POZNAN UNIVERSITY OF TECHNOLOGY

EUROPEAN CREDIT TRANSFER AND ACCUMULATION SYSTEM (ECTS)

COURSE DESCRIPTION CARD - SYLLABUS

Course name
Introduction to Computing [S1Bioinf1>WdI]

Course

Field of study	Year/Semester
Bioinformatics	1/1
Area of study (specialization)	Profile of study
–	general academic
Level of study	Course offered in
first-cycle	Polish
Form of study	Requirements
full-time	compulsory

Number of hours

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

Number of credit points

5,00

Coordinators

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Lecturers

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Eryk Kosmala

Prerequisites

According to Polish educational framework for high schools (https://www.gov.pl/web/edukacja-i nauka/nowa-podstawa-programowa-dla-liceum-technikum-i-branzowej-szkoly-ii-stopnia-podpisana), it is assumed that student is prepared to solve problems using computational methods and tools, including logical and algorithmical thinking, programming, using computer applications, and searching for information in Internet and in other sources.

Course objective

The aim of the course is to present most important areas of computing - this is expected to help the students their study in the future.

Course-related learning outcomes

Knowledge:

Student has the basic knowledge about algorithms and data structures, computational complexity, combinatorial optimization, principles of structured and object-oriented programming, operating systems, databases, software engineering, computing systems lifecycle, and social aspects of computing.

Skills:
Student can apply basic techniques and tools to solve biological problems and is able to assess their suitability. Moreover, the student is aware of systemic and non-technical aspects of her/his activities.

Social competences:
Student shoould be aware of the importance of life-long learning, team work, and ability to prioritize. Student should be also aware of ethical aspects.

Methods for verifying learning outcomes and assessment criteria

Learning outcomes presented above are verified as follows:

Learning outcomes presented above are verified as follows:
1) Individual tests
2) Team competition

Programme content

Imperative programming; Digital Circuits & Computers; Machine-level Programming; Advanced Programming Constructs; Numerical Methods; Object-oriented Programming; Text Processing; Parallel Processing; Computational Complexity; Databases & Machine Learning; Combuter Networks & Cybersecurity; Software Engineering; Embedded Systems; Professionalism in the Field of Computing..

Course topics

Teaching methods

1) PowerPoint-supported lectures with some iteractive elements (short quizes during the lecture).
2) Laboratory classes with a Q&A part concerning the lecture and practical part (mainly programming tasks).
3) Moodle course with lecture slides, quizes, and some organizational information.
4) Individual tests and team contest (the latter helps the students to get some experience in team work).

Bibliography

Basic
1. Język C – Programowanie, B.W. Kernighan, D.M. Ritchie, Helion, 2010.
2. Układy cyfrowe, B. Wilkinson, WKiŁ, Warszawa, 2000
3. Programowanie komputerów IBM PC w języku asemblera, J. Nawrocki, WPP, Poznań, 1991
4. Wprowadzenie do przetwarzania tekstów w języku AWK, J. Nawrocki, W. Complak, ProDialog 2, 23-46, Poznań, 1994
Additional
1. 7 nawyków skutecznego działania, S. Covey, Rebis, 2003
2. Sieci komputerowe, J.F. Kurose, K.W. Ross, Helion, 2006

Breakdown of average student's workload

	Hours	ECTS
Total workload	125	5,00
Classes requiring direct contact with the teacher	60	2,50
Student's own work (literature studies, preparation for laboratory classes/ tutorials, preparation for tests/exam, project preparation)	65	2,50