

BASIC DETAILS:

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| Subject: | DISEÑO DE SOLUCIONES SI EN EMPRESAS | | |
| Id.: | 30087 | | |
| Programme: | GRADUADO EN INGENIERÍA INFORMÁTICA. PLAN 2008 (BOE 15/12/2008) | | |
| Module: | INGENIERIA DEL SOFTWARE | | |
| Subject type: | OBLIGATORIA | | |
| Year: | 4 | Teaching period: | Segundo Cuatrimestre |
| Credits: | 6 | Total hours: | 150 |
| Classroom activities: | 62 | Individual study: | 88 |
| Main teaching language: | Inglés | Secondary teaching language: | Castellano |
| Lecturer: | | Email: | |

PRESENTATION:

Due to the complexity of the current enterprise data management where millions of records should be handled and stored, Information Systems (IS) have become a strategic decision.

Small and big companies have invested during last years in different IS as ERPs, CRMs, SCMs, BI...and therefore importance of data exchange has increased dramatically. Having a unique data model that allows information exchange has become necessary.

Informatics engineer should be prepared to understand, design, implement and maintain those systems where all these information is managed.

Target of this subject is to prepare students to understand IS systems (property or not) and to provide the capacity to use tools that coordinate the data exchange between them.

PROFESSIONAL COMPETENCES ACQUIRED IN THE SUBJECT:

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| General programme competences | G01 | Leadership capacity to be able to influence a group so they achieve some specific objectives collectively and efficiently. |
| | G02 | Innovative capacity to propose and find new and efficient ways to undertake any task and/ or function within the professional environment - highly motivated by quality. |
| | G03 | Capacity to work in multidisciplinary teams to achieve common objectives, placing group interests before personal ones. |
| | G04 | Capacity to always commit to working responsibly - creating a strong sense of duty and fulfilment of obligations. |
| | G05 | Capacity to adapt to different environments while being positive and optimistic, orienting your behaviour towards the achievement of goals. |
| | G06 | Capacity to analyse and find a solution to complex problems or unforeseen situations which may arise while working in any type of socio-economic organisation. |
| | G07 | Capacity to work flexibly and with versatility to adapt to the needs and requirements of the work situation. |
| | G08 | Ability to communicate effectively about different matters in a variety of professional situations and with the different media available. |
| | G09 | Capacity to make decisions impartially and rationally. |
| | G10 | Critical and analytical capacity when assessing information, data and courses of action. |
| | G11 | Ability to get on in a multicultural or international environment, interacting with people of different nationalities, languages and cultures. |
| | G12 | Capacity to undertake professional activities with integrity, respecting social, organisational and ethical norms. |
| | G13 | Capacity to use individual learning strategies aimed at continuous improvement in professional life and to begin further studies independently. |
| Specific programme competences | E04 | Capacity to maintain an open mind to innovation and creativity within the framework of the engineering profession. |
| | E05 | Capacity to assess the economic and business features of engineering activities. |
| | E06 | Capacity to apply quality assurance processes to processes and products. |
| | E07 | Capacity to work effectively in project teams, where appropriate assuming executive responsibilities, and consider the human, technological and financial sides. |

