PROGRAMMING II

- **Course code**

  8119

- **Type of course (compulsory, optional)**

  Compulsory

- **Level of course**

  First Cycle

- **Year of study**

  2014-2015

- **Semester**

  3rd Semester

- **Number of credits allocated**

  6 ECTS Credits

- **Name of lecturer**

  Diomidis Spinellis (Professor)

- **Learning outcomes**

  At the end of this course students should be able to:
  - have a basic knowledge of the methods and programming techniques used for implementing information systems
  - design and build moderately complex applications
  - use ready-made libraries and data structures
  - reuse design patterns to structure their code
  - process complex data structures and sources
  - Evaluate alternative technologies and information system evaluation strategies

- **Mode of delivery (face-to-face, distance learning)**

Face-to-face lectures, tutorials, and lab sessions; assessed homework.

- **Prerequisites and co-requisites**

Introduction to Computer Science; Programming I

- **Recommended optional programme components**

N/A

- **Course contents**

Development environments and languages; compilers and interpreters; programming with objects; code style; building classes; inheritance; development of large systems: exceptions, assertions, interfaces, abstract patterns, packages; generalizations and threads; data structures: strings, iterators, vectors, stacks, and maps; structuring data with XML; file handling; development of graphical applications; string processing with regular expressions; interfacing with internet applications; handling data in relational databases.

- **Recommended or required reading**

  - Andrew Hunt and David Thomas. *The Pragmatic Programmer: From Journeyman to Master*. Addison-Wesley, Boston, MA, 2000.
  - Brian W. Kernighan and Rob Pike. T*he Practice of Programming*. Addison-Wesley, 1999.
  - Steve C McConnell. *Code Complete: A Practical Handbook of Software Construction*. Microsoft Press, Redmond, WA, second edition, 2004.
  - Elliotte Rusty Harold and W. Scott Means. *XML in a Nutshell*. O'Reilly and Associates, Sebastopol, CA, 2001.
  - Erich Gamma, Richard Helm, Ralph Johnson, and John Vlissides. *Design Patterns: Elements of Reusable Object-Oriented Software*. Addison-Wesley, Reading, MA, 1995.
  - Grady Booch, James Rumbaugh, and Ivar Jacobson. *The Unified Modeling Language User Guide*. Addison-Wesley, Reading, MA, 1999.
  - Ken Arnold and James Gosling. *The Java Programming Language*. Addison-Wesley, Boston, MA, third edition, 2000.
  - James Gosling, Bill Joy, Guy Steele, and Gilad Bracha. *The Java Language Specification*. Addison-Wesley, third edition, 2005.
  - Jon Louis Bentley. Programming Pearls. Addison-Wesley, Reading, MA, 1986.

- **Planned learning activities and teaching methods**

  Lectures and helpdesk-style tutorials.

- **Assessment methods assessment methods and criteria**

Assessed individualized coursework 80%

Multiple-choice exam 20%

Class participation 10% (bonus)

The student must pass the multiple-choice exam in order to get credit for the coursework.

- **Language of instruction**

  Greek

- **Work placement(s)**

  N/A