

**Unidade Curricular:** Information Management & Decision Support Systems

**Área Científica:** EG

**Duração:** Semestral

**Horas de trabalho:** 121.5

**Horas de contacto:** 45

**ECTS:** 4.5

**Docente Responsável:** Isabel Maria da Silva João

**Learning outcomes of the curricular unit**

The curricular unit covers topics related to the management of information systems within organizations and topics related with decision analysis. The information is a fundamental element in every decision process. Whether the current problem is to evaluate options when objectives conflict, to make a choice when facing considerable uncertainty about the future, to obtain better information from a group of individuals, to reallocate limited resources for more effectiveness, or to negotiate with another party, the decision analysis and the decision support tools will play a valuable role in helping people to make decisions. After attendance the student should be able to recognize the importance of managing information and knowledge as a key organizational asset, know how to manage information, understand the complexity and behavioral aspects of decision making, know how to use multi-criteria decision-making, demonstrate skills to use decision support tools.

**Syllabus**

1. Introduction to information systems
2. Information systems management
3. Decision Analysis
4. Decisions involving multiple objectives
5. Decision making under uncertainty
6. Decision trees
7. Decisions involving groups of individuals
8. Resource allocation and negotiation problems
9. Software M-Macbeth to decision support.

**Demonstration of the syllabus coherence with the curricular unit's learning objectives.**

The syllabus takes into account the different needs and concerns of all stakeholders involved in the decision making process to enable allocate and implement sustainable solutions and appropriate to the community. The multicriteria decision support Science has a lot to offer when it comes to making trade-offs between objectives, often conflicting, in individual decision making and also in group decision making, in the resource allocation and negotiation problems, to any other complex decision. In this sense the various points of the program introduce techniques that allow to provide students with tools to respond and assist the decision-making process on real problems of high complexity..

**Teaching methodologies (including evaluation)**

Classes based by one hand on expository teaching but also by stimulating students to study independently by the placement of problems in order to stimulate the learning based on

problem solving. Students learning is guided by the problems that they are being presented and solved independently. Students will be better prepared to solve real problems, to find the necessary information and to retain the knowledge gained in a stimulating. The evaluation can be done in two ways: continual evaluation(1) and final examination (2). (1) consists of three components: work(s) (TR), two mini tests (MT1 e MT2) and a test (T). The final grade,  $NF = 0.2 \times [(MT1+MT2)/2] + 0.3 \times TR + 0.5 \times T$ , with a minimum mark of 9.5 in the TR and T components. (2) comprises a final examination. To get approval in the course is required to obtain a minimum mark of 10 points on a scale from 0 to 20.

**Demonstration of the coherence between the teaching methodologies and the learning outcomes**

After the frequency of the course it is expected that students know and understand the various multicriteria methods and know how to use them in order to improve the processes of decision making. It is crucial to recognize the importance of decision making, understand the complexity and behavioral aspects of decision making, learn to use the techniques of decision analysis and decision support tools. The problem-based learning better prepare students for solving real problems, facilitate the application of techniques by the students and will provide a better retention of the acquired knowledge, and a better way of stimulating the learning of new subjects.

**Mandatory consultation/existence bibliography:**

1. Goodwin, P., Wright, G., "Decision Analysis for Management Judgment", 3rd Ed., New York John Wiley & Sons, 2003.
2. Bocij, P., Chaffey, D., Greasley, A., Hickie, S., Business Information Systems, 3rd Ed., Prentice Hall, 2006.
3. Figueira, J., Greco, S. & Ehrgott, M. (Editors), "Multiple Criteria Decision Analysis: State of the Art Surveys", Springer Science and Business Media, Inc., New York, 2005