DEGREE CURRICULUM

ANALYSIS, MODELING AND DESIGN OF INFORMATION SYSTEMS

Coordination: ALMACELLAS ABELLANA, SERGI

Academic year 2023-24

ANALYSIS, MODELING AND DESIGN OF INFORMATI... 2023-24

Subject's general information

<table>
<tr><td>Subject name</td><td>ANALYSIS, MODELING AND DESIGN OF INFORMATION SYSTEMS</td></tr>
<tr><td>Code</td><td>102391</td></tr>
<tr><td>Semester</td><td>2nd Q(SEMESTER) CONTINUED EVALUATION</td></tr>
<tr><td>Typology</td><td>
<table>
<tr><th>Degree</th><th>Course</th><th>Character</th><th>Modality</th></tr>
<tr><td>Bachelor's degree in Digital Interaction and Computing Techniques</td><td>3</td><td>OPTIONAL</td><td>Attendance-based</td></tr>
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<tr><td>Course number of credits (ECTS)</td><td>6</td></tr>
<tr><td>Type of activity, credits, and groups</td><td>
<table>
<tr><th>Activity type</th><td>PRALAB</td><td>TEORIA</td></tr>
<tr><th>Number of credits</th><td>3</td><td>3</td></tr>
<tr><th>Number of groups</th><td>1</td><td>1</td></tr>
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<tr><td>Coordination</td><td>ALMACELLAS ABELLANA, SERGI</td></tr>
<tr><td>Department</td><td>COMPUTER ENGINEERING AND DIGITAL DESIGN</td></tr>
<tr><td>Teaching load distribution between lectures and independent student work</td><td>6 ECTS = 25x6 = 150 hours of work
40% -> 60 in-class hours
60% -> 90 autonomous work hours</td></tr>
<tr><td>Important information on data processing</td><td>Consult this link for more information.</td></tr>
<tr><td>Language</td><td>Spanish / Catalan</td></tr>
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ANALYSIS, MODELING AND DESIGN OF INFORMATI... 2023-24

Teaching staff	E-mail addresses	Credits taught by teacher	Office and hour of attention
ALMACELLAS ABELLANA, SERGI	sergi.almacellas@udl.cat	6	

Subject's extra information

For any doubt and/or question, you can send an email to the teacher of the subject.

Learning objectives

- Understand different alternatives for the construction and implementation of an Information System (IS) in an organization.
- Define the SI architecture concept, explain some of the most important architectural patterns and their characteristics.
- Design a simple SI based on a layered architecture.
- Describe what the integration of components and / or applications consists of, as well as the levels and topologies of integration.

Competences

- CT1. Develop an adequate understanding and oral and written expression of Catalan and Spanish.
- CG1. Ability to conceive, plan and develop projects in the field of ICT.
- CG5. Knowledge of the basic subjects and technologies that enable the learning and development of new methods and technologies, as well as those that provide great versatility to adapt to new situations.
- CE18. Ability to integrate ICT solutions and business processes to meet the information needs of organizations, allowing them to achieve their objectives effectively and efficiently, thus giving them competitive advantages.
- CE19. Ability to determine the requirements of the information and communication systems of an organization attending to security aspects and compliance with current regulations and legislation.
- CE20. Ability to actively participate in the specification, design, implementation and maintenance of business information systems.
- CE21. Ability to understand and apply the principles and techniques of quality management and technological innovation in organizations.

Subject contents

1. Introduction to Information Systems
    - Concepts and evolution
2. Analysis, Modeling and Design of Information Systems
    - Requirements and Risks
    - SI architecture. Layered design.
    - Integration
    - Outsourcing
3. Transactional systems
    - ERP, CRM, SCM
4. Systems for decision making
    - Business Intelligence
    - Data warehouse, Data Mining, Reporting

Methodology

According to the schedule of the subject, each week the student attends 2 hours of Theory and 2 hours of laboratory (PRALAB).

The Theory sessions present the topics that can be consulted in the content section. They incorporate illustrative examples and problem proposals to solve in the laboratory classes.

PRALAB sessions are taught in the laboratory. In these sessions the methodology is based on projects-based learning, where students are responsible for carrying out the techniques proposed in the subject for the analysis, design and modeling of an information system in a particular case study.

Thus, in a first phase, in the laboratory sessions, the development tools and methodologies are introduced so that, in a second phase, the students carry out their project, both in the laboratory and in autonomous work.

Development plan

Week	Description	Theory Activity	PRALAB Activity	Autonomous work
1	Introduction	T1: Introduction	Project introduction	Bibliography consultation
2	SI development cycle	T1: Introduction	Introduction tools	Tools use
3	Requirements	T2: Information Systems	Project approach	Project
4	Architecture	T2: Information Systems	Development approach	Project
5	Layered design	T2: Information Systems	Project	Project
6	Layered design	T2: Information Systems	Project	Project
7	Integration	T2: Information Systems	Project	Project
8		1st Partial		Study
9	Outsourcing	T2: Information Systems	Deliverable 1	Project
10	Transactional systems	T3: Transactional S.	Project	Project
11	ERP	T3: Transactional S.	Project	Project
12	CRM, SCM, ...	T3: Transactional S.	Project	Project
13	Business Intelligence	T4: S. Make Decisions	Project	Project
14	Data gathering and mining	T4: S. Make Decisions	Project	Project
15	Reporting	T4: S. Make Decisions	Deliverable 2	Project
16/17/18		2nd Partial		Study
19				
20		Recovery		Study

Evaluation

Acr	Assessment activity	Weight	Minimum Grade	In group	Mandatory	Recoverable
PE1	1st Partial Exam	25%	-	No	No	Yes
PE2	2nd Partial Exam	25%	-	No	No	Yes
E1	Deliverable 1	25%	-	Yes (2-3)	No	No

Acr	Assessment activity	Weight	Minimum Grade	In group	Mandatory	Recoverable
E2	Deliverable 2	25%	-	Yes (2-3)	No	No

Final Grade = 0.25 * PE1 + 0.25 * PE2 + 0.25 * E1 + 0.25 * E2

Recovery of written tests 1 and 2: If the final grade obtained in the course is <5, then the student can choose to improve/recover the 50% that the written tests represent (the student will be able to choose which part they want to recover, or to choose both parts).

Except for a new exceptional situation, the written tests will be face-to-face.

Bibliography

- Vicenç Fernández. Desarrollo de sistemas de información. Edicions UPC. 2006.
- Karl E. Kurbel. The Making of Information Systems. Springer-Verlag. 2008.
- Martin Fowler. Patterns of Enterprise Application Architecture. Addison-Wesley. 2002.
- Efraim Turban, Ramesh Sharda, Dursun Delen. Business Intelligence and Analytics: Systems for Decision Support. Pearson Education Limited. 2014.
- Alexis Leon. ERP Demystified. McGraw Hill.2014.