

Subject code	Credits
INFN2014	4

Course title in Lithuanian

C# IR DUOMENŲ STRUKTŪROS

Course title in English

C# AND DATA STRUCTURES

Short course annotation in Lithuanian (up to 500 characters)

Kursas skirtas dotNet platformos savybių, duomenų struktūrų ir jų naudojimo rengiant C# programas analizei. Aptariamos programavimui aukštesniame loginiame lygmenyje naudojamos priemonės: bendrinės klasės ir bendriniai duomenų rinkiniai, klasių išplėtimo priemonės, delegatai, duomenų srautai, užklausų formavimas, įvykių valdomos ir MVC platformos programos. Pradedama nuo paprastų konsolės programų ir baigiama sudėtingais WPF projektais.

Short course annotation in English (up to 500 characters)

The course is appointed for analysis of .NET platform tools, data structures and for using them in C# programs. Tools for programming in higher logical level (generic classes and collections, class extension tools, delegates, data streaming and query tools, event driven programming and implementing of MVC platform) are discussed. Students starts from development of simple Console Applications and finish with complicated WPF projects.

Prerequisites for entering the course

Basic knowledge of statistics, set theory, logics, algebra and software development.

Course aim

Learn .Net and tools for building software projects in higher logical level.

Content

No	Content (topics)
1.	Middleware, .NET platform and virtual.NET machine.
2.	C# primitive data structures and object model of Console Applications.
3.	Using of Array, String and Char classes.
4.	File and Stream classes. Text, byte and primitive data streams.
5.	Value and reference types, tools for development of user defined C# classes.
6.	Serialization and deserialization of object streams.
7.	Generic classes and interfaces.
8.	Generic collections, indexers and iterators.
9.	Stack, Queue, List and Dictionary classes.
10.	Delegates, abstract methods, lambda expressions and using them for processing of collections.
11.	Design of extension methods. IEnumerable interface.
12.	Using of LINQ operators and expressions for design of queries. Using queries for processing of collections.
13.	Multiple delegates, events and event driven programming.
14.	MVC and WPF platforms. Separate development of GUI and control code. Development of WPF applications.

Distribution of workload for students (contact and independent work hours)

Lectures	30 hours
Group work	5 hours
Laboratory work	30 hours
Individual students work	45 hours
Total:	110 hours

Structure of cumulative score and value of its constituent parts

Final written exam (50%), mid-term written exam (17%), and assessments of laboratory (practical) work (33%).

Recommended reference materials

No.	Publication year	Authors of publication and title	Publishing house	Number of copies in		
				University library	Self-study rooms	Other libraries
Basic materials						
1.	2012	Troelsen N. Pro C# 5.0 and the	Springer			http://www.clicktocontinue.com/books/

		.NET 4.5 Platform.				ProCSharp5AndTheNET4.5Framework.pdf
2.	2012	Neil Smuth. C# Essentials.	Techno-topia			On-line book: http://www.techotopia.com/index.php/C_Sharp_Essentials
3	2001	Bruno R. Preiss Data Structures and Algorithms with Object-Oriented Design Patterns in C#	On-line book			http://www.brpreiss.com/books/opus6/
<i>Supplementary materials</i>						
	2014	C# programming. Tutorials point				http://www.tutorialspoint.com/csharp/csharp_tutorial.pdf
	2013	Microsoft Visual Studio C# Step by Step	Microsoft Press			https://mitseu.files.wordpress.com/2014/08/microsoft_visual_c-sharp__2013_step_by_step.pdf

Course programme designed by

Doc. Antanas Vidžiūnas