Centre	**University College of Engineering of Vitoria-Gasteiz**
Name of subject	**26036 – Graphics Systems Development**
Qualification	**Degree in Computer Management and Information Systems Engineering**
Type	**Elective**
Credits	**4.5 ECTS**
Year	**4**
Term(s)	**1st**
Department	**Computer Languages and Systems**
Language	**Spanish**

Outcomes / Objectives

Study of the development of applications with 2D and/or 3D graphical interfaces, from the hardware and the use of already developed graphics engines to commonly used programming interfaces.

Syllabus

1. Introduction to graphics systems. Definitions. Abstraction layers. Hardware, API, graphics engines, application. Basic concepts in graphics applications.
2. Hardware. Introduction. Motivation. Evolution of architectures. Basic architecture model. Processing stages.
3. Programming interfaces. Introduction to graphical programming interfaces. OpenGL. API-level optimisation techniques. Evolution of graphics hardware programming.
4. Graphics engines. Introduction to graphics engines. OGRE.
5. Architecture of a graphics application.

Methodology

Teaching Method

Face-to-Face Teaching Hours								
Lectures	**Seminars**	**Classroom practice**	**Lab. practice**	**Computer sessions**	**Clinical practice**	**Workshops**	**Industrial workshops**	**Field practice**
15				**30**				
Student Hours of Non Face-To-Face Activities								
Lectures	**Seminars**	**Classroom practice**	**Lab. practice**	**Computer sessions**	**Clinical practice**	**Workshops**	**Industrial workshops**	**Field practice**
17,5				**50**				

Assessment System

General criteria

→ Individual assignments.

Bibliography

Basic Bibliography

- "OpenGL(R) Programming Guide: The Official Guide to Learning OpenGL(R)", Versión 2.1 OpenGL ARB, Dave Shreiner, Mason Woo, Jackie Neider, Tom Davis
- "3D Game Engine Design, Second Edition: A Practical Approach to Real-Time Computer Graphics". David H. Eberly

In-depth Bibliography

- "GPU Gems 3" Hubert Nguyen
- "Advanced Graphics Programming Using OpenGL" Tom McReynolds, David Blythe

Websites

- http://www.developer.nvidia.com
- http://www.gamedev.net/
- http://www.gamasutra.com/