Sub.	Course Syllabus (البرنامج الدراسي) منهج المادة	الموضوع	كلية المعرفة ALMAAREFA COLLEGE
Year	2015/2016	العام	

College	**AlMAAREFA COLLEGE**
Department	**COMPUTER SCIENCE AND IS**

Course Code	**MATH 101**
Course Name	**Calculus I**
Credit Hours	**3 (3 + 0 + 1)**
Instructor	**Farhana Yasmin**
Office & Office Hours	**Monday : 11:00 to 12:00** **Tuesday: 10:00 to 1:00**
Email	fyasmin@mcst.edu.sa

Course Description	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 , differentiation and its various techniques, and applications to science, engineering, business, and other fields.
Prerequisite(s)	**None**
Textbook(s) & Supplementary Materials	James Stewart. *Calculus - Early Transcendental, 7th edition*, 2012; ISBN-10: 0538497904 | ISBN-13: 9780538497909
Student Outcomes (SO) Addressed by the Course	• Simplify and analyze functions of all types, including trigonometric functions • 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, • 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.	
Major Topics Covered	• Functions • Types of functions including trigonometric and logarithmic functions • combinations of functions • Limits • Precise definition of limits • Continuity • Derivatives • Derivative as a function • Differentiation formulas • 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	
Assessment & Evaluation Plan for the Course*	***Homework Assignments and attendance***	10 %
	Quizzes	10 %
	1st Midterm Exam	20 %
	2nd Midterm Exam	20%
	Final Exam	40 %
Policies*	1. Type all homework, you may use some tools e.g., MS Office, Visio, etc. 2. Students can discuss homework, but no copying!, according to the college by laws the minimum penalty of plagiarism is failing the course. 3. Late Submission Penalty …….	

CALENDAR & OUTLINE OF TOPICS

WEEK	DATE	TOPICS	DUTIES/TASKS DUE DATES
1	26/01/2015	Functions	
2	02/02/2015	Functions	HW 1
3	09/02/2015	Combinations & Composition of functions	QUIZ 1
4	16/02/2015	Types of functions including trigonometric and logarithmic functions	HW 2
5	23/02/2015	Limits / Continuity	
6	02/03/2015	derivatives	HW 3
7	09/03/2015	derivatives	MIDTERM 1
8	16/03/2015	Higher derivatives	
9	23/03/2015	Differentiability and Continuity	
10	30/03/2015	Implicit differentiation	QUIZ 2
11	06/04/2015	Mean value theorem	
12	13/04/2015	Slope and Rate of change	MIDTERM 2
13	20/04/2015	Exponential Growth and Decay	
14	27/04/2015	Differential Equations	HW 4
15	04/05/2015	**Revision**	
16	11/05/2015	**Revision**	
17 & 18	18/05/2015	**Final Exam**	FINAL EXAMS

* According to the department council approval