



1.	<b>Course title</b>	Software Reliability
2.	<b>Course code</b>	СИ-И-09
3.	<b>Semester</b>	10
4.	<b>Unit offering the course</b>	Faculty of Computer Science and Engineering
5.	<b>ECTS</b>	6
6.	<b>Goals of the study programme</b>	
	The course aims to offer students knowledge of the basic concepts of fault-resistance, the basic techniques for achieving fault-resistance in software, communication and electronic systems. Acquiring skills for modeling and evaluating fault-resistant architectures, their feasibility and reliability. Gain knowledge of possible sources of errors and ways to predict and prevent them. To know how to design and develop reliable software.	
7.	<b>Contents of the study programme</b>	
	Definition of software reliability, Definition of software availability, Need for reliable software, Application of software tolerant of failures. Software Development Cycle, Software Error Patterns, Software Error Sources, Software Development Strategy with Very Low Error rate. Using coding standards. Application of different software structures, Decomposition by modules, Partitioning, Closing modules, Anomalous actions. Error detection, Time checks, Reverse check, Error detection and correction codes, Logic check, Structural checks. Exception handling, Exception handling system design. Debugging, Induction Debugging, Deduction Debugging. Logging information, Applying login for debugging, Applying login for error detection. testing, Automation of the testing process, Unit tests, Integration tests, Acceptance tests. Software in single version, Checkpoints and Restart, Pair of processes, Variety of input data. Multi-Version Software Techniques, Recovery Blocks, N-Version Programming, N Self-Testing Programs,	



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	Consensus Recovery Blocks, $t / (n-1)$ - Variant Programming.
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