POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)
pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

COURSE DESCRIPTION CARD - SYLLABUS

Course name
Programming in C++

Course

Field of study	Year/Semester
Electronics and Telecommunications	IV/ I
Area of study (specialization)	Profile of study
	general academic
Level of study	Course offered in
Second-cycle studies	English
Form of study	Requirements
full-time	compulsory

Number of hours

Lecture	Laboratory classes	Other (e.g. online)
0	30	
Tutorials	Projects/seminars	
0	-/-	

Number of credit points
2

Lecturers

Responsible for the course/lecturer:	Responsible for the course/lecturer:
mgr inż. Karolina Lenarska	karolina.lenarska@put.poznan.pl

Prerequisites
Student should have a basic knowledge about programming in C, be able to retrieve and interpret information from books and Internet and understand a necessity to acquire a new knowledge and skills stemming from a chosen field of studies.

Course objective
The objective of this course is to expose student to procedural programming using C++ and to increase the depth of student's knowledge about several implementation issues.

POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

Course-related learning outcomes

Knowledge

1. Has a systematic knowledge from the area of computing science; knows the syntax of C++.

2. Has a systematic knowledge of solving various computational problems using C++ programming language.

Skills

1. Is able to write software for computational algorithms using C++ programming language.

2. Is able to write and run programs to solve various problems in telecommunication.

Social competences

1. Is aware of the limitations of his/her current knowledge and skills; is committed to further self-study.

2. Demonstrates responsibility and professionalism in solving technical problems. Is able to participate in collaborative projects.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Grades will be based on quizzes , assignments and two tests (mid-term test and final test). Several quizzes are planned (at least one) through the course and account for 15% of student's grade. During each class students are asked to complete several assignments (C++ programs). Assignments account for 25% of student's grade and are graded based on correctness, efficiency, code organization and style. Two tests are planned during the C++ programming course. These tests are based on live-code questions. Students are expected to wirte code segments and to demonstrate their understanding using C++ program code. Each test is worth 30% of the student's grade. Student has to gather more than 50% of points in order to receive a positive grade.

Programme content

1. Introduction to C++ (variable definitions, data types, using "cout", simple math expressions)

2. Expressions and Interactivity (reading input with "cin", formatting numbers)

3. Making decisions (the "if", "if/else", "if/else if" and "switch" statements)

4. Loops ("while" and "for" loops)

5. Arrays (declaring arrays, accessing array elements, two-dimensional arrays)

6. Functions (arguments, value-returning functions, arguments passed by value and reference)

7. Recursive functions

8. Pointers (initializing pointers, dynamic arrays, passing pointers to function)

9. Searching algorithms (sequential, binary and interpolation search)

POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

pl. M. Skłodowskiej-Curie 5, 60-965 Poznań

10. Sorting algorithms (bubble, selection and insertion sort)

Teaching methods

Short theoretical introduction of the current subject, simple examples with explanation on the table, completing programistic assignments prepared by teacher.

Bibliography

Basic

1. R. Lischner, "Exploring C++", Apress 2009

2. N. Solter, "Professional C++", Wiley Publishing, 2005

Additional

1. T. Gaddis, "Starting out with C++. From Control Structures through Objects. Brief", Pearson Education, Inc., 2010

2. B. Stroustrup, "The C++ programming language", Addison-Wesley an imprint of Addison Wesley Longman, Inc, 1999

Breakdown of average student's workload

	Hours	ECTS
Total workload	60	2,0
Classes requiring direct contact with the teacher	40	2,0
Student's own work (literature studies, preparation for laboratory classes, homeworks, preparation for tests) [1]	20	0,0

---

[1] delete or add other activities as appropriate