

The Hebrew University of Jerusalem

Syllabus

INTRODUCTION TO COMPUTER SCIENCE FOR TALPIOT STU - 67108

Last update 20-05-2015

<u>HU Credits:</u> 6

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: computer sciences

<u>Academic year:</u> 1

<u>Semester:</u> 1st Semester

<u>Teaching Languages:</u> Hebrew

<u>Campus:</u> E. Safra

Course/Module Coordinator: Nadav Rappoport

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

Coordinator Office Hours: Coordinate in advance

<u>Teaching Staff:</u>

Ms. Shelly Mahlab

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:

Plan and implement selected algorithms from computer science in the Python language.

Attendance requirements(%):

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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

<u>Required Reading:</u> NA

<u>Additional Reading Material:</u> NA

<u>Course/Module evaluation:</u> End of year written/oral examination 60 % Presentation 0 % Participation in Tutorials 0 % Project work 0 % Assignments 40 % Reports 0 % Research project 0 % Quizzes 0 % Other 0 %

<u>Additional information:</u> NA