QF01/0408-4.0E	Course Plan for Bachelor program - Study Plan Development and Updating Procedures/ Mathematics Department

Study plan No.	**2021/2022**		**University Specialization**	**Bachelor of Mathematics**	
Course No.	**0101103**		**Course name**	**General of Mathematics**	
Credit Hours	**3**		**Prerequisite/ Co-requisite**		
Course type	☐ MANDATORY UNIVERSITY REQUIREMENT	☐ UNIVERSITY ELECTIVE REQUIREMENTS	FACULTY MANDATORY REQUIREMENT ✓ **Support course family requirements**	☐ Mandatory requirements	☐ Elective requirements
Teaching style	☐ Full online learning		☐ Blended learning	✓ **Traditional learning**	
Teaching model	☐ 1 Synchronous: 1 asynchronous		☐ 1 face to face : 1 asynchronous	✓ **2 Traditional**	

Faculty member and study divisions' information (to be filled in each semester by the subject instructor)

Name	Academic rank	Office No.	Phone No.	E-mail	
Division number	**Time**	**Place**	**Number of students**	**Teaching style**	**Approved model**

Brief description

Basic set operations, Greatest common divisor and least common multiple, One and two-dimensional graphical representations, Quadratic formula, Complex numbers, Functions, Limits, Continuity, Derivatives, Definition of statistics, Statistical measurements (Mean, Median, Quantiles, Variance and Standard deviation), Frequency tables, Graphical representation of data (Histograms, Bar and pie charts).

Learning resources

Course book information (Title, author, date of issue, publisher ... etc)	1-Precalculus by Carl Stitz, Jeff Zeager. 2-Calculus, 10th edition By Howard Anton, Irl Bivens and Stephen Davis.
Supportive learning resources (Books, databases, periodicals, software, applications, others)	1- CALCULUS, 10th Edition, by Finney and Thomas. 2 -Calculus: One and Several Variables, Salas, John Wiley, 10th Edition (2006) 3 -Vector Calculus" Susan Colley. Pearson Prentice Hall, 3rd Edition (2006)
Supporting websites	• Calculus at S.O.S. Mathematics • http://www.sosmath.com/calculus/calculus.html • Visual Calculus; tutorials and demos • http://archives.math.utk.edu/visual.calculus/index.html • Calculus online • http://www.ugrad.math.ubc.ca/coursedoc/math100/index.html • Online tutorials and quizzes

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	• http://www.math.hmc.edu/calculus/tutorials/			
The physical environment for teaching	✓ Class room	☐ labs	☐ Virtual educational platform	☐ Others
Necessary equipment and software				
Supporting people with special needs				
For technical support				

Course learning outcomes (S= *Skills, C= Competences K= Knowledge,)*

No.	Course learning outcomes	The associated program learning output code
	Knowledge	
K1	To know some of the mathematical principles involving real numbers.	**MK 2**
K2	Learn the concepts of a function its domain and its range with emphasis on polynomials, rational and trigonometric functions.	**MK 2**
K3	Learn the concepts of limits and continuity of functions.	**MK 2**
K4	Learn to differentiate algebraic, trigonometric, logarithmic and exponential functions.	**MK 2**
K5	Compute numerical quantities that measure the central tendency and dispersion of a set of data.	**MK 2**
K6	Organize and summarize data and represent graphically the important information contained in a data set.	**MK 2**
	Skills	
S1	Use derivatives in applications	**MS 4**
S2	Use technology tools for scientific investigation.	**MS 4**
	Competences	
C1	Cooperate to work effectively in the group assignments.	**MC 1**

Mechanisms for direct evaluation of learning outcomes

Type of assessment / learning style	Fully electronic learning	Blended learning	Traditional Learning (Theory Learning)	Traditional Learning (Practical Learning)
Mid Exam	30%	30%	**30%**	30%
Participation / practical applications	0	0	**20%**	30%
Asynchronous interactive activities	30%	30%	**0**	0
Final exam	40%	40%	**50%**	40%

Schedule of simultaneous / face-to-face encounters and their topics

Week	Subject	learning style	Reference
1	-Form the union, the intersection and the difference of sets and In particular of two or more intervals. -knowing how to perform the four fundamental operations on real numbers. -Understand and know how to find the greatest common divisor and the least common multiple of two or more integers.	Lecture 1+2	**1-16**

2	-Display ordered pairs of real numbers in the xy- plane -Factorize quadratic expressions and solve quadratic equations and inequalities.	Lecture 3 +4	**17 – 20**
3	-draw and recognize equations of lines and circles. -Find the five kinds of limits of functions.	Lecture 5+6	**20 – 40**
4	-Find the five kinds of limits of functions.	Lecture 7+8	**40 - 51**
5	-Find graphically various limits of a function -Determine graphically if a function is continuous.	Lecture 9 +10	**84 – 105**
6	-Apply the basic differentiation rules.	Lecture 11 +12	**105 – 125**
7	-Find the derivative of a function using implicit differentiation. Use the chain rule correctly	Lecture 13+14	**125 – 137**
8	Find the derivative of a function using implicit differentiation. **Mid Exam**	Lecture 15+16	**137 – 146**
9	-Find intervals of increase and decrease.	Lecture 17+18	**146 – 171**
10	-Find intervals of concavity and points of inflection. -Using the above results as an aid in curve sketching of functions.	Lecture 19+20	**171 – 206**
11	-Construct different graphs to represent data such as pie charts, bar charts and histograms. -Construct frequency tables.	Lecture 21+22	**225 – 245**
12	-Calculate the mean and the median. -Calculate quantiles, percentiles and quartiles.	Lecture 23+24	**225 – 245**
13	-Calculate quantiles, percentiles and quartiles. -Calculate the interquartile range, variance and standard deviation.	Lecture 25+26	**245 - 276**
14	-Calculate the interquartile range, variance and standard deviation.	Lecture 27+28	**276 - 281**
15	use computers to access, analyze or present information, solve problems and communicate with others. -Develop a computational spirit that will allow the students to use computer softwares such as Excel and MATLAB on a regular basis to investigate statistical and mathematical ideas.	Lecture 29+30	**281 – 289**
16	**Final Exam**		