Faculty: Faculty of Science	
Department: Service Courses Unit	Program: Bachelor's
Academic year:	Semester:

Course Plan

First: Course Information

Course Name	*Calculus 1*	Course Number	0300101	
Credit Hours	3 hours	Theoretical	3 hours	Practical	0 hours
Prerequisite		Section Number:		Lecture Time:
Level in JNQF	7			

Type Of Course	☐ Obligatory Faculty Requirement	☐ Elective University Requirement
	☐ Obligatory University Requirement	☐ Faculty Requirement
	☐ Course Elective Specialty Requirement	■ Obligatory Specialization Requirement

Type of Learning	■ Face-to-Face Learning
	☐ Blended Learning (2 Face-to-Face + 1 Asynchronous)
	☐ Online Learning (2 Synchronous + 1 Asynchronous)

Second: Instructor's Information

Name:	Academic Rank:	
Office Number:	Ext. Number:	E-mail:
Office Hours:		

Third: Course Description

Functions: Domain and range, Operations on functions (Geometric and Algebraic), Graphs of functions, Trigonometric functions. Limits: Limits and computational techniques, Limits at infinity, Infinite limits, Vertical and horizontal asymptotes. Continuity. Limits and continuity of trigonometric functions. Derivatives: The derivative and techniques of differentiation, Derivatives of trigonometric functions, The chain rule, Implicit differentiation. Analysis of functions: Increase and decrease, Concavity, Extrema values, Graphs of functions. Applications of the derivative: Roll's theorem, The mean value theorem, L'Hopital's rule. Integration: The indefinite integral, Integration by substitution, The definite integral, The fundamental theorem of calculus. Applications of the definite integral: Area between curves, Volumes, Length of a plane curve, Area of a surface of revolution.

Fourth: Course Objectives

1- Define and explain basic concepts in calculus -I-, including functions, relations, limits, differentiations and integrations.
2- Determine whether relations are functions or not.
3- Find domain and range of functions.
4- Evaluating limits and discussing continuity.
5- Find the derivatives, critical values, maxima , minima, increasing and decreasing intervals, intervals of continuity and inflection points.
6- Sketching graphs of functions.
7- Evaluating integrals.
8- discussing fundamental theorems of calculus part 1 and part 2.
9- Finding area between curves and volume of revolution.

Fifth: Learning Source

Main Reference:	Calculus by Anton.	
Author: Anton	Issue No.: 10th ed.	Publication Year: 2012
Additional Sources & Websites:	Calculus by Salas and Etgen.	
Teaching Type:	■ Classroom □ Laboratory □ Workshop □ MS Teams ■ Moodle	

Sixth: Learning Outcomes

Level descriptor according to (JNQF)	CILOs Code	CILOs If any CILO will not be assessed in the course, mark NA.	Associated PILOs Code Choose one PILO for each CILO*	Assessment method** Choose at least two methods	Scores out of 100 State the total score identified for each CILO
Knowledge	K1	Recognize knowledge of concepts in calculus-I- this includes: functions, relations, limits, derivatives, continuity, integration and others.	P. K1	First exam Second Exam Final exam	25
	K2	Solve basic problems in calculus-I- such as: determining functions and relations, finding limits, derivatives, equation of tangent line, integrations and others.	P. K3	First exam Second Exam Final exam	25
Skills	S1	Apply mathematical knowledge in calculus-I- to analysis mathematical concepts such as: Inverse Functions continuity, existing limits, derivatives,	P. S2	First exam Second Exam Final exam	25

		increasing, decreasing, critical points, concavity, inflection points and integrations.			
	S2	Solve advance problems in calculus-I- such as: sketching graphs of function, integration by substitution, find area and volume of revolution.	P. S3	Second and Final Exam	15
Competencies	**C1**	Self-learning topics in the area of calculus-I-	P. C1	Quizzes	5
	C2	Solving assignments in a group team.	P. C3	Assignments	5

