

Study Programme: Information Technologies – Master			
Course Unit Title: Software Evolution			
Course Unit Code: IT704			
Name of Lecturer(s): Miloš Radovanović			
Type and Level of Studies: Master Academic Degree			
Course Status (compulsory/elective): Elective			
Semester (winter/summer): Winter			
Language of instruction: Serbian (primary), English (secondary)			
Mode of course unit delivery (face-to-face/distance learning): Face-to-face			
Number of ECTS Allocated: 7			
Prerequisites: None			
Course Aims: The goal of this course is to present and critically analyze current techniques for software evolution and provide students with practical experience in using a set of tools known as FermaT.			
Learning Outcomes:			
<i>Minimum:</i> At the end of the course it is expected from a successful student to be capable of critically evaluating the current basics of software evolution, adopt reengineering techniques for software migration and abstraction, and develop an integrated approach for software evolution life cycles.			
<i>Desirable:</i> At the end of the course it is expected from a successful student to demonstrate the ability to apply transformation rules in order to migrate a temporally and economically critical system, and acquire practical experience in the use of an industrial-strength tool such as FermaT.			
Syllabus:			
<i>Theory</i>			
Theoretical basis and classifications of software evolution, evolution within software development life cycles, Lehman's laws of evolution, software comprehension techniques, abstraction, slicing, refactoring, Wide Spectrum Language (WSL) and software transformation, transformation theory and its implementation, tools, and migration of software.			
<i>Practice</i>			
Acquaintance with tools such as FermaT and analysis of study examples.			
Required Reading:			
1. H. Yang, M. Ward. Successful Evolution of Software Systems. Artech House, 2003			
2. M. Fowler. Refactoring: Improving the Design of Existing Programs. Addison-Wesley, 1999			
Weekly Contact Hours: 5	Lectures: 2	Practical work: 3	
Teaching Methods:			
Lectures are held using classical presentation methods involving a projector. During exercises classical teaching methods involving a projector are used to analyze study examples. Also, the principles of application of studied topics are practiced on the computer, through acquaintance with the use of recommended tools. Students complement their knowledge through research into selected topics, and are tested through a written test, solution of practical problems, and preparation of a seminar paper that is defended at the end of the course.			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	Final exam	points

Test	20	Seminar paper	60
Practical problems	20		
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			