Course Title	**Calculus and Analytical Geometry**
Course Code	**MS-152**
Credit Hours	3
Category	Math & Science Foundation
Prerequisite	None
Co-Requisite	None
Follow Up	None
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.