



Universidad  
Politécnica  
de Cartagena



Centro  
Universitario  
de la Defensa

**General Air Force Academy**

# **Course unit description: Quality Management**

**Degree/s: Industrial Organization Engineering Degree**

**Course: 2016-2017**

## 1. Subject data

Name		Quality Management					
Subject area		Quality Management					
Module		Business Management					
Code		511104006					
Degree programme		Industrial Organization Engineering Degree					
Curriculum		2009 (Decreto 269/2009 de 31 de julio)					
Centre		University Centre of Defence at the Spanish Air Force Academy					
Type		Optional					
Length of subject		Four-month course	Semester		2nd	Course	4th
Language		Spanish					
ECTS	4,5	Hours / ECTS	25	Total workload (hours)		112,5	

## 2. Lecturer data

<b>Lecturer in charge</b>	PhD. LORENA PARA GONZÁLEZ		
<b>Department</b>	Economics and Juridical Sciences Department		
<b>Knowledge area</b>	Business Management		
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<b>Office hours</b>	Available at Virtual Classroom UPCT		
<b>Location</b>	Room nº35		

<b>Qualification/Degree</b>	PhD. by the Technical University of Cartagena.
<b>Academic rank at UPCT</b>	Full-time Senior Lecturer and Researcher at University Centre of Defence at the Spanish Air Force Academy.
<b>Year of admission in UPCT</b>	2013
<b>Number of five-year periods (<i>quinquenios</i>) if applicable</b>	Not applicable.
<b>Research lines (if applicable)</b>	Human Resources Management, Quality Management, Innovation, Organizational Apprenticeship.
<b>Number of six-year periods (<i>sexenios</i>) if applicable</b>	Not applicable.
<b>Professional experience (if applicable)</b>	7 years at Navantia shipyards.
<b>Other topics of interest</b>	Not applicable.

### 3. Subject description

#### 3.1. General description

This subject allows pupils to get to know the contribution of Quality Management as a key factor to achieve the goals of the organizations in the actual context.

This subject allows pupils to know Quality Management as an important factor of the success of the organizations, adjusting its contents to the most specific problematic of the companies regarding industrial organization.

This is due to the increasing interest in the consecution of competitive advantages to the organizations through continuous improvement and Excellence.

Optional and fourth course subject whose contents have been partially presented in a brief way in the subjects of 3<sup>o</sup> course "Operations Management" and "Labour work and Human Resources Management".

#### 3.2. How the subject contributes to a professional career

An appropriate Quality Management of an organization becomes to be a basic need for the survival and competitive development of itself in the global market that rules today.

The subject is structured in two huge blocks: a part centered in Quality Management and different techniques and tools designated to control and improvement; and a second part concentrated in the philosophies and methodologies more used in the last years in the consecution of distinctive competences in organizations, with the aim of increasing results. Likewise, in this second part, a unit is dedicated to Quality in the Defence Sector.

This subject is considered as adequate to the profile of the pupils, with regard to their future, in which this subject will allow them to act in an appropriate way in the units in which they take part of, as from the point of view of the worker as from the executive.

#### 3.3. Relationship with other subjects in the programme

This subject has had a brief introduction in the Unit 3 of the subject "Work labour and Human Resources Management" of third course –Unit "Methods study"- and in the Unit 9 of the subject "Operations Management" of third course "Quality Management". There does not exist previous requirements to study the subject.

#### 3.4. Incompatibilities defined in the programme

There are not incompatibilities.

#### 3.5. Recommendations to do the subject

There does not exist previous recommendations to study the subject.

#### 3.6. Special provisions

Special measures will be adopted to allow coordination among the studies of the subjects with the military and aeronautical activities. Concretely, work groups will be established with pupils with limited availability, in order to encourage apprenticeship through the

planning of group tutorials and planning and delivery of activities through Virtual Classroom.

## 4. Competences and learning outcomes

### 4.1. Basic curricular competences related to the subject

To value the importance of an appropriate Quality Management, that could encourage the consecution of the business objectives.

To carry out adequate quality measurements, to identify key quality problems, to establish quality control systems, to implant a quality philosophy in an organization and detect the key role that the different organizational areas perform in this implementation.

