

Quality and Economics in Building

Academic Year:

2018/2019

Course	Master's degree in Civil Engineering								
Scientific Area	Construction								
ECTS Credits	5.5	Curriculum Unit code	MEC113	Year	1	Semester	1	Type	Compulsory
Prerequisites									
Contact Hours									
Lecture Sessions	15	Lecture-Practical Sessions	30	Practical and Laboratory Sessions					
Tutorial	7.5	Placement		Seminar					
Fieldwork		Other	7.5	Autonomous Study	88.5				
Responsible	Susana Maria Melo Fernandes Afonso Lucas				Position	Adjunct Professor			
Lecturers					Position				
Learning Outcomes	<p>Analyse the concepts, evolution, general principles of quality, the SPQ and the state of civil construction sector. Analyse systems and documentation of quality framework, its context and applicability in the civil construction sector. Assess the qualification of products, processes or systems of people and organizations. Analyse, evaluate and plan systematically a civil construction process or system, integrating the principles, standards, methodologies, tools and techniques of quality. Analyse the concepts, evolution, general principles of economics and the functioning in society and in the civil construction sector. Analyse economic and financing instruments in organizations. Assess the economic viability of alternative projects, through the cost-benefit analysis, of the investment period and the behaviour of decision-makers in the face of uncertainty and risk. Applying computer tools in viability studies and financial evaluation.</p>								
Syllabus	<p>Chapter 1 – QUALITY Construction Quality: concepts, evolution, principles, and guidelines with the construction SPQ Civil. ISO standards 9000: Vocabulary. Quality management system. Constructive process flowcharts. Management Systems Audits: NP EN ISO 19011: 2003. Quality of Construction Products: certification and approval. Systems of conformity assessment. CE labelling. LNEC quality mark. Integrated Management Systems.</p> <p>Chapter 2 – ECONOMY Construction Economics: Concepts, evolution, principles. Demand, supply, market and elasticity. Macroeconomics and Microeconomics. The value of time. Accounting: Accountability documents. Investment analysis of projects. Real Estate Market: origin of the value and usefulness of real estate. Market segments, investment location. Strategy and Investment Decision: general concepts. Comparison of investments. Decision models with uncertainty and risk. Economic and financial functions in Excel.</p>								
Teaching Methodologies	Theoretical-practical lessons and e-Learning activities.								
Evaluation	25% by practical work, 5% by practical work presentation, 65% by exam and 5% by E-Learning activities.								

Evidence of the syllabus coherence with the curricular unit's intended learning outcomes

The syllabus allows the student to:

- Develop the cognitive processes and contextual analysis, planning and assessment of quality systems, processes or products in the context of multidisciplinary teams or organizations of civil engineering and construction.
- Understand, implement, analyse and create documentation of the Portuguese System of quality and management systems of organizations and teams of civil construction and engineering sector.

Understand and analyse the economy at the level of society, through the instruments of economic policy.

- Understand and analyse the economy at the level of organizations and teams of development of investment in construction projects.
- Know, systematize and train the methods, techniques and tools for investment analysis and decision support with economic uncertainty and risk, using computer tools to support the elaboration of feasibility studies.

Evidence of the teaching methodologies coherence with the curricular unit's intended learning outcomes

Theoretical and Theoretical-practical lessons:

Exposition and interactive lessons with audio-visuals recourse and/or other, which seeks to stimulate critical thinking, the critical spirit of students, the self-knowledge and the ability to communicate.

Application of methodologies and tools in the context of the quality, the analysis of investment projects, the decisions with uncertainty and examining the behaviour of decision-makers to risk.

Achievement of practical work that constitute the evaluation of discipline, with the guidance and follow-up of the teacher, stimulating capacities of analysing, searching, evaluating, selecting information, systematizing, planning, communicating, building solutions, working in teams, organizing temporal, spatial and financially the activities in work context.

E-Learning activities:

Works of implementation of the financial and economic functions of Microsoft Excel, developing the use of informatics tools.

Asynchronous activities, with a view to stimulate the research, analysis, evaluation and comment of themes and concepts in the context of Economy.

Synchronous activities in order to monitor the development and study of the respective subjects.

Bibliography

Neves, João César – O que é a economia?. Principia, Cascais, 2003

Neves, João César – Introdução à Economia. Verbo, Lisboa, 2007.

Figueiredo, Ruy – Manual de Avaliação Imobiliária. Visilis Editores, 2004.

Bezelga, Artur, et al. – A Avaliação no Imobiliário. APAE, 1999

Pissarra, Nuno, et al. – Apointamentos das aulas de QEC. ESTBarreiro, Barreiro, 2011.

Loforte Ribeiro, F. – Gestão da Qualidade e do Ambiente na Construção – Gestão da Qualidade e Ambiente na Construção, IST, 2003.

Pinto, Abel; Soares, Iolanda – Sistemas de Gestão da Qualidade: Guia para a sua implementação. Edições Sílabo, Lisboa, 2010.

Normas de Sistemas de Gestão (Qualidade e Ambiente), IPQ, 2001.

Ravara, Artur, et al. – Qualidade na Construção. Ordem dos Engenheiros, 2000.

Observations