

ABS0304 – Management Science I

Course Title	MANAGEMENT SCIENCE I			
Course Code	ABS0304			
Course Type	Elective			
Level	Bachelor (1st Cycle)			
Year / Semester	4/Fall			
Teacher's Name	Prof. Eleni Hadjiconstantinou / Dr Petroula Mavrikiou / Dr Marios Charalambides			
ECTS	6	Lectures / week	3	Laboratories / week
Course Purpose	<p>The purpose of this course is to introduce students to the basic knowledge of the theory of Project Management, and provide them with adequate knowledge to apply techniques and practices in the business environment of project management. During the course students develop the ability to apply project management techniques, and how to use them in order to take decisions for solving business problems. Students are expected that by the end of the course will be able to identify and use their knowledge in project management as an adequate tool in the business environment, identify the functional area of the project management of an organization, be able to present, analyse and structure a problem of an enterprise and design a solution given their knowledge in project management.</p>			
Learning Outcomes	<ul style="list-style-type: none"> • Understand the concept of time series and its components. Apply and interpret the results using smoothing methods of forecasting (exponential and moving averages). • Apply linear trend projection, forecasting and mean square error. • Analyse forecasting for time series with trend and seasonal components and apply forecasting techniques in business environment situations. • Understand the structure of waiting lines and their classification. • Apply different models of waiting line systems to calculate the operating characteristics of the waiting lines. • Understand, apply, synthesize and interpret sensitivity analysis in Linear Programming and its graphical method. • Formulate problems for more complicated situation such as transportation, and the assignment problem. Solve complicated linear programming problems using the Simplex method. 			

Prerequisites	AMAT106 AMAT210	Corequisites	None
Course Content	<ul style="list-style-type: none"> • 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. • Queuing Models-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. 		
Teaching Methodology	<p>The course is structured around lectures and tutorials on topics related to project management. During the lectures, students are encouraged to participate in discussions and class work. At the same time, students are given problems and exercises to solve at home. Lecture notes and other course material are available to students through the e-learning platform.</p> <p>During classwork students are given problems and exercises to solve using excel and other open source software to get a hands-on experience on application of the different techniques under study.</p>		
Bibliography	<p><u>(a) Textbooks</u> Anderson D.R., Sweeny D.J., Williams T.A., Camm J.D., Cochran J.J. An Introduction to Management Science, Quantitative Approaches to Decision Making 14th Edition, Cengage Learning South-Western Publications 14 Edition (2020).</p> <p><u>(b) References</u> Taylor B.W., Introduction to Management Science, Pearson 13th Edition (2019)</p>		
Assessment	<p>Students are assessed with the Coursework which is consisted of two Mid-term exams that carries 40% weight, and a Final exam which carries 60% weight.</p>		
Language	<p>English</p>		