


Sub.	Course Description – توصيف مقرر دراسي	الموضوع	 كليات المعرفة ALMAAREFA COLLEGES
Date		التاريخ	

Course Code & No	Math 101	رياض ١٠١	رقم المقرر ورمزه
Course Name	Calculus 1	تفاضل ١	اسم المقرر
Credit Hours	3 (3 + 0 + 1)	٣ (٣ + ٠ + ١)	عدد الساعات المعتمدة
Pre-requisite	None	لا يوجد	المتطلب السابق

General Description	توصيف عام
<p>Calculus I is the first in the three-semester sequence in the rigorous study of calculus. This course consists of the study of algebraic functions of one variable, the use of modern technology to enhance calculus knowledge, limits including the study of L'Hopital's rule, differentiation and its various techniques, and applications to science, engineering, business, and other fields.</p>	<p>الدوال الجبرية، حدود الدوال، طرق التفاضل، تطبيقات التفاضل.</p>

Course Objectives	أهداف المقرر
<p>By the end of the course, students should be able to:</p> <ul style="list-style-type: none"> Simplify and analyze functions of all types, including trigonometric functions, to graphically represent them using calculator technology. Determine the existence of limits and continuity of functions by Calculation. Understand how to find derivatives using various techniques and apply to application problems, including: finding maxima and minima, rates of change, and in graphing. Relate logarithmic and exponential functions to calculus, including derivatives, inverse functions, inverse trigonometric functions, L'Hopital's rule and other indeterminate forms, and implicit differentiation. 	

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<ul style="list-style-type: none"> Analyze graphs using the First and Second Derivative Tests and applying technology to interpret graphs. Apply the derivative knowledge obtained to find maxima and minima and to solve science/engineering problems. Improve quantitative literacy, problem solving skills, and mathematical confidence. Gain a firm understanding of two calculus ideas: the limit and the derivative. Demonstrate the ability to think critically and make reasonable judgments by acquiring, analyzing, combining, and evaluating quantitative and non-quantitative information. Demonstrate the skills necessary to access and manipulate information through various technological and traditional methods. Demonstrate the ability to use various differentiation techniques with several types of functions. 	
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Course Outlines	مفردات المقرر
<ul style="list-style-type: none"> Functions Mathematical models & graphs Transformations & combinations of functions and graphs Tangent & velocity problems Limits Limit laws; calculating limits Precise definition of limits Continuity Tangents, velocity, rates of change Derivatives Derivative as a function Differentiation formulas 	

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<ul style="list-style-type: none"> • Other rates of change; rectilinear motion • Derivatives and limits of trigonometric functions • Chain rule • Implicit differentiation • Higher derivatives • Related rates • Linearization and differentials • Extreme values • Mean Value Theorem • Derivatives and the shape of the graph 	
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References	المراجع
<ul style="list-style-type: none"> • James Stewart. Calculus - Early Transcendental, 5th edition, Brooks/Cole, 2003; ISBN: 0534393217. 	