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
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