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| | E08 | Capacity to communicate productively with clients, users and colleagues both orally and in writing, so as to pass on ideas, solve conflicts and achieve agreements. |
| | E09 | Capacity to maintain professional competences through independent learning and continuous improvement. |
| | E12 | Capacity to manage complexity through abstraction, modelling, 'best practices', patterns, standards and the use of the appropriate tools. |
| | E15 | Capacity to understand and go along with the strategic objectives of the company where you are pursuing your professional career. |
| | E16 | Capacity to understand an application demesne so as to be able to develop suitable IT applications. |
| | E17 | Capacity to identify and analyse user needs with the intention of designing effective, usable IT solutions which can be incorporated into the user's operating environment. |
| | E18 | Capacity to identify and define the requirements to be satisfied by IT systems to cover the stated needs of organisations or individuals. |
| | E19 | Capacity to design and define the architecture of IT systems (software, hardware and communications) under the requirements agreed upon by the parties involved. |
| | E20 | Capacity to undertake the detailed design of the components of a project (procedures, user interface, equipment characteristics, communications system parameters, etc.). |
| | E21 | Capacity to perform tests that verify the validity of the project (functional, data integrity, performance of the computer applications, equipment, communications, etc.). |
| | E22 | Capacity to undertake implementation tasks which require a high degree of technical awareness in different spheres (programming, configuration of hardware and communications equipment, etc.). |
| | E24 | Capacity to draw up and develop effective project plans for systems based on information and communication technologies. |
| | E25 | Capacity to analyse viability, design development plans, estimate resources, run and oversee the execution of software-intensive engineering projects. |
| | E26 | Capacity to define and manage quality policies for IT and communications systems, applying quantitative principles based on metrics and statistics. |
| | E27 | Capacity to write and maintain descriptive documentation of the origin, production and operability of IT systems. |
| Learning outcomes | R1 | Analyse the information needs considered in a situation and undertake all the stages in an information system construction process. |
| | R2 | Know and understand the economic, administrative, company and client environment to identify needs and provide optimal solutions. |

PRE-REQUISITES:

Fundamentos de Programación, Estructuras de Datos, Programación Orientada a Objetos I, Programación Orientada a Objetos II

SUBJECT PROGRAMME:

Subject contents:

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| 1 - DISEÑO E IMPLEMENTACIÓN DE SOLUCIONES SI EN EMPRESAS |
| 1.1 - A Strategic Approach to Information Systems for the Enterprise |
| 1.1.1 - Foundations of Information Systems in Business |
| 1.1.2 - Competing with Information Technology |
| 1.1.3 - Information Systems in the enterprise |
| 1.2 - Business Process Modeling and Management (BPM) |
| 1.2.1 - Introduction to BPM |
| 1.2.2 - BPM with WebSphere Business Modeler (WBM) |
| 1.2.3 - WBM Defining Elements and Attributes |
| 1.2.4 - WBM Completing the Model |
| 1.2.5 - WBM Model Validation |
| 1.3 - Enterprise Resource Planning Products |
| 1.3.1 - ERP Introduction |
| 1.3.2 - Open ERP |
| 1.3.3 - SAP |
| 1.3.4 - Capture, process and transmission of data |
| 1.4 - Technological Basis for IS for the Enterprise |



- 1.4.1 - XML Overview
- 1.4.2 - SOA Overview
- 1.4.3 - Interfaces Overview
- 1.4.4 - Web Services Overview
- 1.5 - Developing Integrated Enterprise Applications with a Service-Oriented Architecture
- 1.5.1 - Java Business Integration
- 1.5.2 - BPEL Projects
- 1.5.3 - Event Handling
- 1.5.4 - Sample Applications

Subject planning could be modified due unforeseen circumstances (group performance, availability of resources, changes to academic calendar etc.) and should not, therefore, be considered to be definitive.

TEACHING AND LEARNING METHODOLOGIES AND ACTIVITIES:

Teaching and learning methodologies and activities applied:

Teacher will follow those learning methodologies with the purpose of competences established in the subject development:

- Theoretical-expositive Lessons: presentation of the theoretical concepts used during the practice development. During those sessions first steps towards competences acquisitions will be performed. It will be encouraged the active involvement of the students via exercises and questions to increase the comprehension of the concepts and techniques explained.
- Practical Sessions: application in practical exercises of the concepts and techniques presented during the expositive lessons. Teacher will control the performed student tasks to facilitate the correct acquisitions of competences.
- Tutorship Sessions: competence acquisitions are provided using the work of some expert people observation and interactive discussion about practice exercises. There will be sessions dedicated to problem resolution by the teacher, so the student could do same exercise in an autonomous way.
- Project Oriented Learning in a cooperative environment: realization of a small-medium team project will enforce the cooperative learning and the social skills of the students, what is a key factor for a successful professional future.
- Research: to increase students interest in the subject, some short research works about historic and current technologies challenges will be proposed.
- Case studies: step by step execution of an easy software project.
- Seminary Sessions: students will present their exercises to the rest of the classroom. This will generate the subsequent discussions.
- Learning based on real scenarios and issues: analyse of real cases related with the subject.

