

In view of the health context linked to the spread of the coronavirus, the methods of organisation and evaluation of the learning units could be adapted in different situations; these possible new methods have been - or will be - communicated by the teachers to the students.


6 credits

45.0 h + 30.0 h

Q1

Teacher(s)	Vitale Enrico ;
Language :	French
Place of the course	Mons
Aims	<p>1.1 ---- 2.3 ---- 2.4 ---- 3.2 ---- 8.1 ----</p> <p><i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i></p>
Evaluation methods	<p>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</p> <p>The final grade is the sum of two marks: T = the SMART week test gives a bonus between 0 and 2 points; E = Examination in session gives a score between 0 and 20 points. The final grade is T + E (if it exceeds 20 points, it is reduced to 20). If you have to represent the exam in June or September, the bonus points T remain acquired.</p> <p>To avoid wasting time in the dilemma of whether or not to represent the exam in June or September if a mark of less than 10 was obtained in January, it is understood that the note that will be sent in June or September will be the maximum between the marks obtained at the different sessions.</p> <p>The test: Duration 1 hour. Calculator and gsm prohibited. The test consists of one or two exercise-type questions. The number of points per question is specified on the sheet. The correction will be made in audience right after the end of the test.</p> <p>Examination: Duration 3 hours. Calculator and gsm prohibited. The exam consists of three or four questions including at least one of exercises and at least one of reflection. The number of points per question is specified on the sheet. The answer key will be available on the Student Corner after the end of the session and before the copy consultation session.</p>
Teaching methods	<p>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</p> <p>The lecture aims to introduce the theory from simple problems and to illustrate it by exercises solved in audience. The lecture, online syllabus, note taking and personal elaboration should help you strengthen your analysis and synthesis skills.</p> <p>The TP sessions should allow you to appropriate the tools introduced in the lecture by exercises of different levels (calculation, reflection, synthesis, context, etcetera). TP sessions are also an opportunity to learn how to properly write a mathematical statement or exercise.</p> <p>Both during the lecture and in the TP session, your questions are always welcome. After each supervised activity (lecture or session TP) an autonomous work of revision is necessary to be able to profit fully from the following activity.</p> <p>Much of the subject matter covers the material seen in high school (particularly with regard to the study of the functions of a real variable). The basic objective is to go through the subject by identifying the essential results and techniques. The second objective is to deepen the subject by highlighting the links between the different parts, by digging the more delicate points, by questioning the reasons that motivate the theory. In the linear algebra part, which goes far beyond high school achievement, your ability to abstract thinking will be solicited.</p>
Content	<p>1. Operations on fractions. Generalities on functions. Right lines, parabolas and polynomials. Rational functions, powers and roots. Exponential function and logarithmic function. Trigonometric and inverse trigonometric functions. Operations on functions.</p>

	<p>2. Continuity. Fundamental theorems about continuity. Limits to infinity and in one point. Asymptotes. Definition and properties of the derivative. Fundamental theorems on derivatives. Growth and optimization of a function. Taylor polynomial.</p> <p>3. Definition and Geometric Interpretation of the Riemann Integral. The fundamental theorem of integral calculus. Calculation of primitives. Improper integrals.</p> <p>4. Linear systems, matrix operations, Gauss rank and method. Determinant and invertible matrices. Eigenvalues and eigenvectors, diagonalization.</p> <p>5. Real vector spaces and subspaces, linear combinations, bases and dimension.</p>
Inline resources	The syllabus (still in the finalization phase), the exercises with solution for TP sessions and the old exam questions with detailed correction are available on the Student Corner website.
Other infos	Attention: the schedule does not happen again the same week by week. It is therefore necessary to regularly consult the Student Corner for more details.
Faculty or entity in charge	CLSM

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Bachelor in Management	GESM1BA	6		
Bachelor : Business Engineering	INGM1BA	6		