**80% of the students must achieve the minimum acceptable percentage or higher for each CI

Seventh: Course Structure

Lecture Date	Intended Teaching Outcomes (ILOs)	Topics	Teaching Procedures*	Teaching Methods***	References***
	K1, K2	Introduction.	Face-to-Face	Lecture	Text book
	K 1, K2	Functions.	Face-to-Face	Lecture	Text book
	K 1, K2	New Functions from Old.	Face-to-Face	Lecture	Text book
	K 1, K2	Families of Functions Inverse Functions;	Face-to-Face	Lecture	Text book
	K 1, K2, S1	Inverse Trigonometric Functions	Face-to-Face	Lecture	Text book
	K 1, K2, S1	Limits	Face-to-Face	Lecture	Text book
	K 1,	Computing Limits	Face-to-Face	Lecture	Text book

	K2, S1,				
	K 1, K2, S1,	Limits at Infinity	Face-to-Face	Lecture	Text book
	K 1, K2, S1	Continuity on closed interval and trigonometric function.	Face-to-Face	Lecture	Text book
	K 1, K2, S1	The Derivative Function and tangent Lines.	Face-to-Face	Lecture	Text book
	K1, K2, S1,	Introduction to Techniques of Differentiation. The Product and Quotient Rules	Face-to-Face	Lecture	Text book
	K1, K2, S1, C1	Derivatives of Trigonometric Functions	Face-to-Face	Lecture	Text book
	K1, K2,	The Chain Rule Implicit Differentiation	Face-to-Face	Lecture	Text book
	K1, K2, S1,	Analysis of Functions I: Increase, Decrease, and Concavity	Face-to-Face	Lecture	Text book
	K1, K2, S1, C2	Analysis of Functions II: Relative Extrema; Graphing Polynomials.	Face-to-Face	Lecture	Text book
	K1, K2, C2,	Analysis of Functions III: Rational Functions, Cusps, and Vertical Tangents	Face-to-Face	Lecture	Text book
	K1, K2, S1,	Absolute Maxima and Minima.	Face-to-Face	Lecture	Text book
	K1, K2, C2,	More in curve sketching	Face-to-Face	Lecture	Text book
	K1, K2, C1,	Exercise	Face-to-Face	Lecture and Quiz	Text book
	K1, K2, C2,	Exercise	Face-to-Face	Lecture and Assignment	Text book
	K1, K2, S1,	L'Hôpital's Rule; Indeterminate Forms	Face-to-Face	Lecture	Text book
	K1, K2,	Rolle's Theorem; Mean-	Face-to-Face	Lecture	Text book

	S1,	Value Theorem			
	K1, K2, S1,	The Indefinite Integral. Integration by Substitution	Face-to-Face	Lecture	Text book
	K1, K2, S1,	The Definite Integral	Face-to-Face	Lecture	Text book
	K1, K2, S1, S2	The Fundamental Theorem of Calculus Evaluating Definite Integrals by Substitution	Face-to-Face	Lecture	Text book
	K1, K2, S1, S2	Area Between Two Curves	Face-to-Face	Lecture	Text book
	K1, K2, S1, S2	volumes	Face-to-Face	Lecture	Text book

* Learning procedures: (Face-to-Face, synchronous, asynchronous). * * Teaching methods: (Lecture, video…..). ** * Reference: (Pages of the book, recorded lecture, video….).

Eighth: Assessment methods

Methods	Online Learning	Blended Learning	Face-To-Face Learning	Measurable Course (ILOs)
First Exam	0	0	20	
Second Exam	0	0	20	
Mid-term Exam	0	0	0	
Quizzes	0	0	5	
Assignment	0	0	5	
Final Exam	0	0	50	

Methods	Fully Electronic Education	Integrated Teaching	Direct Teaching	Specific Course Output to be measured *State the score identified for each CILO for each method of assessment out of 100 **If any CILO will not be assessed in the course, mark NA.										
				K1	K2	S1	S2	S3	S4	C1	C2	C3	C4	C5
First Exam			20	8	7	5								
Second Exam			20	8	7	5								
Final Exam			50	9	11	15	15							
Assignment			5								5			
Quiz			5							5				
Total out of 100			100	25	25	25	15			5	5			

Ninth: Course Policies

- All course policies are applied to all teaching patterns (online, blended, and face-to-face Learning) as follows:
  a. Punctuality.
  b. Participation and interaction.
  c. Attendance and exams.
- Academic integrity: (cheating and plagiarism are prohibited).

Approved by:	Name	Date	Signature
Head of Department			
Faculty Dean			