

■ CE73 - Mathematical Programming

GENERAL

SCHOOL	EXACT SCIENCES		
DEPARTMENT	MATHEMATICS		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	CE73	SEMESTER	G
COURSE TITLE	MATHEMATICAL PROGRAMMING		
INDEPENDENT TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	ECTS	
Lectures	4	6	
COURSE TYPE	Scientific Field		
PREREQUISITE COURSES	-		
LANGUAGE OF TEACHING AND EXAMINATIONS	Greek/English		
THE COURSE IS OFFERED TO ERASMUS STUDENTS	YES		
COURSE WEBSITE (URL)	http://eclass.uowm.gr/		

LEARNING OUTCOMES

Learning Outcomes
<p>With this course, the students:</p> <ul style="list-style-type: none"> • will be able to solve integer linear programming problems, • will be able to find the main idea of dynamic programming, • will be able to solve classical optimization problems by use of dynamic programming, • will be able to consolidate the notion of stochasticity in optimization and decision problems.
General Competencies

- Search for, analysis and synthesis of data and information, by use of the necessary technology.
- Working independently for the enhancement of their self-esteem.
- Creation of new research ideas.
- Production of free, creative and inductive thinking, which is based on mathematical processes.

CONTENT OF THE COURSE

Integer linear programming, integer programming problem modelling, integer programming algorithms, dynamic programming, deterministic path problems, equipment replacement, stochastic path problems, stochastic equipment replacement problems, the knapsack problem, the travelling salesperson problem.

TEACHING AND LEARNING METHODS - EVALUATION

TEACHING METHOD	In the classroom.	
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	e-Lectures. Use of e-class. Communication through face-to-face discussions and e-mails.	
TEACHING ORGANIZATION	Activity	Semester Workload
	Lectures	52 hours
	Projects	26 hours
	Individual Study	72 hours
	Course Total (25 hours per ECTS)	150 hours
STUDENT EVALUATION	Projects 20%. Written final examination 80%.	

RECOMMENDED BIBLIOGRAPHY

1. Vassiliou P.-C. G., Applied Mathematical Programming, Ziti Publications, 2001 (Greek).
2. Taha H., Operations research An introduction, Pearson, (10th ed), 2017.
3. Ypsilantis P. Operations research: Methods and techniques in decision making, Propompos publications, (5th ed), 2015 (Greek).

