Centre	**University College of Engineering of Vitoria-Gasteiz**
Name of subject	**26024 – Information Systems Analysis and Design**
Qualification	**Degree in Computer Management and Information Systems Engineering**
Type	**Compulsory**
Credits	**6 ECTS**
Year	**3**
Term(s)	**1st**
Department	**Computer Languages and Systems**
Language	**Spanish**

Outcomes / Objectives

This course presents:

- A software development methodology that covers the entire software life cycle, and

- A UML modelling language aimed at management applications and information systems.

Syllabus

General syllabus:

BLOCK I: ANALYSIS AND DESIGN OF SOFTWARE APPLICATIONS

Unit 1: Introduction to UML.

Unit 2: Requirements modelling. Use case diagrams.

Unit 3: Static modelling. Structural diagrams.

Unit 4: Dynamic modelling. Interaction, state and activity diagrams.

BLOCK II: DEVELOPMENT AND EVALUATION OF SOFTWARE APPLICATIONS

Unit 1: Client-side Web applications.

Unit 2: Server-side Web applications.

Unit 3: Development of a Web application with J2EE.

Block I specific syllabus:

- Introduction to Information Systems Analysis and Design. This unit presents and analyses the main characteristics of an information system (IS) to subsequently address its mechanisation using software development methodologies. Prior to that, it studies the phases of an IS life cycle and what the development of an application software consists in.

- The Unified Software Development Process. After the most important generic characteristics of software development have been presented, a practical implementation of those characteristics is performed using a standard and commonly accepted solution such as the unified development process.

- Requirements capture. This unit presents, firstly, an overview of the capture of information systems requirements to subsequently analyse the role of the requirements workflow in the life cycle. The unit ends by analysing and presenting the artifacts required in workflows: Description of information system architecture, Domain Model, Business Model, critical use cases, actors, user interface prototypes, glossary of terms.

- Analysis of an information system. This unit presents and analyses the artifacts required in the workflow of an information system analysis: use case diagram, class diagram, communication diagrams.

- Design of an information system. This unit presents and analyses the artifacts required in the workflow of the design of an information system: detailed class diagram (specification of the class methods with their complete signature), sequence diagrams.

Block II specific syllabus:

- Client-side implementation: XHTML, CSS and Javascript (AJAX).

- Server-side implementation: Servlets, JSPs, JavaBeans, Access 2007 DB

- Development of a Web application under a known environment.

Methodology

Teaching Method

Face-to-Face Teaching Hours

Lectures	Seminars	Classroom practice	Lab. practice	Computer sessions	Clinical practice	Workshops	Industrial workshops	Field practice
40		20						

Student Hours of Non Face-To-Face Activities

Lectures	Seminars	Classroom practice	Lab. practice	Computer sessions	Clinical practice	Workshops	Industrial workshops	Field practice
50		40						

Clarification:

Materials available on the Moodle platform:

1.- Subject materials: notes, transparencies, list of exercises, laboratory statements, practical task statement, etc.

2.- Material that may be added to the course site through the Moodle content and teaching manager.

Assessment System

General criteria

Written essay exam
  → Practical tasks (exercises, case studies or problems)
  → Group assignments

Clarification regarding assessment

  → Continuous assessment in the REGULAR exam session:
    Final grade = 0.40 x Web application + 0.30 x Block I exam + 0.30 x Block II exam
  → Continuous assessment in the SUPPLEMENTARY exam session:
    Final grade = 0.30 x Web application + 0.35 x Block I exam + 0.35 x Block II exam
  → Web application:
  → 10%: Initial submission of a report with the modelling of a Web application (UCD, CD and ER).
  → 20%: Oral defence of a demo of the application along with a second submission of the modelling (corrected CD and final ER).
  → 10%: Correctly executed documentation and assessment tasks.
  → The above formulas will only apply where the student has sat the two exams and passed (i.e. achieved a score of 5 or higher) the practical task on the Web application and the exams on the two course blocks; otherwise, a fail will be entered in the student's achievement record).

GRADE ENTERED IN THE STUDENT'S ACHIEVEMENT RECORD:

→ - Students may only sit a single exam accounting for 100% of the final grade in exceptional cases where justification has been submitted at the beginning of the year as per article 43 of the current regulations concerning the assessment of students. Exceptional cases must be notified to the lecturer at the beginning of the year or as soon as the exceptional circumstance occurs if it takes place after commencement of the term. No exception requests will be accepted afterwards.

→ - Students will be deemed to have taken the REGULAR exam session if they have sat at least 1 of the 2 above mentioned exams, and a fail will be entered into the record.

→ - The score achieved in the Web application practical task will be kept for the SUPPLEMENTARY exam session but not for other years.

Compulsory materials

– Tools:
– Block I: Visual Paradigm.
– Block II: NetBeans, Tomcat, Firebug (for Firefox), and Access 2007.

Bibliography

Basic Bibliography

➢ - Piattini, M., Calvo-Manzano, J. A., Cervera, J. y Fernández, L. Análisis y diseño detallado de Aplicaciones Informáticas de Gestión. Rama. 1996.

➢ - Jacobson, I., G. Booch & J. Rumbaugh. El proceso unificado de desarrollo del software. Pearson education. 2000.

➢ - Rumbaugh, J., I. Jacobson & G. Booch. El lenguaje unificado de modelado. Manual de referencia. Pearson education. 2000.

➢ - Booch, G., J. Rumbaugh & I. Jacobson. El lenguaje unificado de modelado. Addison-Wesley. 2000.

In-depth Bibliography

➢ - Fowler, M. y Scott, K. UML Distilled Second Edition: A Brief Guide to the Standard Object Modeling Language. Addison Wesley . 2002.

➢ - Lano, K. Advanced Systems Design with Java, UML and MDA. Butterworth-Heinemann. 2005.

➢ - Larman, C. UML y Patrones. Prentice Hall. 2002.

➢ - Bruegge, B. eta Dutoit. A. Object-Oriented Software Engineering: Using UML, Patterns and Java. Prentice Hall. 2003.

➢ - Hunt, J. Guide to the Unified Process Featuring UML, Java and Design Patterns. Springer. 2003.

Journals

➢ Novatica
➢ Upgrade

Websites

UML:
➢ http://www.jeckle.de/unified.htm
➢ http://www.uml.org/
➢ http://www.visual-paradigm.com/product/vpuml/
➢ http://manuales.astalaweb.com/Manuales/UML.asp
UML design patterns:
➢ http://www.craiglarman.com/