

## Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
MAT102	Single Variable Analysis II	2	5	0	0	5	7

Prerequisites	
Admission Requirements	

Language of Instruction	French
Course Type	Compulsory
Course Level	Bachelor Degree
Objective	To build, with appropriate rigour, the foundations of calculus and along the way to develop the skills to enable us to continue studying mathematics
Content	Course syllabus : Intermediate Value Theorem, Limit, Continuity, Trigonometric functions, Asymptotes, Differentiation, Mean Value Theorem, Rolle Theorem, L'Hospital Rule, Graphs of functions, Hyperbolic functions, Curves in parametric and polar coordinates, Taylor and Maclaurin series, Riemann integral-Darboux theorem, Area and volume calculation, Improper integral.
References	Course book : First Course in Real Analysis, Sterling K.Berberian, Springer

## Theory Topics

Week	Weekly Contents
1	Intermediate value theorem
2	Extreme value theorem
3	Continuous image of an interval and piecewise continuous functions
4	Trigonometric functions
5	Hyperbolic functions-Exam
6	Differentiable functions
7	Operations on differentiable functions
8	Rolle theorem
9	Mean Value Theorem
10	Graph of a function-Exam
11	Riemann Integral
12	Riemann Integral of step functions and continuous functions
13	Primitives and fundamental theorem of analysis
14	Calculating Integrals