



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

College	Al-Ma'arefa Science & Technology College (MSTC).
Department	Preparatory year

Course Code	Math301
Course Name	Calculus 3
Credit Hours	3 (3 +0+1)
Instructor	Riyadh Hussein
Office & Office Hours	Sun 9-10 Mon 9-10 Wed 10-11
Email	rhussein@mcst.edu.sa


Course Description	Calculus III is the third in the three-semester sequence in the rigorous study of calculus. It covers Sequences, Series, Integral test, estimates, and Comparison tests. Alternating series, Absolute convergence, ratio test, Strategy for testing series. Power series, Differential equations, Parametric Equations and the polar coordinate system.
Prerequisite(s)	Math 102
Textbook(s) & Supplementary Materials	James Stewart. Calculus - Early Transcendental , 5th edition, Brooks/Cole, 2003; ISBN: 0534393217.
Student Outcomes (SO) Addressed by the Course	Students who successfully complete this course should be able to correctly: <ol style="list-style-type: none"> 1. Work with various algebraic and geometric aspects of vector representations to see how vectors can be combined with calculus to study motion in space and other applications. 2. Extend the methods of single-variable differential calculus to functions of several variables. 3. Generalize the notions from single-variable integral calculus to define multiple integrals, in which the integrand is a function of several variables. 4. Draw together ideas about differentiation, integration, and vectors to study calculus of a vector function. 5. Determine the convergence or divergence of sequences and series having numerical terms.

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	<p>6. Find a power series representation for a given function and determine its domain.</p> <p>7. Extend the operations of differentiation and integration to functions defined by a power series.</p> <p>8. Find a polynomial, which approximates a given function to a specified degree of accuracy on a specified interval.</p> <p>9. Learn about infinite series, power series, Taylor series, and Maclaurin series.</p> <p>10. Understand convergence tests, limit comparison tests, and conditional convergence.</p> <p>11. Perform differentiation and integration of power series.</p>	
Major Topics Covered	<ul style="list-style-type: none"> • Sequences • Series • Integral test, estimates • Comparison tests • Alternating series • Absolute convergence, ratio test • Strategy for testing series 	
Assessment & Evaluation Plan for the Course	<i>Homework Assignments</i>	5 Points
	<i>Attendance</i>	5 Points
	<i>Quizzes</i>	10 Points
	<i>Two Midterm Exams</i>	20 Points for each
	<i>Final</i> Total marks	40 Points 100 Points
Policies	<p>1. Three delays of attendance are considered as on absence.</p> <p>2. Any student who has 25 % absence without excuse will be denied from the final exam.</p> <p>3. Students may discuss homework, yet COPYING IS NOT ALLOWED. According the college penalty of plagiarism is failing the course.</p>	

Calendar & Outline of Topics

WEEK	DATE	TOPICS	DUTIES/TASKS DUE DATES
1	23.08.2015	-----Introduction-----	-----
2	30.08.2015	Chapter 1: Sequences	

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		Series Integral test, estimates Comparison tests	
3	6.09.2015	Alternating series Absolute convergence, ratio test Strategy for testing series Power series	QUIZ 1: Chapter 1
4	13.09.2015	Chapter 2: Representing functions as power series Taylor series, Malaria series Binomial series.	
5	20.09.2015	ADHA EID	
6	27.09.2015		
7	4.10.2015	Applications of Taylor polynomials Parametric Equations and the polar coordinate system.	
8	11.10.2015	Chapter 3: Area and arc length for parametric and polar equations. Vectors in two and three dimensions, lines and planes. Surfaces in rectangular, cylindrical, and spherical coordinates.	QUIZ 2: Chapter 2
9	18.10.2015	Vector valued functions, velocity, acceleration, force, and work. Functions of several variables. Partial derivatives and gradients.	1st MID-TERM Chapter 1 & 2
10	25.10.2015	Extreme and Lagrange multipliers. Linear regression. Integration of functions of several variables. Mass, centroids, centers of mass, and moments of inertia.	
11	1.11.2015	Chapter 4 : Surface area.	QUIZ 3: Chapter 3

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		Line and path integrals.	
12	8.11.2015	Vector fields.	
13	15.11.2015	Surface integrals,.	2nd MID-TERM
12	22.11.2015	Chapter 5: Green's Theorem and the Divergence Theorem	
15	13.12.2015	REVISION	
16	20.12.2015	FINAL EXAMS	
17	27.12.2015		
18	3.01.2016		