

<b>Course Title</b>	<b>Calculus &amp; Analytical Geometry</b>		
<b>Course Code</b>	<b>GE-162</b>		
<b>Credit Hours</b>	3 (3,0)		
<b>Category</b>	General Education		
<b>Prerequisite</b>	None		
<b>Co-Requisite</b>	None		
<b>Follow Up</b>	MS-253: Multivariable Calculus		
<b>Course Learning Outcomes (CLOs)</b>	At the end of the course, the students will be able to:	<b>BT</b>	<b>PLO</b>
	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
<b>Course Description</b>	Motivation and applications of the course. <b>Introduction to limits:</b> Limits and Continuity, Techniques of finding limits, Indeterminate forms of limits, <b>Introduction to functions:</b> Continuous and discontinuous functions and their applications, <b>Differential calculus:</b> 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, <b>Applications of differentiation:</b> Extreme value functions, Mean value theorems, Maxima and Minima of a function for single-variable, Concavity. <b>Integral calculus:</b> 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. <b>Analytical Geometry:</b> Straight lines in $R^3$ , Equations for planes.		
<b>Text Book(s)</b>	1. Howard Anton, Irl C. Bivens and Stephen Davis, Calculus, 11 <sup>th</sup> Edition, Wiley, 2016, ISBN-10: 1119228581, ISBN-13: 978-1119228585.		
<b>Reference Material</b>	1. Thomas and Finney, Calculus and Analytic Geometry, 9 <sup>th</sup> Edition, ISBN-13: 978-0201531749, ISBN-10: 0201531747.		