



# Fundamentals of Computer Science –Engineering Degree

Course Programme 2010-2011

Degree		Course	Semester		
Grado en Ing. Eléctrica Grado en Ing. Electrónica Industrial y Automática Grado en Ing. en Geomática y Topografía Grado en Ing. Mecánica Grado en Ing. Química Industrial		1st	1st		
Code	Acad. year	Type	Credits	Group	Language
25977	2010/2011	Compulsory	6	61	English

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Internet addresses	
<b>Subject documentation</b>	<a href="http://lsi.vc.ehu.es/asignaturas/FdIvb/en">http://lsi.vc.ehu.es/asignaturas/FdIvb/en</a>
<b>Moodle</b>	<a href="http://moodle2.ehu.es">http://moodle2.ehu.es</a>

## Aims

To provide theoretical knowledge and practical capacities in understanding and programming computer programs of low complexity and designing methodologies in order to enable its application to different professional engineering areas.

## Assessment

- There will be **two tests** during the course worth each 10% of the final mark
- There will be a **written exam** at the end of the course worth the remaining 80% consisting mainly in designing flowcharts and VB programs.
  - 10% 1st test
  - 10% 2nd test
  - 80% final exam
- Similar and/or simulated exams of previous years will be provided.

## Theoretical and practical contents

- 1. Introduction to computer science**
  - 1.1. Definitions; hardware and software
  - 1.2. Representation of the information; coding systems
  - 1.3. Operating systems. applications
  - 1.4. Problems, algorithms and programs
- 2. Introduction to programming**
  - 2.1. Definitions; programming languages; editor, interpreter, compiler
  - 2.2. Basic flowcharts
  - 2.3. Data types
  - 2.4. Constants and variables; declarations
  - 2.5. Expressions; assignment; input/output operations
  - 2.6. Visual Basic; graphical objects and properties
- 3. Conditional constructions**
  - 3.1. Introduction; Boolean expressions; conditional flowcharts
  - 3.2. Sequential execution and conditional execution
  - 3.3. If, If-Else constructions
  - 3.4. Nested conditionals
  - 3.5. Waterfall conditionals
- 4. Iterative constructions**
  - 4.1. Introduction to loops; iterative flowcharts
  - 4.2. While construction
  - 4.3. Do While/Until constructions
  - 4.4. For construction
- 5. Structured programming**
  - 5.1. Introduction. top-down design
  - 5.2. Functions
  - 5.3. Procedures
  - 5.4. Parameter passing by value and by reference
- 6. Advanced programming**
  - 6.1. Arrays
  - 6.2. String manipulation

## Bibliography

1. Course tutorials (in English, Spanish and Basque)
2. Evangelos Petroustos. “*Mastering Visual Basic 6*”. Sybex.
3. Bradley and Millsbaugh. “*Programming in Visual Basic 6.0*”, McGraw-Hill.
4. Alberto Prieto et al. “*Introducción a la informática*”. McGraw-Hill.
5. F.J. Ceballos. “*Visual Basic: Curso de Programación*”. RA-MA.