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 \[\text{Linked list, Queue, Stack, search tree}\]  
10. Recursion, functional programming, Computability  
11. Compression - Huffman coding, Ziv \[\text{Lempel}\]  
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