Universida de Vigo

IDENTIFYING DATA

Computer science

Subject	Computer science
Code	O07G410V01104
Study programme	(*)Grao en Enxeñaría Aeroespacial

Descriptors	ECTS Credits		Choose	Year	Quadmester
	6		Basic education	1st	1st

Teaching language	#EnglishFriendly Spanish
Department	
Coordinator	Formella , Arno
Lecturers	Formella , Arno Gálvez Gálvez, Juan Francisco
E-mail	formella@uvigo.es
Web	http://formella.webs.uvigo.es/doc/aero19/index.html
General description	In this subject, the basic computer contents and introduction to the programming for graduates in Aerospace Engineering. English Friendly subject: International students may request from the teachers: a) materials and bibliographic references in English, b) tutoring sessions in English, c) exams and assessments in English.

Competencies

Code	
A1	That the students demonstrate to possess and understand knowledge in an area of study that is part of the general education (second level), and often found at a level that, although based on advanced textbooks, also includes some aspects that involve knowledge from the avant-garde of the field of study
C3	Basic knowledge about use and programming of computers, operating systems, databases and software with application in engineering.
D1	Capability of analysis, organization and planification.
D2	Leadership, initiative and entrepreneurship
D3	Capability of oral and written communication in native lenguage
D4	Capability of autonomous learning and information management
D5	Capability to solve problems and draw decisions
D6	Capabiliity for interpersonal communication
D8	Capabiliity for critical and self-critical reasoning
D9	Capability to work in interdisciplinary teams

Learning outcomes

Expected results from this subject	Training and Learning Results		
Knowledge, comprehension and application of the basic programming techniques and their use in the resolution of numerical problems in engineering.	A1	C3	D4 D5 D9
Knowledge, understanding and application of programming methodologies (data and basic operations, modular programming, input-output operations, etc.).	A1	C3	D1 D2 D4 D5 D6 D8 D9
Basic knowledge about operating systems and programming languages, mainly oriented to the formulation and implementation of specific numerical methods in engineering.	A1	C3	D1 D3 D4 D5 D9

Contents

Topic	
Introduction to computing	Hardware: basic components Basic concepts of software Operating systems Collaborative tools Computer security Computer networks / big data
Conceptos de programación básicos	Types of programming languages: low and high level Variables Functions Flow control Input / Output
Advanced programming concepts	Advanced data types Exceptions Object-oriented programming
Programming being oriented to numerical models used in engineering	Mathematical libraries Parallel calculation Graphical representation

Planning

	Class hours	Hours outside the classroom	Total hours
Introductory activities	0.5	0.5	1
Lecturing	22	44	66
Computer practices	22	44	66
Laboratory practice	4	4	8
Problem and/or exercise solving	2	5	7
Essay questions exam	2	0	2

*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	Presentation of the subject: objectives, competences to be acquired by the student, contents, evaluation system. Building of work groups.
Lecturing	Presentation by the teacher of the contents of the course, theoretical bases and/or guidelines of the works, exercises or projects to be developed by the student.
Computer practices	Resolution of exercises formulated in the practical sessions, starting with the knowledge as worked in class.

Personalized assistance

Methodologies	Description
Computer practices	The students will have a continuous follow-up and a personalized attention through classes dedicated to the resolution of exercises and the control of the works carried out. They may also attend, if they wish, personalized office hours.

Assessment

	Description	Qualification	Training and Learning Results		
Computer practices	Attendance and active participation	5	A1	C3	D3 D4 D5 D8
Laboratory practice	Development of programs and documents in which the students reflect the characteristics of their works carried out. The students should describe the tasks and procedures they developed, show the results and observations they carried out, as well as the analysis and processing of data.	65	A1	C3	D1 D3 D4 D5 D6 D8 D9
Problem and/or exercise solving	Evaluation tests that include theoretical questions or theoretical exercises to solve. The students must respond to the activity formulated and apply the theoretical and practical knowledge of the subject autonomously.	20	A1	C3	D3 D4 D5 D8

| Essay questions exam | Evaluation tests that include activities and problems or practical exercises to solve. The students must respond to the activity formulated and apply the theoretical and practical knowledge of the subject autonomously. | 10 | A1 | C3 | D3 D4 D5 D8 |

Other comments on the Evaluation

June-July evaluation:

The evaluation system of June-July is the same as in December-January, maintaining the grades obtained for the resolution of problems and/or exercises and class attendance and participation.

Non-attending students to classes can take an exam in both December and July that covers 100% of the final grade.

Evaluation dates: the exam calendar is published on the web http://aero.uvigo.es/gl/docencia/exame.

Sources of information

Basic Bibliography

Bahit, Eugenia, **Curso Python para Principiantes**, Buenos Aires : Safe Creative, 2012

González Duque, Raúl, **Python para todos**, Creative Commons, 2008

Summerfield, Mark, **Python 3**, Anaya, 2009

Guttag, John V., **Introduction to computation and programming using Python**, MIT Press, 2013

Complementary Bibliography

Recommendations

Other comments

RECOMMENDATIONS

Guidelines for the study:
- Attend classes.
- Do the exercises in the practices.
- Review the bibliography and resources presented in class.

Proposals for improvement and recovery:
- Students who have problems in following the pace of learning of the subject should attend the tutorials with the teachers and extend the time dedicated to independent and autonomous learning.