



2012 EUROPEAN INDUSTRIAL MANAGEMENT (since 2007)

Campus de Vera, Valencia (Spain), from FEB 4th till JUNE 6th 2012

European Industrial Management (EIM) is a **learning experience** taught in English including two complementary parts: a supervised multidisciplinary project (carried out in international teams whose members are drawn from different academic backgrounds), and intensive seminars (aimed at developing the so-called soft skills).

In order to create a **flexible educational package**, the workload of the project is fixed after the student decides the participation in other modules (mainly “Photovoltaic...” and “Spanish...”).

Advantages:

- 1) Integrated learning package
- 2) Good opportunity to learn Spanish
- 3) Taught in English
- 4) Multicultural and multidisciplinary
- 5) PBL
- 6) 360° Assessment
- 7) Valencia: city and environment.

List of Subjects

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Description of the modules

Managing human resources.

- Team building: intercultural resources.
- Communication skills.
- Motivation and creativity.

For the purposes of this course we define **communication** as 'the effective sharing of knowledge and information', and the objective of the course will be to develop your communication skills - in English - in a variety of mainly academic and work-related situations and contexts.

Of course, there are many different features of communication; verbal, written, formal and informal, interpersonal and group, and so on. We will explore these aspects (and also basic skills such as listening, speaking, questioning and **sharing feedback**, as well as organising and presenting information in a structured and informative way), through a variety of **practical** activities.

These activities themselves will allow us to examine several different features of the English language (such as degrees of formality, style, appropriacy), as well as the structure of technical reports and of shorter text elements such as chapters and paragraphs. We will also look at how techniques of persuasion (such as those used in advertising) can be **applied** to presentations.

Design management.

It is a recently new discipline. It is emerged from the need to strength and **optimize** the coordination between companies **strategies** with designers tasks. Design management tasks go from design trends analysis, design policy definition, design brief elaboration, design program execution and project management. Therefore this role is not only carried out by designers, but by people from different disciplines, and usually from marketing or engineering.

- Universal principles of design.
- Design and innovation: trends and paradigms.
- General concepts of Design Management: strategic and operative approach.

Case study: IGD/UPV experience with Ikea, Ford, Chicco, Lego, Techno Iris, Gigo.

Managing culture.

Cultural (museums, festivals, exhibitions...) and technical visits (Hoya de Cadenas, CEVISAMA, Coca-Cola, AIDIMA, Torrecid, Heineken...).

Spanish (reduced and tailored groups).

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Managing projects.

This course aims to develop the basic **skills** necessary to propose, draft and manage industrial projects by applying scientific knowledge and techniques, skills and procedures, once the determining factors have been identified and assessed.

The course is divided into three main elements. The first element will comprise a series of lectures explaining the important aspects of project management, project analysis, planning, and management will be explained. The second element will be a series of group activities linked to and interspersed with the lectures, focusing on the students' given project. They will draft the specifications, describe the method used to solve the proposed problem, and plan the time needed to complete the tasks involved. Finally, the students will **prepare and deliver** a short presentation to show the outcome of the above group activities.

The objectives can be summarised as follows: 1. To develop an understanding of proposal, analysis, assessment, structure and management of an industrial project. 2. To study a specific project, determine the focus and the elements leading to an appropriate solution. 3. To develop and present a project proposal and time plan.

Course syllabus: **Project management.** Introduction and Definition of a Project, Basic Elements of a Project, Organising a Project, Planning a Project, Resource Analysis, Tools, Microsoft Project overview, Monitoring and Controlling a Project, Internal Co-operation within a Project Team. **Group work.** Brainstorming and basic elements, project specification and structure, work breakdown structure and responsibility matrix, project planning, project presentation development. **Project presentation.** Delivery of a short presentation giving an overview of the given project and including the results of the group work.

Throughout the course, classes will involve traditional lectures where the main elements of a project are explained. Within the lecture programme, the students will undertake a series of group exercises, **applying** the lecture material to their specific given project. The lecturer will guide the students to **reach solutions**. Finally, the students will deliver a report and make a presentation of their project.



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Project Valuation: a financial perspective.

The course focuses on the study of the flow of funds into and out of organizations and the decisions affecting those flows, such as which projects a firm should invest in (a new product, a new technology, a new marketing campaign, etc), and how they should go about raising the money to do so.

Course syllabus: **Sources of finance.** Own sources of finance of the firm. External sources of finance. **Cost** of the sources of finance (k). **Evaluation of projects:** the Capital-Budgeting Decision Rules. Cash flow estimation. Net present Value. Payback. Internal Rate of Return.

Photovoltaic power systems: components and installations (optional module).

1. Introduction. Renewable energies. Types of photovoltaic installations. Parts of photovoltaic installations.
2. Photovoltaic modules. Photovoltaic cells: photovoltaic conversion, technologies, electrical characteristics, series and parallel association. Photovoltaic modules: voltage-current and voltage-power curves, module operating point and maximum power point (MPP). Series and parallel association: solar array design.
3. Radiation. Solar radiation. Equivalent peak sun hours (PSH). PSH tables for different inclinations. Inclination and orientation of the solar array.
4. Batteries. Electrical energy storage in photovoltaic systems. Battery types. Characteristics. Battery charge and discharge: charge regulators. Battery association.
5. Power electronic converters in photovoltaic systems. AC and DC electrical systems. Power and energy. Maximum power point tracking (MPPT). Step-down DC/DC converter: MPP charge regulators and photovoltaic water pumping. Step-up DC/DC converter: MPPT for grid-connected systems. DC/AC converter (inverters): sinusoidal voltage/current generation from a DC source.
6. Photovoltaic power systems design. Grid connected photovoltaic power systems. Stand-alone photovoltaic power systems. Examples.
7. Mechanical structures in photovoltaic installations. Structure materials. Structure topologies: flat and inclined roofs, facades, sun followers and photovoltaic farms.
8. Practical photovoltaic installations. Summary of general technical regulations applied in Spain: use of grid transformers, isolations, ground connection, etc. Protections and security in photovoltaic installations. Maintenance of photovoltaic installations.



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Project (the range of potential topics is very wide: Business Start-up, Automation, Biomaterials, Construction, Design for all, Human Tech, Leisure design, Robotics, New Technologies...).

The task (draft) done include:

Project initiation, selection, and definition (Identification of needs; Development, Evaluation and selection of (technological) alternatives, Development of a configuration baseline).

Project organization (Selection of participating organizations, Structuring the work content of the project, Development of the project organizational structure and associated communication and reporting facilities).

Analysis of activities (Definition of the project's major tasks, Development of a list of activities required to complete the project's tasks, Development of precedence relations among activities, Development of a network model).

Project scheduling (Development of a calendar, Estimation of activity durations, Estimation of activity performance dates, Monitoring actual progress and milestones, Updating the schedule).

Resource management (Definition of resource requirements, Acquisition of resources, Allocation of resources among activities, Monitoring of actual resource use and cost).

Technological management (Development of a configuration management plan, Identification of technological risks, Quality management).

Project budgeting.

Project execution and control (Development of data collection systems, Development of data analysis systems, Execution of activities, Data collection and analysis, Detection of deviations in cost, configuration, schedule, and quality, Development of corrective plans, Implementation of corrective plans).

Project termination (Evaluation of project success, Recommendation for improvements in project management practices, Analysis and storage of information on actual cost, actual duration, actual performances, and configuration).