Discipline	PROGRAMMING FUNDAMENTALS code 03 winter semester
Specialty	Computer Science and Technologies
ECTS credits: 7	Form of assessment: exam
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Department	Computer Science and Engineering
Faculty	Faculty of Computing and Automation

The subject is oriented towards the fundamental preparation of the students of the specialty CST. The aim is to give students the knowledge and skills of programming using high-level languages and their applications.
The main tasks are related to the formation of knowledge and skills for:
•Computer software and hardware;
•The organization of operating systems for personal computers;
Program algorithms and flowcharts;
• Principles of programming and design of application programs;
•Presentation of information and main types and structures of data in high-level programming languages;
•Program structures in high-level languages;
•Principles of structural, modular and object programming;
•Working with libraries from standard subroutines.

CONTENTS

Training Area	Hours lectures	Hours exercises
General structure and functioning of the modern computer. Algorithms description tools. Programming languages.	3	3+3
Programming Language C / C ++. Modifiers and transformation of data types. Arithmetic operators.	3	3+3
Input / output streams. Basic input / output functions. Format Specifiers.	3	3+3
C / C ++ language statements.	3	3+3
Functions. Global and local variables. Parameters transfer and return results.	3	3+3
Arrays. Array's algorithms. Multi-dimensional arrays. Arrays and functions.	3	3+3
Strings. String type. Difference between C-String and String.	3	3+3
Structures. Initialization of structures. Access to structural elements. Arrays of structures.	3	3+3
Files and streams. File Organization. Access modes. File's functions.	3	3+3

Pointers. Link between pointer and variable. Dynamic variables. Pointer's operations. Arrays of pointers.	3	3+3