Course unit title:	Management Science I		
Course unit code:	ABSO304		
Type of course unit:	Elective		
Level of course unit:	Bachelor (1st Cycle)		
Year of study:	4		
Semester when the unit is delivered:	7 (Fall)		
Number of ECTS credits allocated :	6		
Name of lecturer(s):	Dr Petroula Mavrikiou		
Learning outcomes of the course unit:	1) Understand the concept of time series and its components. Apply and interpret the results using smoothing methods of forecasting (exponential and moving averages). 2) Apply linear trend projection, forecasting and mean square error. 3) Analyse forecasting for time series with trend and seasonal components and apply forecasting techniques in business environment situations. 4) Understand the structure of waiting lines and their classification. 5) Apply different models of waiting line systems to calculate the operating characteristics of the waiting lines. 6) Understand, apply, synthesize and interpret sensitivity analysis in Linear Programming and its graphical method. 7) Formulate problems for more complicated situation such as transportation, and the assignment problem. Solve complicated linear programming problems using the Simplex method.		
Mode of delivery:	Face-to-face		
Prerequisites:	AMAT106 AMAT210	Co-requisites:	None
Recommended optional program components:	None		
Course contents:	• Forecasting. The components of time series. • Smoothing methods (simple moving averages, weighted moving averages, exponential smoothing) • Trend projection. Forecasting a time series with trend and seasonal components. Regression and mean square error. • De-seasonalisation. • The structure of a waiting line system. Classification of waiting line models. Little's flow equations • The single-channel waiting line model with Poisson arrivals and exponential service times. The multiple-channel waiting line model with Poisson arrivals and exponential service times. The single-channel waiting line model with Poisson arrivals and arbitrary service times. • Sensitivity Analysis in Linear Programming. • Transportation and the assignment problem. • Simplex Method – Applications.		
Recommended and/or required reading:			
Textbooks:	Anderson D., Sweeney D. Williams T., **An Introduction to Management Science**, South-Western Publications.		
References:	Taylor B.W., **Introduction to Management Science**, Prentice Hall		
Planned learning activities and	The course is delivered to the students by means of lectures, and tutorials. Lecture notes are available through the e-learning platform of the University, and the		

teaching methods:	instructor's webpage. Students are encouraged for class work, problem solving and discussion.
Assessment methods and criteria:	• Test 1 20% • Test 2 20% • Final Exam 60%
Language of instruction:	English
Work placement(s):	No