

Course title: Programming languages			
Lecturers: Mirjana K. Ivanović, Miloš M. Radovanović, Vladimir M. Kurbalija			
Status: elective			
ECTS: 15			
Requirements:			
Learning objectives			
Introduction to historical and practical reasons that caused appearance of different programming languages, and specifics of several different programming paradigms, with detailed presentation of characteristics of the most influential representatives. Training for application of verified solutions and modern tools in development of wide spectrum of applications.			
Learning outcomes			
By the end of the course, it is expected that the successful student be able to understand concepts of programming languages, comprehend importance of various programming styles and demonstrate specific skills of program development in several various programming paradigms.			
Syllabus			
<i>Theoretical instruction</i>			
History of the development of programming languages. Procedural and non-procedural programming languages. Basic characteristics of programming languages and the most common differences between them. Object-oriented methodology: design and implementation. Basic elements of object-oriented programming: classes, inheritance, dynamic binding. Presentation of some hybrid object-oriented languages. Object-oriented programming language. Structure and parts of a program. Basic data types, complex data types, classes and objects. Joining, expressions. Control and repetitive statements. Structure data types. Methods, class libraries. Basic elements of object-oriented design. Introduction to writing notations of various aspects of object-oriented programming system. Case-studies using object-oriented programming. Functional programming style. Basic elements of functional programming languages. Basic notions and mathematical bases. Data structures.			
Suggested literature:			
<ol style="list-style-type: none"> 1. Mirjana Ivanović, Mihal Bađonski, Zoran Budimac, Dragoslav Pešović: <i>Programming Language Java</i>, University of Novi Sad, Faculty of Science, Department of Mathematics and Informatics, Novi Sad, 2006. 2. Zoran Budimac, Mirjana Ivanović, Mihal Bađonski, Dušan Tošić: <i>Programming Language Scheme</i>, University of Novi Sad, Faculty of Science, Novi Sad, 2006. 3. Programming Languages, A.Tucker, R.Noonan, McGraw Hill, ISBN-10: 0072866098, 2006. 			
Weekly teaching load	Lectures: 5	Student research: 5	
Teaching methodology			
Lectures, consultations, interactive and dialog methods.			
Grading (maximal number of points 100)			
Pre-exam requirements	points	Final exam	points
Seminar papers	40	Oral exam	60