

COURSE OUTLINE

(1) GENERAL

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| SCHOOL | ECONOMIC AND SOCIAL SCIENCES | | |
| ACADEMIC UNIT | DEPARTMENT OF ECONOMICS | | |
| LEVEL OF STUDIES | 6 th | | |
| COURSE CODE | OIK819 | SEMESTER | 4 th |
| COURSE TITLE | MANAGEMENT SCIENCE & DECISION MAKING | | |
| INDEPENDENT TEACHING ACTIVITIES <i>if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits</i> | WEEKLY TEACHING HOURS | CREDITS | |
| LECTURES | 4 HOURS PER WEEK | 7.5 ECTS | |
| <i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i> | | | |
| COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i> | SPECIALISED BACKGROUND | | |
| PREREQUISITE COURSES: | NONE | | |
| LANGUAGE OF INSTRUCTION and EXAMINATIONS: | GREEK / ENGLISH FOR ERASMUS STUDENTS | | |
| IS THE COURSE OFFERED TO ERASMUS STUDENTS | YES | | |
| COURSE WEBSITE (URL) | https://sites.google.com/site/msdmeconuoi// http://ecourse.uoi.gr/enrol/index.php?id=1936 | | |

(2) LEARNING OUTCOMES

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| <p>Learning outcomes <i>The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.</i></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> • <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i> • <i>Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i> • <i>Guidelines for writing Learning Outcomes</i> |
| <p>Knowledge The course aims at providing basic knowledge for decision making in complex techno-economic systems. Key elements of this process are mathematical modelling as well as the search for optimum solutions.</p> <p>Skills On successful completion of this course, students are expected to demonstrate analytical and system design skills, skills on mathematical modelling, on the application of mathematical methods and computers to solve problems and identify optimal solutions.</p> |

Abilities

Students are expected to be able to explain the impact of various factors in decision making, to apply a systemic approach and specific models for problem solving, to evaluate alternatives and explore their impact as well as the impact of changes in problem parameters so as to provide the best possible decision-making information/suggestion to the decision makers.

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

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| <i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i> | <i>Project planning and management</i> |
| <i>Adapting to new situations</i> | <i>Respect for difference and multiculturalism</i> |
| <i>Decision-making</i> | <i>Respect for the natural environment</i> |
| <i>Working independently</i> | <i>Showing social, professional and ethical responsibility and sensitivity to gender issues</i> |
| <i>Team work</i> | <i>Criticism and self-criticism</i> |
| <i>Working in an international environment</i> | <i>Production of free, creative and inductive thinking</i> |
| <i>Working in an interdisciplinary environment</i> | |
| <i>Production of new research ideas</i> | <i>Others...</i> |
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- Decision Making
- Project planning and management
- Search for, analysis and synthesis of data and information
- Team work

(3) SYLLABUS

The course presents methodologies and techniques for decision making. Modelling, problem solving and analysis of solutions are covered:

The course syllabus includes the following topics: Introduction to Management Science, Management Science Methodology, the Decision Making Process, Decision Theory, Decision Criteria, Decision Implementation, an Overview of Decision Making Models, Decision Trees, Linear Programming and Applications, Problem Solving, The Dual Problem, Economic Interpretation, Use of Computer Tools for Linear Programming, Integer Programming and application, the Transportation Problem.

(4) TEACHING and LEARNING METHODS - EVALUATION

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| DELIVERY <i>Face-to-face, Distance learning, etc.</i> | Face-to-face. | |
| USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i> | Yes. Use of powerpoint during lectures. | |
| TEACHING METHODS <i>The manner and methods of teaching are described in detail.</i> <i>Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.</i> <i>The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS</i> | Activity | Semester workload |
| | Lectures | 52 hours |
| | Directed study | 45 hours |
| | Non-directed study | 45 hours |
| | Sets of exercises | 10 hours |
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| | Course total | 152 |

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| <p style="text-align: center;">STUDENT PERFORMANCE EVALUATION</p> <p style="text-align: center;"><i>Description of the evaluation procedure</i></p> <p style="text-align: center;"><i>Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other</i></p> <p style="text-align: center;"><i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i></p> | <p>Set of Exercises and Final (written) exams with open ended questions.</p> <p>Final grade=(final exams)* 0.80 + (set of exercises) *0.20</p> |
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(5) ATTACHED BIBLIOGRAPHY

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| <ol style="list-style-type: none"> 1. Taylor, B. III, Introduction to Management Science, (Pearson publications or the translation in Greek by Broken Hill publisher) 2. Ipsilantis P., Operations Research, Propompos publishers (in Greek) 3. Hillier F., Lieberman G., Introduction to Operations Research, McGraw-Hill Science (or the translation in Greek, by Tziolas publisher) |
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