

Centre	University College of Engineering of Vitoria-Gasteiz
Name of subject	25977 – Fundamentals of Computer Science
Qualification	Degree in Mechanical Engineering
Brief description of the subject content	Computer programming languages, operating systems, databases and software with application in engineering
Type	Compulsory
Credits	6 ECTS
Year	1
Term(s)	1st
Department	Computer Languages and Systems
Language	Spanish, Basque and English

Outcomes / Objectives

Computer programming languages, operating systems, databases and software with application in engineering

Syllabus

1. Introduction to Computer Science. Concept of Computer. Hardware/Software. Representation of Information. Numeral systems. Operating Systems. Applications.
2. Introduction to programming. Programming languages. Editor, Interpreter, Compiler. Data types, Constants, Variables, Statements. Expressions. Allocation. Input/Output operations.
3. Data structure. Alternative structures. Repetitive structures.
4. Structured programming. Structured and modular programming. Functions. Procedures. Passing by value and passing by reference.
5. Advanced Programming. Vectors, treatment of chains.
6. Relational databases. Files, Registries, Data organisation. Relational Database Management System (DBMS). Basic use of a DBMS.

Methodology

Teaching Method

Face-to-Face Teaching Hours

Lectures	Seminars	Classroom practice	Lab. practice	Computer sessions	Clinical practice	Workshops	Industrial workshops	Field practice
30.00	0.0			30.0				

Student Hours of Non Face-To-Face Activities

Lectures	Seminars	Classroom practice	Lab. practice	Computer sessions	Clinical practice	Workshops	Industrial workshops	Field practice
40.0	0.0			50.0				

Assessment System

General criteria

- Written essay exam
- Practical activities (exercises, cases or problems)
- Individual projects

Presentation of projects, reading...

Clarification regarding assessment

Exams: 80 %

Deliverables (problems, projects, etc.): 20%

Bibliography

Basic Bibliography

- INFORMÁTICA BÁSICA E. Alcalde, M. García. McGrawHill
- INTRODUCCIÓN A LA INFORMÁTICA. Alberto Prieto et al. McGrawHill
- APRENDA VISUAL BASIC 6.0 COMO SI ESTUVIERA EN PRIMERO. J. García de Jalón y Otros. ETSII de San Sebastián.
- PROGRAMACIÓN ESTRUCTURADA EN C. Antonacos, J.L. y Mansfield, K.C. Prentice Hall

In-depth Bibliography

- UNA INTRODUCCIÓN A LA PROGRAMACIÓN. UN ENFOQUE ALGORÍTMICO. García J.J., Montoya, F.J., Fernandez, J.L. y Majado, M.J. Thomson
- CURSO DE PROGRAMACIÓN. F.J. Ceballos. Ra-Ma
- WINDOWS XP. J. M^a Delgado Cabrera. Anaya Multimedia
- BASES DE DATOS RELACIONALES. Juan Carlos Casamayor Ródenas; Laura Mota Herranz; Matilde Celma Jiménez. Pearson Educación

Websites

- <http://www.elricondelprogramador.com>
- <http://www.algoritmica.com.ar>
- <http://www.tutorial-enlace.net/top-tutorial-visual%20basic.html>
- <http://www.lawebdelprogramador.com/news/new.php?id=93&texto=Visual%20Basic>