

Fundamentals of computer science - course description

General information	
Course name	Fundamentals of computer science
Course ID	11.3-WE-BizEIP-PodsInform-Er
Faculty	Faculty of Computer Science, Electrical Engineering and Automatics
Field of study	E-business
Education profile	practical
Level of studies	First-cycle Erasmus programme
Beginning semester	winter term 2021/2022

Course information	
Semester	1
ECTS credits to win	4
Course type	obligatory
Teaching language	english
Author of syllabus	dr inż. Łukasz Hładowski

Classes forms					
The class form	Hours per semester (full-time)	Hours per week (full-time)	Hours per semester (part-time)	Hours per week (part-time)	Form of assignment
Lecture	30	2	-	-	Exam
Laboratory	15	1	-	-	Credit with grade

Aim of the course

Introduction to data organization and their computer representation.

Algorithmics and data structures fundamental terms introduction.

Developing elementary programming skills in a given programming language.

Prerequisites

no entry requirements

Scope

Foundation of algorithmics: algorithmic problem, algorithm, and its properties, control structures and block schemes. Algorithmic correctness and complexity, algorithmic complexity classes of problems, unsolvable problems, chosen algorithmic problems solving.

Elements of programming, data types, control instructions and operators, recursion functions, arrays, memory allocation, reference types, complex data types, files and input/output functions, use of classes, creating simple objects.

Teaching methods

Conventional lecture, laboratory exercises

Learning outcomes and methods of theirs verification

Outcome description	Outcome symbols	Methods of verification	The class form
Has a general knowledge about the data representation in computer systems		an evaluation test	- Lecture - Laboratory
Has a theoretical knowledge about algorithm design, principle data structures and algorithms that use them and solutions to chosen algorithmic problems.		- a multiple choice and open questions test - an evaluation test - an ongoing monitoring during classes	- Lecture - Laboratory
Can implement simple algorithms to solve chosen algorithmic problems		- a multiple choice and open questions test - an observation and evaluation of the student's practical skills - an ongoing monitoring during classes	- Lecture - Laboratory

Assignment conditions

Lecture – to receive a positive note of a written test.

Laboratory – to receive positive notes from all subject blocks taught during the semester.

Recommended reading

1. Cormen T. H., Leiserson C. E., Rivest R. L.: Introduction to Algorithms, MIT Press, 3rd edition, 2009,
2. Harel, D., Feldman, Y., Algorithmics: The Spirit of Computing (3rd Edition), Addison Wesley, 2004,
3. Horstmann, C. S., Core Java, Volume I - Fundamentals (11th Edition), Pearson, 2018.

Further reading

1. Chalk B.S., Carter A., Hind R.: Computer Organisation and Architecture, Red Globe Press, 2003.
2. Aho A. V., Hopcroft J. E., Ullman J.D.: Data Structures and Algorithms, Pearson 1983.
3. Harris S., Ross J.: Beginning algorithms, Wrox, 2005,
4. Horstmann, C. S., Core Java, Volume II - Advanced Features (11th Edition), Pearson, 2018.

Notes

Modified by dr inż. Łukasz Hładowski (last modification: 01-09-2021 10:01)

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