



Teaching Guide

| Identifying Data | | | | | 2023/24 |
|----------------------------|---|---------------|--|----------------|---------|
| Subject (*) | Information Systems Architecture | Code | 614G01075 | | |
| Study programme | Grao en Enxeñaría Informática | | | | |
| Descriptors | | | | | |
| Cycle | Period | Year | Type | Credits | |
| Graduate | 1st four-month period | Fourth | Optional | 6 | |
| Language | SpanishGalician | | | | |
| Teaching method | Hybrid | | | | |
| Prerequisites | | | | | |
| Department | Ciencias da Computación e Tecnoloxías da InformaciónComputación | | | | |
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| Web | | | | | |
| General description | <p>The objectives of this subject are:</p> <ul style="list-style-type: none"> - To know the basic concepts of the architecture of information systems, the conceptual models to define these architectures, and the languages to represent them - To know how to model the architecture of an information system using design patterns - To know how to integrate information systems by means of different software techniques - To know modern technological solutions to develop information systems | | | | |

Study programme competences / results

| Code | Study programme competences / results |
|------|--|
| A47 | Capacidade para determinar os requisitos dos sistemas de información e comunicación dunha organización de acordo cos aspectos de seguridade e cumprimento da normativa e a lexislación vixente. |
| A48 | Capacidade para participar activamente na especificación, deseño, implementación e mantemento dos sistemas de información e comunicación. |
| A49 | Capacidade para comprender e aplicar os principios e as prácticas das organizacións, de forma que poidan exercer como enlace entre as comunidades técnica e de xestión dunha organización, e participar activamente na formación dos usuarios. |
| B1 | Capacidade de resolución de problemas |
| B2 | Traballo en equipo |
| B3 | Capacidade de análise e síntese |
| B4 | Capacidade para organizar e planificar |
| C3 | Utilizar as ferramentas básicas das tecnoloxías da información e as comunicacións (TIC) necesarias para o exercicio da súa profesión e para a aprendizaxe ao longo da súa vida. |
| C6 | Valorar criticamente o coñecemento, a tecnoloxía e a información dispoñible para resolver os problemas cos que deben enfrontarse. |

Learning outcomes

| Learning outcomes | Study programme competences / results | | |
|---|---------------------------------------|----|----|
| To know the basic concepts of the architecture of information systems | A47 | B1 | C3 |
| | A48 | B2 | C6 |
| | A49 | B3 | |
| | | B4 | |



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|--|-------------------|----------------------|----------|
| To know the conceptual models to define the architecture of information systems | A47 A48 A49 | B1 B2 B3 B4 | C3 C6 |
| To know the languages to represent the architecture of information systems | A47 A48 A49 | B1 B2 B3 B4 | C3 C6 |
| To know how to model the architecture of an information system using design patterns | A47 A48 A49 | B1 B2 B3 B4 | C3 C6 |
| To know how to integrate information systems by means of different software techniques | A47 A48 A49 | B1 B2 B3 B4 | C3 C6 |
| To know how to create an information system using a service-oriented architecture | A47 A48 A49 | B1 B2 B3 B4 | C3 C6 |
| To know modern technological solutions to develop information systems | A47 A48 A49 | B1 B2 B3 B4 | C3 C6 |

| Contents | |
|--|---|
| Topic | Sub-topic |
| Conceptos básicos | Definición de arquitectura de sistemas de información Modelos conceptuais para arquitecturas de sistemas de información Linguaxes para arquitecturas de sistemas de información |
| Modelado de arquitecturas de sistemas de información | Patróns de deseño Integración de sistemas Arquitecturas orientadas a servizos |
| Solucións tecnolóxicas | Xestión da infraestrutura Librerías de desenvolvemento |

| Planning | | | | |
|--------------------------------|----------------------------------|--------------------------------------|-------------------------------|-------------|
| Methodologies / tests | Competencies / Results | Teaching hours (in-person & virtual) | Student's personal work hours | Total hours |
| Guest lecture / keynote speech | A47 A48 A49 B1 | 8 | 0 | 8 |
| Collaborative learning | A47 A48 A49 B1 B2 B3 B4 C3 C6 | 3 | 0 | 3 |
| Case study | A47 A48 A49 B1 B2 B3 B4 C3 C6 | 10 | 20 | 30 |
| Supervised projects | A47 A48 A49 B1 B2 B3 B4 C3 C6 | 18 | 72 | 90 |
| Oral presentation | B2 B3 B4 C3 C6 | 3 | 6 | 9 |
| Practical test: | B1 B3 B4 C3 C6 | 0 | 6 | 6 |
| Personalized attention | | 4 | 0 | 4 |

(*)The information in the planning table is for guidance only and does not take into account the heterogeneity of the students.



