, #1	
Nancy R. Tague	2004	The Quality Toolbox		ASQ Quality Press
Jeff Tian	2005	Software Quality Engineering: Testing, Quality Assurance, and Quantifiable Improvement		Wiley-IEEE Computer Society Press