General objectives of the subject

To introduce students to the new conception of quality as a strategic element for competitiveness through the analysis of the most widely employed theories in the West and in Japan.

To impart knowledge that may be useful in professional life about the process of implantation of the theory of Total Quality in a company, about international standards, and especially European standards, in terms of ensuring quality control (ISO 9000).

Finally, to introduce students to techniques of concurrent Engineering (Quality Function Deployment, Benchmarking, etc.) characterised by the function of Design within Quality.

* The ability to persuade executives and managers of the need to use statistical methods for improving the quality and productivity of organizations.
* To learn the different quality methodologies belonging to statistical methods as important tools.
* The ability to decide on the basis of the pros and cons of each improvement methodology, which one is the best for each different situation.

Skills to be learned
* To learn and understand the terminology of quality, how and why quality measures should be adopted as well as their history and evolution, in order to be able to implant effective systems.
* To understand and be able to persuade company executives of the need for statistical methods for improving quality and production.
* To familiarize students with the ISO 9000 standards processes of adaptation to the world of work, as well as analyzing them in detail.
* To learn the quality application techniques in the world of work.

Content

Introduction

Quality planning
The planning cycle. Principal tools: QFD (Quality Function Deployment), FMEA (Failure Mode and Effect Analysis).

Quality control
Review of the main methodologies and their applications. Advantages and disadvantages.

Quality improvement
The need for improvement. Improvement methodologies. Sis Sigma: Necessary organization, Improvement phases (DMAIC). The role of statistical tools. The sale of Sis Sigma.

ISO 9000 quality management system model

The EFQM excellence model
Fundamental concepts. Structure of the model: agents and results. Use of the model.
Qualification system
Assessment will cover:

a. Participation in class discussions
b. Set pieces of work
c. Analysis and discussion of real cases
d. Multiple choice test

The method of assessment for the final result is as follows:
Nota = 0.1 * A + 0.3 * P + 0.15 * PE + 0.15 * CT + 0.3 * PT

A = Class attendance
P = Participation in class discussions
PE = Presentation and exposition of set pieces of work
CT = Work content
PT = Multiple-choice test

Prior skills
* Foundations of quality control and organization structures.

Teaching methodology
* Theoretical sessions: Sessions in which the contents of the course are introduced (with the aid of PowerPoint). Throughout these sessions students will be set questions that they must answer in a structured way using the knowledge they have acquired to date.
Practical examples taken from daily life are presented, as well as situations likely to arise in a work context, with the purpose of focussing approaches on quality. All suggestions and comments arising from these questions help in the tackling of practical cases and real situations of improvement.
* Problem-solving sessions: Practical sessions in which students present and explain pieces of work set by the lecturer.

Bibliography
Basic:

Complementary: