FIFTH SEMESTER (OPEN COURSE)
(For students not having Mathematics as Core Course)

MTS5 D01 APPLIED CALCULUS

3hours/week **3credits** **75marks[Int:15+Ext:60]**

COURCE OUTCOMES:

Course No	Code	Course Category	Name of the course	CL	KC	Hrs	PO	PSO
17	MTS5D01	Open Course	Applied Calculus					
CO	CO Statement							
CO 1	Illustrate functions, limit, continuity and differentiability.			U	(C,P)	11	1	2
CO 2	Find derivatives of various functions.			U	(C,P)	10	7	
CO 3	Identify monotone functions.			Ap	(C,P)	4	1	
CO 4	Analyze concavity and points of inflection.			An	(C,P)	5	1	
CO 5	Define exponential and logarithmetic functions.			U	C	4	1	
CO 6	Explain integration and related theorems.			U	(C,P)	14	1	

Text	Calculus: For Business, Economics, and the Social and Life Sciences BRIEF(10/e): Laurence D.H offmann, Gerald L. Bradley *McGraw-Hill(2010) ISBN:978–0–07–353231–8*

ModuleI 16hrs

Chapter1:- Functions, Graphs, and Limits

1.1: Functions.

1.2: The Graph of a Function.

1.3: Linear Functions.

1.4 : Functional Models.

1.5 : Limits.

1.6 : One sided limits and continuity.

Chapter2:- Differentiation: Basic Concepts

2.1: The Derivative.

2.2 : Techniques of Differentiation.

2.3 : Product and quotient rules: Higher order derivatives. [proof of product and quotient rules omitted]

2.4 : The Chain rule. [proof of general power rule omitted]

ModuleII 18hrs

2.5 : Marginal Analysis and Applications using increments. 2.6: Implicit Differentiation and Related Rates.

Chapter3:- Additional Applications of Derivative

3.1: Increasing and Decreasing Functions; Relative Extrema.

3.2: Concavity and Points of Inflection.

3.4: Optimization; Elasticity of Demand.

3.5: Additional Applied Optimization.

Chapter4: Exponential and Logarithmic Functions

4.1: Exponential functions; continuous compounding.

4.2: Logarithmic functions.

ModuleIII 14hrs

Chapter5:- Integration

5.1: Anti differentiation: The Indefinite Integral.

5.2: Integration by Substitution.

5.3: The Definite Integral and the Fundamental Theorem of Calculus. [only statement of FTC required; Justification given at the end of the section omitted]

5.5: Additional Applications to Business and Economics.

5.6: Additional Applications to the Life and Social Sciences. [The derivation of volume

formula omitted; only the formula and its applications required]

References:	
1	Soo T Tan: Applied Calculus for the Managerial, Life, and social sciences(8/e) *Cengage Learning(2011) ISBN: 978-0-495-55969-6*
2	Ron Larson : Brief Calculus *An Applied Approach(8/e) Houghton Mifflin Company(2009)ISBN: 978-0-618-95847-4*
3	Stefan Waner, Steven R. Costenoble: Finite Mathematics and Applied Calculus(5/e) *Brooks/Cole Cengage Learning(2011) ISBN: 978-1-4390-4925-9*
4	Frank C. Wilson, Scott Adamson: Applied Calculus *Houghton Mifflin Harcourt Publishing Company(2009)*
5	Geoffrey C. Berresford, Andrew M. Rockett: Applied Calculus(7/e) *Cengage Learning(2016)ISBN: 978-1-305-08531-2*