Course Specifications

General Information

Course name	Calculus(1)
Course number	MATH1401
Faculty	
Department	
Course type	Major Needs
Course level	1
Credit hours (theoretical)	4
Credit hours (practical)	0
Course Prerequisites	

Course Objectives

1 - Studying Continuous Functions
2 - Have the Knowledge of Algebra, Functions and Trigonometry
3 - Studying the Limits and Techniques for Finding Limits
4 - Have the Knowledge of Tangent Lines, Definition of Derivative and Techniques of Differentiation
5 - Studying Derivatives of the Trigonometric Functions
6 - Studying Increments and Differentials, the Chain Rule and Implicit Differentiation
7 - Studying Extrema of Functions and the Mean Value Theorem
8 - Studying the First Derivative Test, Concavity and the Second Derivative Test
9 - Studying Summary of Graphical Methods
10 - Have the Knowledge of Antiderivatives and Indefinite Integrals, Change of Variables in Indefinite Integrals
11 - Studying Definite Integral, Properties of the Definite Integral and The Fundamental Theorem of Calculus
12 - Studying Area and Solids of Revolution
13 - Studying Volumes by Cylindrical Shells
14 - Have the Knowledge of Arc Length and Surfaces of Revolution

Intended Learning Outcomes

Knowledge and Understanding	* Understand the completeness of the real line * Understand the concept and theory of limit * Understand the concept and theory of continuity * Understand the concept and theory of differentiation * Apply the basic techniques of integration
Intellectual Skills	* Upon successful completion of this course, students are able to recite definitions and demonstrate intuitive understanding of limits, derivatives, and definite integrals; state and prove major theorems of calculus

Course Contents

1 - Precalculus Review
2 - Limits of Functions
3 - The Derivative
4 - Applications of the Derivative
5 - Integrals
6 - Applications of the Definite Integral

Teaching and Learning Methods

1 - Lectures
2 - Discussions
3 - Assignments
4 - Additional Readings

Students Assessment

Assessment Method	TIME	MARKS
First Hour Exam	Fifth Week	20
Second Hour Exam	Ninth Week	20
Attendance and Discussion		5
Homework		5
Final Exam		50

Books and References

Essential books	Earl W. Swokowski, Calculus, Fifth Edition.
Recommended books	All Calculus and Analytic Geometry Books.