ID	2176
Curricular Unit	Mathematics
Regent	Pedro Simões Cristina de Freitas
Learning Outcomes	1 – Provide the basic mathematical tools which are necessary for furhter cstudies, at the level of Linear Algebra and Mathematical Analysis. 2 - Develope abstract thinking, fundamental for scientific studies 3 – Pass on to students the relevance of Mathematics in the possible areas of interest both for their studies and professionally.
Syllabus	1 – Vectors and matrices 1.1 - Vectors in R^n 1.2 - Matrices and linear systems 2 - Series 2.1 – Sequences (revision) 2.2 - The concept of a series 2.3 – Series convergence and convergence criteria 3 – Differential calculus 3.1 – Limits, derivatives and graphs 3.2 – Inverse trigonometric functions and hyperbolic functions 3.3 – Primitivation 4 - Integral calculus 4.1 - Riemann integral 4.2 - Indefinite integral and the fundamental theorem of calculus 4.3 - Applications to mechanics and probability
Evaluation	Teaching is done starting from examples to make it very clear at all points the relevance of the concepts. Whenever possible, these examples are taken from practical situations known to the majority of students or, in some cases, from research work where the usage of these concepts or techniques is clear – here we are not talking about an analysis of a scientific article, which would be beyond the intended scope, but to use it to illustrate practical relevance.In all lectures students are given series of exercises and problems to be solved by the next lecture, at which point they may put forward questions and doubts they had while solving them. The minitests are based on these exercises.Assessment: 1. Four or five minitests during term, plus a final test encompassing all the topics or 2. Final exam The final grade in the course is computed via a process which may be found in http://www.fmh.utl.pt/mm/index.php?option=com_content&task=view&id=64&Itemid=121
Bibliography	Loura Luís, Tópicos de Matemática, FMH, 2002 Freitas, Pedro, Folhas de Problemas de Matemática, FMH 2009