KINGDOM OF SAUDI ARABIA
Ministry of Education
Najran University
College of Arts & Sciences
Deparment of Mathematics

المملكة العربية السعودية
وزارة التعليم
جامعة نجران
كلية العلوم والآداب
قسم الرياضيات

NAJRAN UNIVERSITY

Course Name	Course Code	Credit	Type	Prerequisite
Calculus I	**101 Math-4**	4	Core course	Non

Course Main Objective: Students are expected to have strong and sound understanding of the differentiation calculus in term of its concepts, techniques and theorems. Students are expected to apply them on studying the behavior of a function.

Course Content: **Review:** Sets and Real Numbers, Equations and Inequalities, Equations and Inequalities Involving Absolute Value, Functions and their Domains, Inverse Functions. **Limits and Continuity:** Definition of Limits, Limits Laws, Limits Involving Infinity, Continuity of Functions. **The Derivative**: The Limit definition of derivative & the Tangent Line Problem, Differentiation Rules, Derivative of Trigonometric Functions, The Chain Rule, Derivative of Logarithmic and Exponential Functions, Implicit Differentiation, Higher Order Derivatives, The Derivative of Inverse Functions. **Application of Derivative**: Indeterminate Form and L'hoptail Rule, The Mean Value Theorem, Taylor series for Functions, Extreme Values of Functions, Monotonic Behavior of Functions Monotonic Behavior of Functions, Concavity and the Inflection Points, Sketching Curve of Functions Sketching Curve of Functions, Optimization Problems.

Required Textbooks:

صالح السنوسي ، معروف عبد الرحمن ، كمال الهادي عبد الرحمن ، يوسف الخميس : مبادئ التفاضل والتكامل (الجزء الأول) ، مكتبة الملك فهد الوطنية أثناء النشر ردمك 5 – 30 – 38 – 9960 لعام 1421 ه

Essential References Materials:

Anton, H; Bivens, I & Davis, S. Calculus Early Transcendentals, Ninth Edition, Wily & Sons, 2009.
Thomas, Calculus, Pearson Education , Addison Wesley, 2004.