

COURSE OUTLINE

(1) GENERAL

SCHOOL	Faculty of Social, Political and Economic Sciences		
ACADEMIC UNIT	Department of Economics		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	NK83	SEMESTER	8th
COURSE TITLE	Operations Research		
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 and exercises		4	6
<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>	General Background		
PREREQUISITE COURSES:	Mathematics		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes (in English)		
COURSE WEBSITE (URL)			

(2) LEARNING OUTCOMES

Learning outcomes

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.

Consult Appendix A

- Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area
- Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B
- Guidelines for writing Learning Outcomes

The main goal of the course is the introduction of problem solving using scientific methodologies. Operations research applies scientific methodology to the analysis, of management, function and operation of complex systems, resources, human resources, and/or information. The course is built around non-probabilistic models mainly the linear programming methodology and its variations. Case studies involve among others the transportation problem, the assignment problem, the allocation problem.

After the end of the course the student should know the basic concepts of decision making in non-probabilistic environment. They should be able to analyse a real problem, construct the appropriate model (linear, integer, non-linear, dynamic, multi-objective programming) and solve it. The students should be familiarized with the various aspects of sensitivity analysis.

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?

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

- Search for, analysis and synthesis of data and information, with the use of the necessary technology
- Working independently
- Working in an interdisciplinary environment
- Decision Making
- Project planning and management

(3) SYLLABUS

The course aims to present the basic concepts of operations research in non-probabilistic

environment: linear programming, integer programming, dynamic programming, non-linear programming, multi-objective programming. During the course various case studies and examples are presented.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY <i>Face-to-face, Distance learning, etc.</i>	<ul style="list-style-type: none"> • Class lectures • Case studies • Notes, slides 	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY <i>Use of ICT in teaching, laboratory education, communication with students</i>	<ul style="list-style-type: none"> • e-class 	
TEACHING METHODS <i>The manner and methods of teaching are described in detail. 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. 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	50
	Study	60
	Exercises	40
	Course total	150
STUDENT PERFORMANCE EVALUATION <i>Description of the evaluation procedure 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 Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	<ul style="list-style-type: none"> • In Class Exam 80% • Problem Solving during class 20% 	

(5) ATTACHED BIBLIOGRAPHY

<ul style="list-style-type: none"> • Hamdy Taha, “Operations Research”, Editions: Collier MacMillan • Related Journals: <ul style="list-style-type: none"> ○ Journal of Operations Management ○ Omega ○ Operations Research ○ European Journal of Operations Research ○ Computers and Operations Research

- Mathematics of Operations Research
- Annals of Operations Research
- American Journal of Operations Research
- Mathematical Programming
- Operations Research Letters