

CAMPUS: Choose an item.

ACADEMIC YEAR: Choose an item.

COURSE CODE	COURSE NAME		
BAC.EAINA.OTMTH.1001	CALCULUS I		
Credits	US Credits	4	/ ECTS Credits 8
Student Workload	Contact Hours	Personal and/or Teamwork	
	52,5	225	
Teaching Language	English		
Co/Prerequisite	Scientific Baccaulaureate		
Discipline	Other		
Course Manager	Yan Grasselli - yan.grasselli@skema.edu		
Course Description	This course is the first math course taken by all engineering and science major. A quick review of algebra, trigonometry and the idea of limits lead to study of derivatives and its applications. A final link is made between anti-derivatives and definite integrals.		
Learning Outcomes	Review of high school algebra and trigonometry, Logarithmic, exponential, inverse trigonometric functions, Limits and Continuity, Derivatives as rate of change, Techniques of differentiation, Chain rule, Implicit differentiation, Derivatives of logarithmic, exponential, inverse trigonometric functions, L'hôpital's Rule and indeterminate forms, Analysis of functions (variation, relative extrema, concavity), Absolute maxima, minima and applications, Newton's method, Mean Value Theorem, Antidifferentiation, Riemann sums and the definite integrals, The First and the Second fundamental theorems of Calculus, Rectilinear motion, Logarithms defined as an integral,		
Course included in AACSB Assurance of Learning	No If Yes, enter the LO(s)		
Transferable Competences	<input type="checkbox"/> Sustainability <input type="checkbox"/> Ethics <input checked="" type="checkbox"/> Artificial Intelligence <input type="checkbox"/> Technological Agility <input type="checkbox"/> Communication <input type="checkbox"/> Research Methods <input type="checkbox"/> Other	Please include details here:	
Teaching Methods	<input checked="" type="checkbox"/> Lectures <input type="checkbox"/> Blended Learning <input checked="" type="checkbox"/> Guided Personal Work	<input type="checkbox"/> Case Study <input type="checkbox"/> Project <input type="checkbox"/> Seminar	

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	<input checked="" type="checkbox"/> Autonomous Personal Work <input type="checkbox"/> Other <i>Please specify</i>	
Student Assessment	Written Examination 2 midterms tests Final Exam	Coefficient % 40% 35%
	Continuous Assessment: 3 Quizzes	Coefficient % 25%
Grading System	Please refer to the Academic Regulations for the grading system used in the BBA Program and further details and for information concerning absences, participation in class, plagiarism, etc.	
References / Books	Required for the course <i>Enter a brief reference to any required reading</i>	Recommended references Thomas' Calculus (12th Ed.) George B, Thomas, Maurice D, weir, Joel R, Hass
Online reference material	Required for the course <i>List any required online resources here</i>	Recommended references <i>List any recommended online resources here</i>
COURSE CONTENT		
Session:	Contents:	
14/09/2022	Functions: Piecewise defined functions and trigonometric functions	
19/09/2022	Limits of functions	
21/09/2022	Limits and Continuity of functions	
26/09/2022	Differentiation: Rates of change, Derivative at a point, Differentiability	
28/09/2022	Differentiation: Rates of change, Derivative at a point, Differentiability	
03/10/2022	Differentiation rules	
05/10/2022	Derivatives of trigonometric functions, chain rule	
10/10/2022	Related rates, linear approximation	
12/10/2022	Finding extreme values of functions, local relative extreme value, concavity, the mean value theorem	
17/10/2022	Finding extreme values of functions, local relative extreme value, concavity, the mean value theorem,	
19/10/2022	The Hospital's rule, Optimization	

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24/10/2022	The Hospital's rule, Optimization
26/10/2022	Optimization, Constrained Optimization
31/10/2022	Optimization, Constrained Optimization
02/11/2022	Integration: Area and Estimating with finite sums
07/11/2022	Sigma notation and limits of finite sums
09/11/2022	Riemann Sums
14/11/2022	The definite integral, Indefinite integrals and the substitution method
16/11/2022	Integration by parts
21/11/2022	Integration by parts, integration: Change of variables
23/11/2022	Integration: Change of variables
28/11/2022	Applications of the definite integrals
30/11/2022	Transcendental functions
05/12/2022	Review