



IDENTIFYING DATA

Computing for Engineering

Subject	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	Castelo Boo, Santiago Vázquez Núñez, Fernando Antonio			
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	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
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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 architecture of computers	Peripheral basic components Communications
Concepts and basic technicians of programming applied to the engineering	Structures of data Structure of control Programming structured Treatment of information graphic Interfaces
Operating systems	Basic principles Types
Diverse practices that support the theoretical contents and strengthen them.	They will be practical that allow to check that the contents that have given in theory are correct and that with them can go resolving 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 directed to take contact, gather information on the student, creation of groups, tasks of organisation, as well as present the subject.
Laboratory practises	Activities of application of the knowledges to concrete situations and of acquisition of basic skills and *procedimentales related with the matter object of study. They develop in special spaces with skilled equipment (laboratories, computer classrooms, etc).
Case studies / analysis of situations	Analysis of a fact, problem or real event with the purpose to know it, interpret it, resolve it, generate hypothesis, contrast data, consider, complete knowledges, diagnose it and train in alternative procedures of solution.
Master Session	Exhibition by part of the professor of the contents on the matter object of study, theoretical bases and/or guidelines of a work, exercise or project to develop by the student.

Personalized attention

Methodologies	Description
Laboratory practises	Attention in the laboratory to the doubts that present or will indicate him the way to be followed so that the person find the solution.

Assessment

Description	Qualification	Training and Learning Results
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Multiple choice tests	Proofs for the evaluation of the competitions purchased that include questions with different alternative of answer (true/false, multiple election, ...)	10	B3 B4	C3	D1 D2 D5 D6 D7 D17
Practical tests, real task execution and / or simulated.	Proofs for the evaluation that include activities, problems or practical exercises to resolve.	65	B3 B4	C3	D1 D2 D3 D5 D6 D7 D17 D19
Long answer tests and development	Proofs for the evaluation of the competitions purchased that include questions on a subject and of type test. The students should develop, relate, organise and present the knowledges that have on the matter.	25	B3 B4	C3	D1 D2 D5 D6 D7 D17

Other comments on the Evaluation

Ethical commitment: It expects that the students have a suitable ethical behaviour. If it detects a little ethical behaviour (copy, plagiarism, use of unauthorised electronic devices, and others) considers that the student does not fulfil with the requirements to approve the subject. In this case the global qualification in the present academic course will be of suspense (0,0). In addition to the ethical commitment, underlines the following: In the first place a person enrolled in the matter, is by defect subjected to the system of continuous evaluation; if it does not want to be in this system, has to renounce of form expresses in the terms that establish . On the other hand and independently of the system that follow , is necessary to obtain in the part of theory a minimum punctuation of 30% on 10 (3,0 points) so that we can calculate the average. Operative of continuous evaluation. In the present course, the continuous evaluation will collect the evidences of learning of the person enrolled and that will agglutinate in three proofs: it Practises 1, Practical 2 and Theory. If it does not renounce to the continuous system of evaluation, the proofs to which not coincide will consider described with a zero. To surpass the matter by continuous evaluation has to be true the following expression: $\text{it Practises } 1 \cdot 0,25 + \text{Practice } 2 \cdot 0,4 + (\text{Theory} \geq 3) \cdot 0,35 \geq 5,0$ If a person does not reach the level of approved by this system only can coincide to the second announcement (usually in the month of Julio) and will go with 100% of the matter. Once realised the first proof, that is to say, Practical 1, the person enrolled will be able to ask the exit of the continuous evaluation by means of an agreement signed that will deliver to his professor or professor of practices, in this way, the person enrolled will become like a person of evaluation no continuous. Operative of evaluation no continuous The people enrolled that they have renounced of form expresses to the system of continuous evaluation, will be able to coincide to the examination of the month of May proposed by the Direction of the School and will realise an examination that allows to obtain 100% of the punctuation. To this examination will not be able to coincide those people that have suspended the continuous evaluation. Operative of second announcement (of ordinary in the month of Julio The people that have not surpassed the matter in the two previous situations, will be able to have a second opportunity in the month of June-Julio in which it will propose an examination to evaluate 100% of the matter have gone by the continuous system or no.

Sources of information

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

* Programación avanzada con Microsoft Visual Basic .NET
Balena, Francesco
McGraw-Hill, 2003 (TOR 004.42 BAL pro)

Recommendations