

FACULTY OF **ENGINEERING**

DEGREE COURSE: **CIVIL AND ENVIRONMENTAL ENGINEERING BS**

SUBJECT: COMPUTER SCIENCE FOR SCIENTIFIC AND ENGINEERING APPLICATIONS

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OBJECTIVES

The course provides the basic knowledge of the theoretical and practical aspects of computer science that the student will be able to exploit in further studies and in the workplace.

In particular, at the end of the course students must demonstrate:

1. knowledge the basic hardware architecture of an electronic computer;
2. knowledge the organization and functions of an operating system;
3. the skills to use computer, create and run simple programs, learn about the business systems and use the basic functions of the main software packages..

In the same vein, preparation will be completed through the investigation of aspects closely related to Civil Engineering (AutoCad).

CONTENTS

- Basic theoretical concepts: basic knowledge of the structure and functioning of a personal computer.
- Management tools: main basic functions of a personal computer and its operating system, organization and management of files and folders (environment MS Windows 7).
- Personal productivity tool: the Microsoft Office 2010 suite (Word, Excel, PowerPoint).
- Computer networks: the use of the Internet, search engines and email (MS Outlook 2010).
- History of computing: digital computers, multilevel machines, vacuum tube computers, the introduction of the transistor, the fifth generation of computers.
- History and development of the Internet: 1945 to social networks.
- Elements of algebraic logic: introduction to Boolean algebra, logic networks.
- Database: entities, relationships, concept of primary key, MS Access 2010 use.
- Introduction to business information systems: ERP, CRM, SCRM.
- Integration of communication languages: hypertext, hypermedia, multimedia.
- HTML: structure, syntax, bookmarks, tags, tabs, and menu lists.

- Introduction to PHP Programming: management of variables, looping constructs, functions and practical examples.
- AutoCAD (AutoDesk): elements for use of the software design, drawing, modeling, architectural design and engineering.

ASSESSMENT

Written exam: multiple choice and open questions

RECOMMENDED TEXTBOOKS

All the topics of the program are published on the platform in a comprehensive way in order to be prepared to pass the exam. For further information you can read the e-books

- "IT & Programming" freely downloadable from <http://bookboon.com/>.
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