### 4.2. General curricular competences related to the subject

#### INSTRUMENTAL COMPETENCES

- ☒ T1.1 Analytical and summary skills
- ☒ T1.2 Organizational and planning skills
- ☒ T1.3 Oral and written communication skills in their mother tongue
- ☒ T1.5 Basic computer skills
- ☒ T1.6 Information management ability
- ☒ T1.7 Problem solving skills

#### PERSONAL COMPETENCES

- ☒ T2.3 Interpersonal skills

### 4.3. Specific curricular competences related to the subject

#### SPECIFIC COMPETENCES OF THE FIELD

- ☒ E.1.2.k Knowledge on technological subjects for the execution of measurements, calculations, studies, reports, enquiries and other analogue works.

#### PROFESSIONAL COMPETENCES

- ☒ E2.2 Capability to manage specifications, rules and norms of compulsive compliance.
- ☒ E2.5 Facility to manage specifications, rules and norms of compulsive compliance.
- ☒ E2.6 Management of departments of the functional areas of the organization (production, financial, human resources).

### 4.4. Transversal curricular competences related to the subject

#### SYSTEMIC COMPETENCES

- ☒ T3.1 Ability to apply theory to practice
- ☒ T3.2 Learning ability
- ☒ T3.3 Ability to adapt to new situations
- ☒ T3.4 Creativity
- ☒ T3.7 Ability to work autonomously

### 4.5. Subject learning outcomes

- Pupils know how to manage quality in an industrial organization (UD1 and UD2).
- Concretely, they are able to implant a system based in the Total Quality Management (TQM) philosophy (UD2).

- Likewise, they are able to develop improvement and quality control tools, such as Pareto Charts and Ishikawa Diagrams (UD3).
- Moreover, students are totally conscious of the ISO 9000 norms and the EFQM Model of Excellence (UD7).
- Moreover, pupils are able to suggest measures planned to continuous improvement in organizations, such as Quality Circles, TPM; Poka-Yoke, Kaizen, 5 S, Just in Time, etc. (UD4, UD5 and UD9).
- Finally, students are experts regarding the application of Quality Management in the Defence scope (UD8).

## 5. Contents

### 5.1. Curricular contents related to the subject

**UNIT 1. QUALITY BASIS.**  
**UNIT 2. TOTAL QUALITY MANAGEMENT (TQM).**  
**UNIT 3. IMPROVEMENT TOOLS AND QUALITY CONTROL.**  
**UNIT 4. QUALITY CIRCLES.**  
**UNIT 5. JUST IN TIME PHILOSOPHY.**  
**UNIT 6. ISO 9000 NORMS.**  
**UNIT 7. EFQM MODEL OF EXCELLENCE.**  
**UNIT 8. TOTAL QUALITY MANAGEMENT IN DEFENCE.**  
**UNIT 9. OTHER QUALITY TECHNIQUES: THE 5S AND TPM.**

### 5.2. Theory syllabus (teaching modules and units)

**UNIT 1. QUALITY BASIS.**  
LESSON 1. QUALITY BASIS.  
**UNIT 2. TOTAL QUALITY MANAGEMENT (TQM).**  
LESSON 2. TOTAL QUALITY MANAGEMENT (TQM).  
**UNIT 3. IMPROVEMENT TOOLS AND QUALITY CONTROL.**  
LESSON 3. IMPROVEMENT TOOLS AND QUALITY CONTROL.  
**UNIT 4. QUALITY CIRCLES.**  
LESSON 4. QUALITY CIRCLES.  
**UNIT 5. JUST IN TIME PHILOSOPHY.**  
LESSON 5. JUST IN TIME PHILOSOPHY.  
**UNIT 6. ISO 9000 NORMS.**  
LESSON 6. ISO 9000 NORMS.  
**UNIT 7. EFQM MODEL OF EXCELLENCE.**  
LESSON 7. EFQM MODEL OF EXCELLENCE.  
**UNIT 8. TOTAL QUALITY IN DEFENCE.**  
LESSON 8. TOTAL QUALITY IN DEFENCE.  
**UNIT 9. OTHER QUALITY TECHNIQUES: THE 5S AND TPM.**  
LESSON 9. OTHER QUALITY TECHNIQUES: THE 5S AND TPM.

### 5.3. Practice syllabus (name and description of every practical)

Practical/Exercises/Problem-solving sessions will be carried out after each unit, in order that the students get familiarized with the practical application of the theoretical knowledge and its utility in real life.

- ✓ News analysis related to quality perception (UD1).
- ✓ Exercises solving concerning Total Quality Management (UD2).
- ✓ Problems solving regarding improvement and control quality tools (UD3).
- ✓ Videos watching and exercises solving related to them (UD4).
- ✓ Videos watching and exercises solving related to them (UD5).
- ✓ News analysis related to quality perception (UD6).
- ✓ Videos watching and exercises solving related to them (UD7).
- ✓ News analysis related to quality perception (UD8).





