

Course Title	Mathematics for Engineers III				
Course Code	MAS027				
Course Type	Compulsory				
Level	Undergraduate				
Year / Semester	2 nd year / 3 rd semester				
ECTS	5	Lectures / week	3	Laboratories / week	1
Course Purpose and Objectives	Introduction to solving to ordinary differential equations, which are necessary for engineers.				
Learning Outcomes	Understanding how to find solutions to 1 st and 2 nd order differential equations and linear systems of differential equations. Applications to engineering problems are emphasized.				
Prerequisites		Required			
Course Content	Ordinary differential equations. Separable equations. Exact equations. Integrating factors. Solutions of linear and non-linear 1 st order differential equations. 2 nd order differential equations. Fundamental solutions of homogeneous equations. Non-homogeneous equations. Undetermined coefficients and variation of parameters. Series solutions. Applications of ordinary differential equations. Linear systems of differential equations. Laplace transforms.				
Teaching Methodology	Lectures with brief theory and emphasis given in examples.				
Bibliography	<p>W.E. Boyce, R.C. DiPrima. Στοιχειώδεις διαφορικές εξισώσεις και προβλήματα συνοριακών τιμών, Πανεπιστημιακές Εκδόσεις ΕΜΠ, Αθήνα, 1999.</p> <p>W.E.Boyce & R.C. Diprima, Elementary Differential Equations and Boundary Problems, 8th Edition Wiley 2005.</p>				
Assessment	One midterm (40%) and one final exam (60%)				
Language	Greek				