STUDY MODULE DESCRIPTION FORM

Name of the module/subject		Code
An introduction to programming		**1010334511010334957**
Field of study: **Information Engineering**	Profile of study (general academic, practical): **(brak)**	Year /Semester: **1 / 1**
Elective path/specialty: **-**	Subject offered in: **Polish**	Course (compulsory, elective): **obligatory**
Cycle of study: **First-cycle studies**	Form of study (full-time,part-time): **part-time**	
No. of hours: Lecture: **16** Classes: **-** Laboratory: **16** Project/seminars: **-**		No. of credits: **5**
Status of the course in the study program (Basic, major, other): **(brak)**	(university-wide, from another field): **(brak)**	
Education areas and fields of science and art: **technical sciences**		ECTS distribution (number and %): **5 100%**

Responsible for subject / lecturer:

dr Jerzy Bartoszek
email: jerzy.bartoszek@put.poznan.pl
tel. 61 665-3713, 61 665-2378
Wydział Elektryczny
ul. Piotrowo 3A 60-965 Poznań

Prerequisites in terms of knowledge, skills and social competencies:

1	**Knowledge**	Student has a basic knowledge resulting from the high school.
2	**Skills**	Student is able to meet the challenges arising from the high school.
3	**Social competencies**	Student has social skills resulting from the high school.

Assumptions and objectives of the course:

Basic programming styles and programming concepts with examples of programs in C/C++

Study outcomes and reference to the educational results for a field of study

Knowledge:

1. Student has structured and theoretically founded knowledge of the core. software design, implementation of algorithms, programming paradigms and styles, methods of verifying the correctness of programs, formal languages??, compilers, platforms. - [K_W05]

Skills:

1. Student is able to use programming environments and platforms to write, perform and test simple programs coded in imperative programming languages??. - [K_U10]
2. Student can construct algorithms using basic algorithmic techniques and analyze their complexity. - [K_U09]

Social competencies:

1. Student is aware of the importance of the accurate completion of the project, notational standards, respect for linguistic correctness and timely submissions. - [K_K07]

Assessment methods of study outcomes

Lectures: written tests, pass criterion of 50.1% points.
Laboratory: exercises tests and laboratory reports.

Course description

Lectures:

Algorithm vs program. Basic programming styles: imperative, declarative,object-oriented. Basic data structures in C and C++. Basic programming concepts: declarations and definitions of variables,constants and their types, arithmetical and logical operators ,

expressions, assignments, conditionals, loops, goto statement, I/O statements, files and streams. Functions and procedures. Parameters. Pointers. Dynamic memory allocation and implementation of dynamic data structures. Recursion and is implementation. Program correctness and appropriate verification methods.

Laboratory:

An introduction to Visual Studio: edition, compilation, execution and debugging.

Declarations and definitions of variables. Simple i/o statement.

Assignments and conditional statements.

One and mutli-dimensional arrays, loops.

Functions, procedures and their parameters.

Pointers and dynamical memory allocation. Structures.

Dynamical data structures: lists, queues, stacks, trees.

Basic bibliography:

1. Stroustrup B.,The C++ Programming Language (Third Edition), Addison-Wesley, 2000
2. Schildt H., C++: The Complete Reference, The Mcgraw-Hill Comp., Inc., Nowy Jork, 1998

Additional bibliography:

1. Banachowski L., Kreczmar A., Rytter W., Analysis of Algorithms and Data Structures, Addison Wesley, 1991
2. Mayo J., Microsoft Visual Studio 2010: A Beginner's Guide, Amazon, 2010.

Result of average student's workload

Activity	Time (working hours)
1. participation in lectures	16
2. participations in labs.	16
3. exam, consultation	8
4. preparation for labs., reports	48
5. preparation for tests and exam	40

Student's workload

Source of workload	hours	ECTS
Total workload	128	5
Contact hours	40	2
Practical activities	75	3