Course title	Further Operational Research Techniques in Decision Making
Type of course	Compulsory
Level of course	Undergraduate
Year of study	Third (3^{d})
Semester	Sixth (6^{th})
ECTS credits	5
Name of lecturer(s)	Professor Ioannis Giannikos
Aim of the course	This course is related to the "Operational Research" course offered in the 5^{th} semester. Its aim is to present additional OR techniques, beyond Linear Programming, for making decisions in complex business environments. In addition, the course aims to demonstrate that these techniques are related to each other and constitute an integrated methodology for addressing realistic problem situations.
Learning outcomes	At the end of this course the student should be able to: 1. Formulate and solve by hand simple network analysis problems. 2. Understand the concepts of queuing theory. 3. Solve simple deterministic and stochastic dynamic programming problems.
Competences	At the end of the course the student will have further developed the following skills/competences: 1. Solving network problems using relevant software. 2. Formulation of models and solution of problems in queuing theory using Excel.
Prerequisites	There are no prerequisite courses. It is, however, recommended that students have at least a basic knowledge of Differential and Integral Calculus, Statistics, as well as Linear Programming.
Course contents	1. Network analysis (shortest path, maximum flow, min cost flow) 2. Queuing Theory 3. Decision Analysis 4. Dynamic Programming
Recommended reading	1. Hillier, F. και Lieberman , G. "Introduction to Operations Research", (9th edition), McGraw-Hill International Editions, 2009 2. Winston W. "Operations Research - Applications and Algorithms", Cengage Learning, 2003
Teaching and learning methods	Lectures – Tutorials – Laboratory sessions
Assessment and grading methods	The grade is calculated as the weighted average of the final written exam (60%) and a series of assignments during the semester (40%). Greek grading scale: 1 to 10. Minimum passing grade: 5
Language of instruction	English