King Khalid University College of Computer Science Department of Computer Science		Course Syllabus

Course Name	Mathematics 1
Course Number	001 MATH-3
Credit Hours	3
Contact Hours	3
Course Coordinator	Mohammad Hazzazi

Text Books	1. Calculus - Introduction to calculus - Part I - Mohammed Adel Sudan, Salman 2. Calculus fifth edition by Earl William Swokowski
Other Supplemental Materials	
Specific Course Information	
a. Course Description	This course begins with the study of functions, the basic tools of calculus, their algebra and families of functions, the basic concept, and the limit of a function, the continuity and the derivative of a function.
b. Pre-requisite	Nil
c. Required/ Elective/ Selected Elective	Required
Specific Goals for the Course	
a. Course Learning Outcomes	• Highlight the importance of mathematics in overall curriculum and variety of discipline. • Build a strong mathematical background for future study in computer science. • Help students to develop their mathematical skills by using the proper logical thinking. • Train students to know methods and solution strategies. • Give a basic background in analysis. • Study calculus and its applications.
Topics Covered	Review on roots, fractures, analysis and numbers, Intervals on R. Definition of the absolute value and its properties. • Domain and range and function operations, Inverse function, Composite function. • Even and odd Functions, Periodic functions, Basic functions and how to sketch them, Trigonometric functions. • Definition of limit of a function, Right and left limit, Properties of limits. • Limit of trigonometric functions, Limits containing infinity. • Continuity of function at point, Properties of the continuity, Discontinuity. Right and left side continuity. • Definition of Derivative, Properties of derivative, Chain Rule. • Tangent line equation, Implicit Differentiation, Derivatives of trigonometric functions, Higher order derivatives. • Increasing and decreasing functions and the definition of the maximum and minimum values of functions, Roll Theorem and The Mean

	Value Theorem, L'Hospital's Rule. • First derivative test, critical points and local extreme, Second derivative test, concavity and points of inflection. • Asymptotes, Sketching the graph of a function