

IDENTIFYING DATA				
Computer science: Computing for engineering				
Subject	Computer science: Computing for engineering			
Code	V12G360V01203			
Study programme	Degree in Industrial Technologies Engineering			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Basic education	1st	2nd
Teaching language	Spanish English			
Department				
Coordinator	Sáez López, Juan			
Lecturers	Castelo Boo, Santiago Ibáñez Paz, Regina Pérez Cota, Manuel Rodríguez Damian, Amparo Rodríguez Damian, María Rodríguez Diéguez, Amador Sáez López, Juan Sanz Dominguez, Rafael Vázquez Núñez, Fernando Antonio Vázquez Núñez, Francisco José			
E-mail	juansaez@uvigo.es			
Web	http://faitic.uvigo.es			
General description	They treat the following contents: Methods and basic algorithms of programming Programming of computers by means of a language of high level Architecture of computers Operating systems basic Concepts of databases			

Competencies	
Code	
B3	CG3 Knowledge in basic and technological subjects that will enable them to learn new methods and theories, and equip them with versatility to adapt to new situations.
B4	CG4 Ability to solve problems with initiative, decision making, creativity, critical thinking and to communicate and transmit knowledge, skills and abilities in the field of Industrial Engineering.
C3	CE3 Basic knowledge on the use and programming of computers, operating systems, databases and software applications in engineering.
D1	CT1 Analysis and synthesis.
D2	CT2 Problems resolution.
D3	CT3 Oral and written proficiency in the own language.
D5	CT5 Information Management.
D6	CT6 Application of computer science in the field of study.
D7	CT7 Ability to organize and plan.
D17	CT17 Working as a team.
D19	CT19 Personal relationships.

Learning outcomes	
Expected results from this subject	Training and Learning Results

Skill in the handle of computers and operating systems	B3	C3	D5 D6 D7 D17
Understanding of the basic operation of the computers	B3	C3	
Knowledges on the foundations of the databases	B3	C3	D5 D6 D7
Capacity to implement simple algorithms in some programming language	B4		D1 D2
Knowledge of the foundations of the programming structured and modulate	B3	C3	D5
Skill in the handle of computer tools for the engineering	B3	C3	D3 D19

Contents	
Topic	
Basic computer architecture	Basic components Peripheral devices Communications
Basic programming concepts and techniques applied to engineering	Data structures Control structures Structured programming Information treatment Graphical user interfaces
Operating systems	Basic principles Types
Practical exercises that support and secure the theoretical concepts	Practical exercises that will allow the students to verify the concepts learned in class and see that using them they can solve problems

Planning			
	Class hours	Hours outside the classroom	Total hours
Introductory activities	1	1	2
Laboratory practises	22	30	52
Case studies / analysis of situations	12	14	26
Master Session	8	12	20
Multiple choice tests	4	7	11
Practical tests, real task execution and / or simulated.	6	8	14
Long answer tests and development	10	15	25
*The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.			

Methodologies	
	Description
Introductory activities	Activities related to estashing contact, gathering information from the students, organizing groups, as well as presenting the course.
Laboratory practises	Activities related to applying the knowledge obtained to specific situations and acquiring basic and procedimental skills related with the subject being studied. Developed in specialized spaces with specialized equipment (labs, computer rooms, etc).
Case studies / analysis of situations	Analyze a fact, problem or real event with the purpose of knowing it, interpreting it, resolving it, generating hypothesis, contrasting data, thinking about it, gaining new knowledge, diagnosing it and training alternative solutions
Master Session	Exhibition of the contents that make up the subject being studied on behalf of the profesor, theoretical principles and/or instructions regarding an assignment, exercise or project to be developed by the student.

Personalized attention	
Methodologies	**Description**
Laboratory practises	

Assessment			
	Description	Qualification	Training and Learning Results

Multiple choice tests	Tests for evaluating aquired competencies that include cuestions from which the student must choose a response from a set of alternatives (true/false, multiple choice,...)	10	B3 B4	C3	D1 D2 D5 D6 D7 D17
Practical tests, real task execution and / or simulated.	Tests for evaluating aquired competencies that include activities, problems or practical excercises to be solved.	65	B3 B4	C3	D1 D2 D3 D5 D6 D7 D17 D19
Long answer tests and development	Tests for evaluating aquired competencies that include cuestions regarding a subject. The students must develop, relate, organize and present their knowledge regarding the subject.	25	B3 B4	C3	D1 D2 D5 D6 D7 D17

Other comments on the Evaluation

<p> To pass the course it is REQUIRED to pass eaach and every one of the parts that make up the evaluation process.
Both the evaluation in May and in June will be of the same type and will consist in a written exam that:</p><blockquote>For the students that follow the continuos evaluation system, will be worth the percentage that is pending to be evaluated</blockquote><blockquote>For the students that DO NOT follow the continuos evaluation system, will be worth 100% of the evaluation.</blockquote><p>In any case, the written exam will include open answer cuestions as well as multiple choice cuestions.</p>

Sources of information

Basic Bibliography

Tanenbaum, Andrew S., **Sistemas Operativos Modernos**, Pearson Educacion,

Ceballos Sierra, F. Javier, **Microsoft Visual Basic.Net**, Rama,

Rod Stephens, **Diseño de bases de datos: fundamentos**, Anaya Multimedia,

Alberto Prieto Espinosa, **Introducción a la informática**, McGraww Hill,

Complementary Bibliography

Balena, Francesco, **Programación avanzada con Microsoft Visual Basic .NET**, McGraw-Hill, 2003

Recommendations