ENTER Computer Science Using Java

This is a step-by-step introduction to the art of problem solving using the computer using the Java programming language. Participants develop an understanding of programs like the ones that run on our computers, on the web and on our smart phones. Careful and inspired programming can lead to real-life applications that change the world and our everyday habits such as Productivity tools, Digital design, Games and Graphics.

Duration:
30 hours + Final Presentation

10 three hour afternoon sessions, over Thursdays/Tuesdays
Theory & Labs

Dates:
Period A: 17 October - 19 December 2013, Thursdays
Period B: 28 January - 8 April 2014, Tuesdays

Times:
16:00 - 19:00
Refreshments included

Fee:
Euro 325,00 per person

Venue:
British Council, Kolonaki Square, 17, Athens

Number of participants:
Minimum 6, maximum 20 participants

Computer Level:
Internet and Applications Usage
Trainers and Methodology:
The training team is composed of AIT professors and researchers and BC teachers—all highly qualified and highly experienced professionals. Besides holding a Ph.D. from renowned universities in technology, our trainers are engaged in relevant scientific research.

Our methodology is based on labs which are scheduled through all sessions. The program does not assume any prior knowledge of programming or computers and is a step-by-step introduction to the art of problem solving using the computer and the Java programming language. Labs provide opportunities to experiment with the concepts presented in class and problems that arise in real-life.

Main topics: include:

• How does a computer work? Logic, gates, circuits, designing logic circuits, machine organization.
• Designing algorithms.
• Analyzing the efficiency of algorithms.
• Implementing algorithms in Java.
• Computability and Complexity
• Social issues of computer science.

Target:
The training is aimed at anyone who has an interest in computer science and programming. It is a simplified transfer of a corresponding first year university courses, for students interested in programming not only those intending to major in computer science, even though it also addresses advanced topics. It will help participants acquire basic programming skills and expose them to a new way of thinking that is necessary to progress today’s science and engineering. Further, the exposure of the students to a challenging computer science course as well as the need to work in teams will open up new directions in their thinking about university education options and careers paths.

Course structure Three Hour Sessions:

1 Introduction and overview. What is (not) Computer Science? What is an algorithm?
3 Introduction to algorithms and Java programming. Pseudocode elements. Basic instructions. Conditional instructions. The infamous Hello world! program
4 Programming basics: Basic types and operations: input, output, variables, assignment and arithmetic expressions, if-then-else.
5 Loops & Nested loops Programming style. Class work.
6 Arrays in Java. Examples, Problems, Class work: Search array Strings, Examples, Problems, Class work
8 Methods in Java Array basic methods. For loops
9 Classes and objects in Java. Examples
10 Social Aspects of Computer Science

Contact us to discuss your training customerservices@britishcouncil.gr T +30 210 369 2333
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The modules:
11 Introduction and overview.
What is (not) Computer Science? What is an algorithm?
12 Computer Organization:
Binary numbers and conversions. Boolean logic, logic gates, logic circuits.
Von Neumann architecture. The fetch-decode-execute cycle.
13 Introduction to algorithms and Java programming.
Pseudocode elements. Basic instructions. Conditional instructions. The infamous Hello world! program
14 Programming basics:
Basic types and operations: input, output, variables, assignment and arithmetic expressions, if-then-else.
15 Loops & Nested loops
Programming style. Class work.
16 Arrays in Java. Examples, Problems, Class work: Search array
Strings. Examples. Problems, Class work
17 Algorithm efficiency
Searching: Sequential search. Binary search. Efficiency. Sorting, Class work
18 Methods in Java
Array basic methods. For loops
19 Classes and objects in Java.
Examples
20 Social Aspects of Computer Science