IDENTIFYING DATA

Information handling advanced techniques

Subject	Information handling advanced techniques			
Code	O06G151V01419			
Study programme	Grado en Ingeniería Informática			
Descriptors	ECTS Credits	Choose	Year	Quadmester
	6	Optional	4th	2nd
Teaching language	#EnglishFriendly Spanish Galician			
Department				
Coordinator	Lorenzo Iglesias, Eva María			
Lecturers	Lorenzo Iglesias, Eva María Sorribes Fernández, José Manuel			
E-mail	eva@uvigo.es			
Web	http://moovi.uvigo.gal			
General description	This course presents the opportunity to introduce students to the world of emerging technologies in databases through the detailed exposition of the new needs and demands that organizations pose to databases, and the theoretical introduction (and practice when possible) of the new data management models and technologies that are emerging. 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.			

Training and Learning Results

Code	
A2	Students will be able to apply their knowledge and skills in their professional practice or vocation and they will show they have the required expertise through the construction and discussion of arguments and the resolution of problems within the relevant area of study.
A3	Students will be able to gather and interpret relevant data (normally within their field of study) that will allow them to have a reflection-based considered opinion on important issues of social, scientific and ethical nature.
A4	Students will be able to present information, ideas, problems and solutions both to specialist and non-specialist audiences.
B9	Ability to solve problems by taking the initiative, making decisions and acting independently and creatively. Ability to communicate the knowledge contents, skills and abilities of the Computer Science Engineer profession.
C13	Knowledge, design and efficient use of the most appropriate data structures and types for the resolution of a problem.
C18	Knowledge and application of the characteristics, functions and structure of data bases, allowing their appropriate use, and design, analysis and implementation of applications based on them.
C26	Ability to assess clients needs and determine the software requirements to satisfy these needs, reconciling conflicting goals through attempts to reach acceptable compromises within the limits imposed by costs, available times, existing developed systems and organizations themselves.
C30	Ability to design appropriate solutions in one or more domains of application by using methods of software engineering that include ethical, social, legal and economic issues.
C31	Ability to understand the environment of an organization and its needs in the area of information and communication technologies.
C35	Ability to select, design, implement, integrate and manage information systems that meet the needs of organizations, once the costs and quality criteria have been identified.
D5	Organizational and planning skills
D7	Ability to search, relate and structure information from various sources and to integrate ideas and knowledge.
D8	Ability to work in situations of lack of information and / or under pressure
D9	Ability to quickly integrate and work efficiently in unidisciplinary teams and to collaborate in a multidisciplinary environment
D10	Interpersonal relationship skills.

D11 Critical thinking

D12 Leadership

Expected results from this subject

Expected results from this subject	Training and Learning Results		
RA1: Understand the new needs of the organisations and know the modifications proposed from the own relational model.	A3	C31 C35	D7
RA2: Know the last advances related with databases: Documental Databases, Distributed Databases, Multimedia Databases, Space-temporal Databases, etc.	A4	C26 C31	D8 D11
RA3: Comprise and develop systems of analytical processing on line (OLAP), DataWarehouse and Data Mining	A2	C13 C18	D9 D10 D12
RA4: Participate in the installation of Datawarehouse and SIAD tools.	A2 B9	C18 C30	D5 D9 D10

Contents

Topic	
Decision Support Systems	On-Line Analytical Process DataWarehouse DataMining Business Intelligence systems
Special purpose databases	Object Oriented Databases Distributed Databases XML Databases
Other Database models	,

Planning

	Class hours	Hours outside the classroom	Total hours
Introductory activities	1	0	1
Lecturing	4	0	4
Case studies	6	14	20
Laboratory practical	18	37	55
Report of practices, practicum and external practices	20	40	60
Essay questions exam	3	7	10

*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	Efforts to make contact and gather information about the students, and to present the subject.
Lecturing	Presentation by the teacher of the contents on the subject under study, theoretical and / or guidelines for a job, exercise or project to be developed by the student.
Case studies	Analysis of an event, issue or actual event in order to know, interpret, solve, generate hypotheses, comparing data, reflect, complete knowledge, diagnose and training in alternative dispute resolution procedures.
Laboratory practical	Activities application of knowledge to specific situations and basic skills acquisition and related procedural matter under study. CONTINUOUS EVALUATION Character: Compulsory Attendance: Not compulsory GLOBAL EVALUATION Character: Compulsory

Personalized assistance

Methodologies	Description
Lecturing	The sessions of personalized assistance will be able to make by telematic means (email, videoconference, FAITIC, ...) under the modality of appointment.
Laboratory practical	The sessions of personalized assistance will be able to make by telematic means (email, videoconference, FAITIC, ...) under the modality of appointment.

