

**Faculty of Commerce & Business Administration**

**Advanced Mathematics**

**Information :**

**Course Code :** MST 367

**Level :** Undergraduate

**Course Hours :** 3.00- Hours

**Department :** Department of Management

**Area Of Study :**

The course develops ideas for helping to make decisions based on examination of data. Topics to be covered include variability, data display and summary statistics, simple regression, introductory probability, the normal and binomial distributions, sampling, the law of large numbers and the central limit theorem, confidence intervals, and hypothesis testing.

**Description :**

The Derivatives, Applications of the derivative, Techniques of differentiation, Logarithm Functions , Applications of the exponential and natural logarithm functions: exponential growth and decay , The Definite and Indefinite Integral , Partial Derivatives, Applications of the Integral, Techniques of Integration , Further Applications of Integration , Infinite Sequences and Series, Differential Equations.

**Course outcomes :**

**a.Knowledge and Understanding: :**

1 -	Demonstrate proficiency in the use of mathematics to structure students' understanding of and investigate questions in the world around them.
2 -	Treating mathematical content at an appropriate level.
3 -	Proficiency in the use of mathematics to formulate and solve problems.

**b.Intellectual Skills: :**

1 -	The student will demonstrate proficiency in using technology such as hand-held calculators and computers to support their use of mathematics.
-----	---

**c.Professional and Practical Skills: :**

1 -	Use the Mathematical packages.
2 -	Deal with case studies to cover the area of Business.

**d.General and Transferable Skills: :**

1 -	Self-learning through exercises and worked examples.
2 -	Work in group to develop technique for problem solving.

**Course Topic And Contents :**

Topic	No. of hours	Lecture	Tutorial / Practical
Differentiation: The derivative, Rules of differentiation. Rate of change, The Product rule.	4	3	1

### Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
The quotient rule ,The chain rule and power rule.	4	3	1
Additional Differentiation Topics: Derivatives of logarithmic functions. The derivatives of exponential functions.	4	3	1
Elasticity of demand, implicit differentiation, Higher order of derivatives, Applications of derivatives.	4	3	1
Integration: Differentials, The indefinite integral.	4	3	1
First mid term	4	3	1
Integration with initial conditions, Integration formulas Techniques of Integration, The definite integral.	4	3	1
The fundamental theorem of integral Calculus. Consumers' and producers' surplus.	4	3	1
Methods and Applications of Integration: Integration by parts.	4	3	1
Integration by partial fractions.	4	3	1
Second Mid Term	4	3	1
Deferential equations, Exponential growth and decay.	4	3	1
Sequences and Series: Infinite Sequence, Infinite Series.	4	3	1
Power Series, Taylor and Maclaurin Series.	4	3	1
Revision	4	3	1

### Teaching And Learning Methodologies :

Text book

Published works related to the different subjects.

Data show and computer in lectures.

Group discussion

### Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
1st Mid-Exam	20.00	6	
2nd Mid-Exam	20.00	11	
Attendance & Participation	20.00	13	
Final Exam	40.00	16	

### Course Notes :

Handouts

