

Ficha de Unidade Curricular (FUC)

Curso:	LICENCIATURA EM ENGENHARIA MECÂNICA					
Unidade Curricular	Gestão da Qualidade				Obrigatória	X
					Opcional	
Área Científica:	Projecto Mecânico, Produção e Manutenção Industrial					
Ano: 3º	Semestre: 2º	ECTS: 5		Total de Horas: 4,5		
Horas de Contacto:	T:	TP: 67,5	PL:	S:	OT:	TT:
Professor Responsável		Grau/Título		Categoria		
António João P. C. F. Abreu		Doutor		Professor Adjunto		

T- Teórica ; TP – Teórico-prática ; PL – Prática Laboratorial ; S – Seminário ; OT – Orientação Tutorial ; TT – Total de horas de Contacto

Entrada em Vigor	Semestre: Verão	Ano Letivo: 2019/2020
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Objectivos da unidade curricular e competências a desenvolver (max. 1000 caracteres)

At the end of this curricular unit, the students should display skills and abilities enabling them to:
Objective 1: Easily integrate in Organisations adopting the Total Quality Management as a strategic goal;

Objective 2: Implement a Quality Management System (QMS) in accordance with ISO 9001 in an integrative perspective with the other Management systems;

Objective 3: Implement quality techniques in the development of new products/processes/services and to support solution of continuous improvement of existing products/processes/services;

Conteúdos programáticos (max. 1000 caracteres)

1 - Introduction to Quality Management

Quality Concept, Quality Costs. Evolution of Total Quality Management (TQM).

2 - Implementation of a Quality Management System

3- Quality Management and Planning Tools

Flowchart, Record & Verification Sheet, Cause-and-Effect Diagram, Affinity Diagram, Relationship Diagram, Tree Diagram, Matrix Diagram, Priority Diagram, Process Decision Graph, Activity Diagram, QFD.

4 - Quality Statistics Tools - The role of statistics in the continuous improvement of products / services and processes. Statistical concepts: statistical and sample distributions, confidence intervals, hypothesis testing. Histogram, Pareto Diagram, Scatter Diagram.

5 - Statistical Process Control - Principle of design control charts, Analysis of Patterns on Charts. Process capability.

6 - Quality 6 sigma

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Demonstração da coerência dos conteúdos programáticos com os objetivos da unidade curricular
(max. 1000 caracteres)

The chapters of the syllabus correspond to the fundamental concepts referred in the objectives of the curricular unit.

Objective 1: Easily integrate in Organisations adopting the Total Quality Management as a strategic goal; Sections: All the items.

Objective 2: Implement a Quality Management System (QMS) in accordance with ISO 9001 in an integrative perspective with the other Management systems; Sections: Introduction to Quality Management, Implementation of a Quality Management System and Quality, Quality Tools and Quality 6 sigma.

Objective 3: Implement quality techniques in the development of new products/processes/services and to support solution of continuous Improvement of existing products/processes/services; Sections: Quality Tools, Quality Statistics Tools, Statistical Process Control and Quality 6 sigma.

Metodologias de ensino (avaliação incluída) (max. 1000 caracteres)

Lectures are carried out combining theoretical classes and applied classes.

In theoretical classes, the lecture initiates with a short reference of the main subjects treated in the previous lecture and the summary of the subjects that will be discussed in that day. After that, concepts and models are explained, discussed and applied, stimulating the student participation. In the end of the lecture, the most relevant aspects presented and discussed are highlighted as well as the subjects for the following lecture, encouraging students to study the subjects before there discussion.

In practical classes, exercises and case studies are analyzed and discussed. To develop and improve other competences and capacities, the students must also carry out, computer analyzes and work reports which must also be presented and discussed in class.

Evaluation: One Test or Exam (50%) + one Practical Work (50%). A minimum classification of 10 is required in the Test/Exam (0 to 20 values scale).

Demonstração da coerência das metodologias de ensino com os objetivos da unidade curricular
(max. 3000 caracteres)

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The teaching methodology will be carried out through theoretical and practical classes. On the theoretical classes are discussed the principles and the concepts that will allow the student to understand the topics covered in this course. In order to consolidate theoretical concepts, students solve exercises and discuss case studies in practical classes.

The project aims students to develop their technical knowledge, and skills in problem solving, team working, critical thinking and communication.

Bibliografia Principal (max. 1000 caracteres)

Goetsch, D. L., & Davis, S. B. (2014). Quality management for organizational excellence. Upper Saddle River, NJ: pearson.

Dahlgaard, J. J., Khanji, G. K., & Kristensen, K. (2008). Fundamentals of total quality management. Routledge.

Pyzdek, T. & Paul, A. K. (2010). The Six Sigma Handbook: A Complete Guide for Green Belts, Black Belts, and Managers at All Levels, 3th Edition, McGraw-Hill, New York, USA

Jones, E. (2014). Quality management for organizations using lean six sigma techniques. CRC press.

Montgomery, D.C., 2011, Introduction to Statistical Quality Control, 6Th Ed., John Wiley & Sons

Pires, A. R., 2012, Sistemas de Gestão da Qualidade - Ambiente, Segurança, Responsabilidade Social, Indústria, Serviços, Administração Pública e Educação, Edições Silabo

Pereira, Z. L. & Requeijo, J. G. (2012). Qualidade: Planeamento e Controlo Estatístico de Processos, 2ª Edição, Fundação da FCT/UNL, Lisboa, Portugal

Normas da família: NP ISO 9000; NP EN ISO 14000; OHSAS 18000 e NP EN ISO 19011.