COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Environment		
ACADEMIC UNIT	Department of Environment		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	**245KEY**	**SEMESTER**	**5**
COURSE TITLE	Simulation and optimization methods for Environmental Systems		

INDEPENDENT TEACHING ACTIVITIES	**WEEKLY TEACHING HOURS**	**CREDITS**
lectures	3	
Total credits		**5**

COURSE TYPE	Skills development
PREREQUISITE COURSES:	Mathematics
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	
COURSE WEBSITE (URL)	

(2) LEARNING OUTCOMES

Learning outcomes
Upon successful completion of the course students should have acquired the following: • Comprehend the simulation and optimisation concepts and the related constrains in environmental applications • An ability to analyse and simulate environmental systems • An ability to implement methods and tools for Linear Programming, Nonlinear Programming, Dynamic Programming,
General Competences
Search for, analysis and synthesis of data and information Decision-making Working independently Project planning and management Respect for the natural environment

(3) SYLLABUS

The course introduces undergraduate students to basic concepts and methodological tools needed for simulation and optimization. Weekly lectures and assignments cover the following topics:

- Introduction, Classification of the optimization models,
- Mathematical simulation
- Theorems of Mathematical Optimization
- Linear Programming Problems
- Nonlinear Programming Problems
- Dynamic Programming,
- Applications of optimization methods to Environmental problems
- Sustainable water resources management.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY.	*Face-to-face*
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY	The class is adapted to moodle platform
TEACHING METHODS	

Activity	***Semester workload***
Lectures	39
Laboratory practice	10
Study and analysis of bibliography	78
Course total	***127***

STUDENT PERFORMANCE EVALUATION	Language of evaluation: Greek Evaluation Methods: Problem solving 40% Final Exam 60%

(5) ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

Karatzas G., Papadopoulou M., 2016 Methods of optimisation of Environmental Systems, ISBN13 - 978-960-9495-01-1