In addition, to optimize competences the teacher recommends following those learning methodologies:

- Active attitude during the magistral sessions, asking doubts and answering to questions. Doubts not solved from the beginning could accumulate and will difficult subsequent learning.
- Study and personal understanding of concepts presented during the expositive lesson same day of the class. Resolution of possible doubts during current session, maximum next class. Most of the problems of assimilation and comprehension start from the lack of autonomous work about the previous class materials.
- Execution of exercises, practical questions and readings proposed by teacher. Some not mandatory tasks are as important as mandatory ones. Working in practical problems facilitates the assimilation of theoretical concepts and to appreciate its utility.
- Curious and proactive attitude, of the material delivered to students.

- Group work collaborative and active, so student gains self-esteem and learnt how to interact with other people.
- Personal reflexion about the presented subject: Are they relevant? What is the utility of this knowledge? In which level it is going to be useful to me in my professional future? Those questions help students to control learning and to make it more effective and significative.
- Utilization of the personalize tutorship. Teacher books some weekly time to solve personally any doubt related with the subject. A student that really wants to profit a subject should know which element he has to progress in his knowledge and how to make use of them.

Student work load:

| Teaching mode | Teaching methods | Estimated hours |
|-----------------------------|-----------------------------------|-----------------|
| Classroom activities | Master classes | 32 |
| | Practical exercises | 20 |
| | Coursework presentations | 5 |
| | Workshops | 5 |
| Individual study | Individual study | 8 |
| | Individual coursework preparation | 4 |
| | Group coursework preparation | 56 |
| | Research work | 8 |
| | Compulsory reading | 6 |
| | Recommended reading | 6 |
| Total hours: | | 150 |

ASSESSMENT SCHEME:

Calculation of final mark:

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|---|------------|----------|
| Individual coursework: | 10 | % |
| Group coursework: | 65 | % |
| Innovation, interest and participation: | 25 | % |
| TOTAL | 100 | % |

*Las observaciones específicas sobre el sistema de evaluación serán comunicadas por escrito a los alumnos al inicio de la materia.

BIBLIOGRAPHY AND DOCUMENTATION:

Basic bibliography:

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| ROSEN, Mike - LUBLINSKY, Boris. Applied SOA. Service-Oriented Architecture and Design Strategies. Wiley, 2008. |
| CHANG, James F. Business Process Management Systems: Strategy and Implementation. Auerbach Publications, 2006. |
| BERRIDGE, Eric - KIRVEN, Michael. Agile Consulting for 21st Century Business Success. AuthorHouse, 2008. |
| MUÑIZ, Luis. Erp - Guía Practica Para La Selección E Implantación. Gestión 2000, 2004. |

Recommended bibliography:

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| BROWN, Kyle - CRAIG, Gary - HESTER, Greg. Enterprise Java™ Programming with IBM® WebSphere®, Second Edition. Addison Wesley, 2003. |
| NAGEL, Christian. "Enterprise Services with the .NET Framework: Developing Distributed Business Solutions with .NET Enterprise Services". Addison Wesley Professional, 2005. |
| CASSIDY, Anita. A Practical Guide to Information Systems Strategic Planning, Second Edition. Auerbach Publications, 2006. |
| PULIER, Erich - and TAILOR, Hugh. Understanding Enterprise SOA. Manning, 2006. |
| GAUR, Haris - ZIRN Markus. BPEL Cookbook. Packt Publishing, 2006. |
| CA, Binildas - BARAI Malhar. Service Oriented Architecture with Java. Packt Publishing, 2008. |
| KRAFZIG, Dirk - BANKE, Karl |

Recommended websites:

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| SAP | www.sap.com |
| MICROSOFT DYNAMICS | http://www.microsoft.com/spain/dynamics/overview.msp |
| JAVA | http://www.java.com |
| AGILE-SPAIN | www.agile-spain.com |
| IBM WEBSHERE | http://www-01.ibm.com/software/websphere/ |

* Guía Docente sujeta a modificaciones