Methodologies

| Methodologies | Description |
|--------------------------------|--|
| Guest lecture / keynote speech | Lectures that will present theoretical contents in combination with practical exercises. |
| Collaborative learning | Resolution by teams of students of problems of reduced size related to the contents of the subject. |
| Case study | Presentation to the students of real cases that have to be resolved using the knowledge acquired in the subject. |
| Supervised projects | Development by each student of projects in which they put in practice what was learnt in the subject. |
| Oral presentation | Intervención inherente aos procesos de ensino-aprendizaxe baseada na exposición verbal a través da que o alumnado e profesorado interactúan dun modo ordenado, propoñendo cuestións, facendo aclaracións e expoñendo temas, traballos, conceptos, feitos ou principios de forma dinámica. |
| Practical test: | Proba na que se busca que o alumno desenvolva total ou parcialmente algunha práctica que previamente tivese feito durante as clases prácticas. A proba práctica pode incluír previamente a resolución dunha pregunta/problema que teña como resultado a aplicación práctica dunha determinada técnica ou práctica aprendida. |

Personalized attention

| Methodologies | Description |
|-----------------------------------|---|
| Supervised projects Case study | <p>After proposing a problem, the professor will debate with the students the possible solutions and typical errors until a satisfactory solution is reached.</p> <p>In the laboratory practices, there will be a personalized attention to each student because there will be less than 20 people working in small groups, directly on a concrete application, in each computer and the professor will be able to attend punctual doubts to each student or group.</p> |

Assessment

| Methodologies | Competencies / Results | Description | Qualification |
|---------------------|----------------------------------|---|---------------|
| Supervised projects | A47 A48 A49 B1 B2 B3 B4 C3 C6 | The quality of the supervised projects will be assessed | 60 |
| Case study | A47 A48 A49 B1 B2 B3 B4 C3 C6 | O alumnado, por grupos, realizará unha análise detallada dun caso real. Durante as clases farase un seguimento do traballo realizado por cada grupo, podendo orientar así o seu desenvolvemento. Ao remate do traballo entregarase un informe. Avaliarase tanto a calidade da memoria como o traballo realizado nas reunións de seguimento. | 40 |
| Oral presentation | B2 B3 B4 C3 C6 | Ó finalizar o estudo do caso real, cada grupo realizará unha exposición oral apoiada en transparencias. Esta presentación ponderará a cualificación do estudo de casos. | 0 |
| Practical test: | B1 B3 B4 C3 C6 | Os traballos tutelados rematarán cunha defensa individual na que o/a alumno/a terá que responder preguntas sobre o mesmo, ou implementar pequenos cambios ou funcionalidades sobre o mesmo código base. As defensas individuais ponderarán a cualificación do traballo. | 0 |

Assessment comments

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| To pass you must obtain the following minimum qualifications: Mixed test: 3 points out of 6 Supervised projects: 2 points out of 4 To be qualified as "did not attend" is to not submit the mixed test. The criteria for the second opportunity are the same as for the first opportunity. |
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Sources of information



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|----------------------|--|
| Basic | <ul style="list-style-type: none">- Fowler, M (2002). Patterns of enterprise application architecture. Addison-Wesley Longman Publishing Co., Inc- Hohpe, G., & Woolf, B (2004). Enterprise integration patterns: Designing, building, and deploying messaging solutions. Addison-Wesley Professional- Microsoft Patterns & Practices Team (2009). Microsoft Application Architecture Guide (Patterns & Practices). http://msdn.microsoft.com/en-us/library/ff650706.aspx <p>Os profesores poderán proporcionar nas clases bibliografía específica e webgrafía para cada un dos temas e actividades a desenvolver.</p> |
| Complementary | |

Recommendations

Subjects that it is recommended to have taken before

Information Systems Analysis and Development/614G01041

Business Process Management/614G01042

Subjects that are recommended to be taken simultaneously

Data Integration/614G01072

Subjects that continue the syllabus

Other comments

(*)The teaching guide is the document in which the URV publishes the information about all its courses. It is a public document and cannot be modified. Only in exceptional cases can it be revised by the competent agent or duly revised so that it is in line with current legislation.