Assessment

	Description	Qualification	Training and Learning Results		
Case studies	Proof in which the student/to has to analyse a fact, problem or real event with the purpose to know it, interpret it, resolve it, generate hypothesis, contrast data, reflect, complete knowledges, diagnose it and train in alternative procedures of solution. Expected subject matter outcomes: RA1, RA2	10	A3 A4	C26 C31 C35	D7 D8 D11
Laboratory practical	The practices of laboratory are compulsory, will have a date of presentation stipulated previously and will be evaluated separately. Expected subject matter outcomes: RA3, RA4	40	A2 B9	C13 C18 C30	D5 D9 D10 D12
Report of practices, practicum and external practices	Preparation of a report by part of the student/to in which they reflect the characteristics of the work carried out. The students/ace have to describe the tasks and procedures developed, show the results obtained or observations made, as well as the analysis and treatment of data. Expected subject matter outcomes: RA3, RA4	30	A2 B9	C13 C18 C30	D5 D9 D10 D12
Essay questions exam	Proofs that include open questions on a subject. The students/ace have to develop, relate, organise and present the knowledges that have on the matter in an answer argued. Expected subject matter outcomes: RA1, RA2	20	A3 A4	C26 C31 C35	D7 D8 D11

Other comments on the Evaluation

CONTINUOUS EVALUATION SYSTEM

TEST 1: Case study
Description: Test in which the student must analyze a fact, problem or real event in order to know it, interpret it, solve it, generate hypotheses, contrast data, reflect, complete knowledge, diagnose it and train in alternative solution procedures.
Methodology applied: Case Studies
Grading %: 10%
Training and learning outcomes: A3, A4, C26, C31, C35, D7, D8, D11.
Expected learning outcomes in the subject: RA1, RA2

TEST 2: Quizzes
Description: Tests that include open questions on a topic. Students must develop, relate, organize and present the knowledge they have about the subject in an argued answer, or by giving a specific answer within a test.
Methodology applied: Essay questions exam.
Grading %: 20%.
Training and learning outcomes: A3, A4, C26, C31, C35, D7, D8, D11.
Expected subject matter outcomes: RA1, RA2

TEST 3: Laboratory practicals
Description: The laboratory practicals are compulsory, will have a previously stipulated date of presentation and will be evaluated separately.
Methodology applied: Laboratory practicals.
Qualification %: 40%.
Training and learning results: A2, B9, C13, C18, C30, D5, D9, D10, D12.
Expected results in the subject: RA3, RA4

TEST 4: Internship report
Description: Elaboration of a report by the student in which the characteristics of the work carried out are reflected. It must describe the tasks and procedures developed, show the results obtained or observations made, as well as the analysis and treatment of data.
Methodology applied: Internship report, practicum and external internships.
% Qualification: 30%.
Training and learning results: A2, B9, C13, C18, C30, D5, D9, D10, D12.
Expected results in the subject: RA3, RA4

Observations:
 - In case of performing any of the parts, the grade will be kept until the second edition of minutes.

GLOBAL EVALUATION SYSTEM
Procedure for choosing the global evaluation system: The student who wishes to be evaluated through the global evaluation system must notify the faculty no later than 6 weeks after the beginning of the course.

TEST 1: Theoretical-practical test.
Description: Objective test that will include evaluation of theoretical concepts and exercise resolution.
Methodology applied: Examination of development questions.
% Qualification: 30%.
Minimum: For the release of this part of the subject the student must obtain a grade equal to or higher than 1.5 points (out of 3).
Training and learning outcomes: A3, A4, C26, C31, C35, D7, D8, D11.
Expected results in the subject: RA1, RA2

TEST 2: Laboratory practicals
Description: Elaboration and defense of the set of laboratory practices proposed throughout the course.
Methodology applied: Laboratory practicals.
Qualification %: 40%.
Training and learning results: A2, B9, C13, C18, C30, D5, D9, D10, D12.
Expected results in the subject: RA3, RA4

TEST 3: Internship report
Description: Elaboration and defense of a report by the student in which the characteristics of the work carried out are reflected. It must describe the tasks and procedures developed, show the results obtained or observations made, as well as the analysis and treatment of data.
Methodology applied: Internship report, practicum and external internships.
% Qualification: 30%.
Training and learning results: A2, B9, C13, C18, C30, D5, D9, D10, D12.
Expected results in the subject: RA3, RA4.

EVALUATION CRITERIA FOR EXTRAORDINARY AND END OF COURSE EXAMS
The global evaluation system corresponding to the 1st call will be used both for students of continuous evaluation and for students of global evaluation.

QUALIFICATION PROCESS OF ACTS

For the global evaluation system and for the extraordinary and final exams, if any part of the evaluation is not passed, but the overall score is higher than 4 (out of 10), the grade in the acts will be 4.

EVALUATION DATES

The dates of the tests corresponding to the continuous assessment system will be published in the calendar of activities, available on the ESEI web page https://esei.uvigo.es/docencia/horarios/.
The official dates of the exams of the different calls, officially approved by the ESEI Board of Directors, are published in the ESEI web page https://esei.uvigo.es/docencia/horarios/.

USE OF MOBILE DEVICES

All students are forbidden to use mobile devices in exercises and practices, in compliance with article 13.2.d) of the University Student Statute, related to the duties of university students, which establishes the duty to "Refrain from using or cooperating in fraudulent procedures in evaluation tests, in the work carried out or in official university documents".

CONSULTATION/REQUEST FOR TUTORIALS

Tutorials can be consulted through the personal page of the teaching staff, accessible through
https://esei.uvigo.es/docencia/profesorado/

Sources of information
Basic Bibliography
Hernández Orallo, J.; Ramírez Quintana, M.J.; Ferri Ramírez, C., **Introducción a la minería de datos**, 9788420540917, Pearson Educación, 2004

Connolly, T.M.; Begg, C., **Database Systems: A Practical Approach to Design, Implementation, and Management**, 978-0132943260, 6, Pearson Educación, 2015

Casters, M.;Bouman, R.M van Dongen, J., **Pentaho Kettle Solutions**, 9780470635179, Wiley Publishing, Inc, 2010

Complementary Bibliography

Recommendations