### **Risk prevention**

Promoting the continuous improvement of working and study conditions of the entire university community is one the basic principles and goals of the Universidad Politécnica de Cartagena.

Such commitment to prevention and the responsibilities arising from it concern all realms of the university: governing bodies, management team, teaching and research staff, administrative and service staff and students.

The UPCT Service of Occupational Hazards (*Servicio de Prevención de Riesgos Laborales de la UPCT*) has published a "Risk Prevention Manual for new students" (*Manual de acogida al estudiante en materia de prevención de riesgos*), which may be downloaded from the e-learning platform ("Aula Virtual"), with instructions and recommendations on how to act properly, from the point of view of prevention (safety, ergonomics, etc.), when developing any type of activity at the University. You will also find recommendations on how to proceed in an emergency or if an incident occurs.

Particularly when carrying out training practices in laboratories, workshops or field work, you must follow all your teacher's instructions, because he/she is the person responsible for your safety and health during practice performance. Feel free to ask any questions you may have and do not put your safety or that of your classmates at risk.

## **5.4. Theory syllabus in english (teaching modules and units)**

**UNIT 1. QUALITY BASIS.**

**UNIT 2. TOTAL QUALITY MANAGEMENT (TQM).**

**UNIT 3. IMPROVEMENT TOOLS AND QUALITY CONTROL.**

**UNIT 4. QUALITY CIRCLES.**

**UNIT 5. JUST IN TIME PHILOSOPHY.**

**UNIT 6. ISO 9000 NORMS.**

**UNIT 7. EFQM MODEL OF EXCELLENCE.**

**UNIT 8. TOTAL QUALITY MANAGEMENT IN DEFENCE.**

**UNIT 9. OTHER QUALITY TECHNIQUES: THE 5S AND TPM.**

## **5.5. Detailed description of learning goals for every teaching module**

- Pupils should know how to manage quality in an industrial organization (UD1 and UD2).
- Concretely, they will be able to implant a system based in the Total Quality Management (TQM) philosophy (UD2).
- Likewise, they must be able to develop improvement and quality control tools, such as Pareto Charts and Ishikawa Diagrams (UD3).
- Moreover, students must be totally conscious of the ISO 9000 norms and the EFQM Model of Excellence (UD7).
- Moreover, pupils should be able to suggest measures planned to continuous improvement in organizations, such as Quality Circles, TPM; Poka-Yoke, Kaizen, 5 S, Just in Time, etc. (UD4, UD5 and UD9).
- Finally, students will be experts regarding the application of Quality Management in the Defence scope (UD8).

## 6. Teaching method

6.1. Teaching method			
Teaching activity	Teaching techniques	Student workload	Hours
<b>Lectures</b>	Explanation of the subject and following of students' acquisition and application.	<u>In-class</u> : attendance to classes and participation	<b>0,9</b>
		<u>Self-study</u> : Study of the subject.	<b>1,15</b>
<b>Problem and Cases Classes</b>	Solving problems and analysis of case studies led by the Professor.	<u>In-class</u> : Active participation. Exercises and question approaching.	<b>0,9</b>
		<u>Self-study</u> : Study of the subject. Solving problems and analysis of case studies led by Professor.	<b>1</b>
<b>Supervisions and group tutorials</b>	Supervisions and Tutorials (individual or group) in order to track individual and / or group learning. Solving problems in groups and learning motivation.	<u>In-class</u> : Tutorials in groups problem solving. Individual tutorials to solve theory or practice queries.	<b>0,2</b>
		<u>Self-study</u> : queries by e-mail.	<b>0,15</b>
<b>Course assessment</b>	Solving written test/ exams sessions -- partial and final--	<u>In-class</u> : Questionnaires, written exam	<b>0,2</b>
			<b>4,5</b>

## 6.2. Learning outcomes (4.5) / teaching activities (6.1)

Learning outcomes (4.5)						
Teaching activities (6.1)	1	2	3	4	5	6
News analysis related to quality perception.	X					
Exercises solving concerning Total Quality Management.	X	X				
Problems solving regarding improvement and control quality tools.			X			
Videos watching and exercises solving related to them.					X	
Videos watching and exercises solving related to them.					X	
News analysis related to quality perception.				X		
Videos watching and exercises solving related to them.				X		
News analysis related to quality perception.						X
Exercises solving concerning 5S and TPM.					X	

