Study program	Level of studies		First cycle	
	Study program name		Physics and Informatics Education	
Course name	PROGRAMMING II			
Course ID	Semester	Course status	ECTS credits	L+E
CS170	**II**	**MANDATORY**	**7**	**3+4**
Lecturer				
Aims and intended learning outcomes	This course represents an advanced course in computer programming. The objectives of the module are to familiarize students with the modern approach to software development - designing and writing programs using object-oriented and generic techniques. The focus is on understanding the basic principles of modularity and abstraction in different contexts. By the end of the course, the students will be able to: ● Understand the basic concepts of object-oriented programming such as data abstraction, encapsulation, inheritance, and polymorphism; ● Implement abstract data types (ADT) by using classes; ● Understand the concepts of generic data types; ● Designing a modular software system by using object-oriented methods; ● Systematically to perform the testing of programs as well as systems.			

Course content

- Structures and classes.
- Constructors.
- Overloading operators.
- Dynamic memory allocation.
- Separate compilation.
- Inheritance.
- Polymorphism.
- Generic data types.
- Exceptions.
- STL standard library.
- Advanced techniques.

Student workload (hours)		Grading	
Lectures and Exercises	105	Assessment method	Points
Exam preparation	70	Laboratory assignments	25
		Midterm exam	30
		Project	10
Total	175	Final exam	35
		Total	100

Literature

1. W. Sawitch, Absolute C++, 5th Ed., 2013.
2. M. Weisfeld, The Object-OrientedThoughtProcess, 4th Ed., 2013.
3. R. Lafore, Object-OrientedProgramming in C++ 4th Ed.", 2001.
4. B. Stroustrup, The C++ programming language, 2013

Remarks