Course Title	**Calculus & Analytical Geometry**		
Course Code	**GE-162**		
Credit Hours	3 (3,0)		
Category	General Education		
Prerequisite	None		
Co-Requisite	None		
Follow Up	MS-253: Multivariable Calculus		
Course Learning Outcomes (CLOs)	At the end of the course, the students will be able to:	**BT**	**PLO**
	CLO1: Know the concepts and applications of calculus and analytical geometry.	C1 (Know)	1
	CLO2: Describe functions, limit, continuity chain rule and related techniques.	C2 (Describe)	1
	CLO3: Identify and solve problems related to differentiation and integration.	C3 (Apply)	1,3
	CLO4: Know the concepts analytical geometry.	C1 (Know)	1
Course Description	Motivation and applications of the course. **Introduction to limits**: Limits and Continuity, Techniques of funding limits, Indeterminate forms of limits, **Introduction to functions:** Continuous and discontinuous functions and their applications, **Differential calculus:** Concept and idea of differentiation, Geometrical and Physical meaning of derivatives, Rules of differentiation, Techniques of differentiation, Rates of change, Tangents and Normal lines, Chain rule, implicit differentiation, linear approximation, **Applications of differentiation**: Extreme value functions, Mean value theorems, Maxima and Minima of a function for single-variable, Concavity. **Integral calculus**: Concept and idea of Integration, Indefinite Integrals, Techniques of integration, Riemann sums and Definite Integrals, Applications of definite integrals, Improper integral, Applications of Integration; Area under the curve. **Analytical Geometry**: Straight lines in R3, Equations for planes.		
Text Book(s)	1. Howard Anton, Irl C. Bivens and Stephen Davis, Calculus, 11th Edition, Wiley, 2016, ISBN-10: 1119228581, ISBN-13: 978-1119228585.		
Reference Material	1. Thomas and Finney, Calculus and Analytic Geometry, 9th Edition, ISBN-13: 978-0201531749, ISBN-10: 0201531747.		