Level: bachelor

Course title: Programming languages (I141)

Status: obligatory for study module of *Computer Science*; elective for the module of *Information Technologies*

ECTS: 7

Requirements: none

Learning objectives

Introducing students to the historical and practical reasons which led to the emergence of many different programming languages, explaining their specifics, similarities and differencies among several programming paradigms, along with the detailed overview of the characteristics of their most influential and most accepted representatives.

Learning outcomes

Minimal: Students should be able to understand the concepts of programming languages, and comprehend the significance of different styles of programming.

Optimal: Students should be able to understand the concepts of programming languages, the significance of different styles of programming, and to demonstrate the specific development skills in several programming paradigms.

Syllabus

Theoretical instruction

History of the development of programming languages. Procedural and nonprocedural programming languages. Characteristics of programming languages and the most common differences between them. A detailed comparative review of multiple programming styles (functional, logic...) and their typical representatives. Syntax and semantics. Basic concepts and mathematical basis. Data structures.

Practical instruction

Comparative review of different approaches to implementation of classic programming tasks, as well as an illustration of the philosophy behind each of the theoretical paradigms shown on typical examples. Testing of finished solutions, tools, discussion about the possibilities of applications, etc. Individual practical tasks: data types, statements, data structures.

Weekly teaching load				Other: 0
Lectures: 2	Exercises: 3	Other forms of teaching: 0	Student research: 0	