

Course Title	<b>Mathematics for Engineers II</b>				
Course Code	<b>MAS026</b>				
Course Type	Compulsory				
Level	Undergraduate				
Year / Semester	1st year / 2nd semester				
ECTS	5	Lectures / week	2X2h	Laboratories / week	0
Course Purpose and Objectives	Introduction to functions of many variables and the basic notions and techniques of Vector Calculus. The course is designed for students in Engineering.				
Learning Outcomes	The students get familiar with functions with two or more variables, partial derivatives, multiple, line, and surface integrals, and the basic integral theorems of Vector Calculus.				
Prerequisites	None	Required	Mathematics for Engineers I		
Course Content	Functions of many variables. Partial derivatives. Gradient, divergence, and curl. Curves. Double and triple integrals. Change of variables. Jacobians. Polar, cylindrical, and spherical coordinates. Line and surface integrals. Green, Stokes, and Gauss theorems. Applications.				
Teaching Methodology	Lectures with brief theory and many examples.				
Bibliography	J. Marsden και A. Tromba, Διανυσματικός Λογισμός (Μετάφραση Α. Γιαννόπουλος), Πανεπιστημιακές Εκδόσεις Κρήτης, Ηράκλειο, 1992 H. Anton, I. Bivens, S. Davis, Calculus (10 <sup>th</sup> edi.), John Wiley & Sons, Singapore, 2013.				
Assessment	Mid Exam (30%), Final Exam (40%-70%), Optional Participation (0-10%), 4 Optional Quizzes (0-20%)				
Language	Greek				