Syllabus

INTRODUCTION TO COMPUTER SCIENCE - 67101

Last update 29-09-2015

HU Credits: 7

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: computer sciences

Academic year: 0

Semester: 1st Semester

Teaching Languages: Hebrew

Campus: E. Safra

Course/Module Coordinator: Dr Aviv Zohar and Prof Noam Nisan

Coordinator Email: noam@cs.huji.ac.il

Coordinator Office Hours: Noam Nisan: Thursdays 10:30-11:30

Teaching Staff:
Dr. Aviv Zohar
Prof Noam Nisan
Mr. Green Ayal
Mr. Guy Eyal
Mr. Zarchy Doron
Mr. Asaf Valadarsky
Mr. Ohad Dan

**Course/Module description:**
Familiarity with Computer Science: Programming Python language and recognition of selected topics in computer science.

**Course/Module aims:**
Design and realization of selected algorithms from computer science in the Python language.

**Learning outcomes - On successful completion of this module, students should be able to:**
Design and realization of selected algorithms from computer science in the Python language.

**Attendance requirements(%):**
0

**Teaching arrangement and method of instruction:** Frontal lecture and exercise.

**Course/Module Content:**
1. expressions, vars, if, input, converters
2. iteration, while, problems, primes, sequences. Guest appearances: iterability, range specifics,
3. for, problems: roots, binary search, files
4. functions, search, functional programming, numerics: deriv, integrals
5. recursion, sort
6. set, dict, comprehensions, iterators-generators
7. Object Oriented Programming (OOP)
8. Dictionary problem, scrambling functions, String search
9. Data Structures - Linked list, Queue, Stack, search tree
10. Recursion, functional programming, Computability
11. Compression - Huffman coding, Ziv – Lempel
12. Representation and image processing, iterative processes
13. Codes for error detection and correction, communication
14. Multiple processes
**Required Reading:**
NA

**Additional Reading Material:**
NA

**Course/Module evaluation:**
*End of year written/oral examination 50 %*
*Presentation 0 %*
*Participation in Tutorials 0 %*
*Project work 0 %*
*Assignments 50 %*
*Reports 0 %*
*Research project 0 %*
*Quizzes 0 %*
*Other 0 %*

**Additional information:**
NA