Universidade de Vigo

IDENTIFYING DATA
Computer science: Computing for engineering

Subject	Computer science: Computing for engineering
Code	V12G340V01203
Study programme	Degree in Industrial Organisation 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
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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	CG 3. 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	CG 4. 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

Computer and operating system skills.	B3	C3	D5
			D6
			D7
			D17
Basic understanding of how computers work	B3	C3	
Database fundamentals	B3	C3	D5
			D6
			D7
Capability to implement simple algorythims using a programming language	B4		D1
			D2
Structured and modular programming fundamentals	B3	C3	D5
Skills regarding the use of computer tools for 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