## 7. Assessment method

### 7.1 Assessment method

Assesment activity	Type		Assessment methods and criteria	Percentage (%)	Assessed learning outcomes (4.5)
	Summative	Formative			
<b>Individual written exam (60% final qualification)(1)*</b>	x	x	<b>Theoretical- Practical part</b> Theoretical and Theoretical-practical and/or problems knowledge will be evaluated	60 % (Final qualification)	T1.1,T1.2, T1.3, T1.5,T1.6, T1.7, T1.5, T3.1, T3.2, T3.3, T3.4, T3.7
<b>Homework, class participation, work, presentations, exercises (40% final qualification) (2)</b>	x		Evaluates class participation, contribution to topics discussion, teamwork, work elaboration and exposure, innovation, homework and critical evaluation.	40 % (Final qualification)	T1.1, T1.2, T1.3, T1.5, T1.6, T1.7, T2.3, T3.1, T3.2, T3.3, T3.4, T3.7.
(1) Conditions for the written test will be specified in the previous call of the examination. A minimum of 40% of the exam is required in order to compute the rest of the work: presentations and work elaboration, class participation and exercises.					
(2) Quality criteria previously established has to be comply in this subject.					
* In order to pass the subject, students must obtain at least a 40% of the final note of it, with the goal of being able to sum the note regarding exercises, participation and expositions. On the other side, in the summative exams that will be carried out, the students must overcome the 50% of the exam, with the aim of eliminating the subject.					

As set forth in article 5.4 of the *Reglamento de las pruebas de evaluación de los títulos oficiales de grado y de máster con atribuciones profesionales (UPCT)*, students in the special circumstances listed in the article 5.4 are entitled to a comprehensive assessment test, upon justified request which must be granted by the Department. This does not exempt them from carrying out compulsory tasks included in the teacher's guide of the subject (official syllabus).

### 7.2. Control and monitoring methods (optional)

The compliance of the apprenticeship will be carried out through some mechanisms:

- Accomplishment of an exam, relative to the level of knowledge of the pupils about the global topics related to the program, as well as the displays of the practical exercises on behalf of the pupils.
- Accomplishment of an exercise, that will be displayed in the classroom.
- Questions made during lessons.
- Participation in the analysis of interest notices that will be discussed during lessons.
- Problems-solving in lessons, as in an individually solve way as in team.
- Critical capability in discussions.
- Individual/group tutorial activities.

## 8. Bibliography and resources

### 8.1. Basic bibliography

EFQM (2003): EFQM model for business excellence. Brussels: European Foundation for Quality Management.

EFQM (2010): EFQM model for business excellence. Brussels: European Foundation for Quality Management.

Gallego Rodríguez, A.; Martínez Caro, E.; Martínez Lorente, A.R. (2003): Gestión de la calidad. Ed. UPCT.

Ishikawa, K. (1994): Introducción al control de calidad. Ed. Díaz de Santos, Madrid.

James, P. (1997): Gestión de la Calidad Total. Ed. Prentice Hall, México.

Juran, J.M.; Gryna, F.M. Jr.; Bingham, R.S.Jr. (1990): Manual de control de calidad. Ed. Reverté, Barcelona.

Juran, J. y Blanton, A. (2001): Manual de Calidad. Ed. McGrawHill.

Trischler, W.E. (1996): Mejora del Valor Añadido en los Procesos. Ed. Gestión 20000.

### 8.2. Supplementary bibliography

Burns, T. y Stalker, G.M. (1961): The management of innovation. London: Tavistock Publishing.

Chandler, A.D. (1990): Scale and scope: The dynamics of industrial capitalism. Cambridge, MA: Harvard University Press.

Daft, R.L. (1998): "Organization Theory and Design". Cincinnati: South-Western College Publishing.

Deming, W.E. (1986): Out of the crisis. Cambridge, M.A: MIT Press.

Harrison, R. (2002): Learning and development. London: Chartered Institute of Personnel and Development.

Lawrence, P. y Lorsch, J. (1973): Organización y ambiente. Barcelona: De. Labor.

Membrado Martínez, J. (2007): Metodologías avanzadas para la planificación y mejora. Ed. Díaz de Santos.

Woodward, J. (1965): Industrial organization: Theory and practice. New York: Oxford University Press.

### 8.3. On-line resources and others

Notes of the subject at the UPCT Virtual Classroom.

