King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics
Math 102 – Syllabus
2012-2013 (122)
Instructor: Kassem Mustapha
Coordinator: Dr. A. Shawky Ibrahim
Online Homework Coordinator: Dr. R. Alassar

Title: Calculus II

Credit: 4-0-4

Textbook: Thomas Calculus (Early Transcendental) by G. Thomas, M. Weir and J. Hass. 12th edition, Pearson (2010).

Description: Definite and indefinite integrals of functions of a single variable. Fundamental Theorem of Calculus. Techniques of integration. Applications of the definite integral to area, volume, arc length and surface of revolution. Improper integrals. Sequences and series: convergence tests, integral, comparison, ratio and root tests. Alternating series. Absolute and conditional convergence. Power series. Taylor and Maclarin series.

Grading Policy:

1. **Exam I** A common multiple choice exam	**Material:** (5.3-6.4)	**Place:** Building 54	25% (100 points)
	Date: Wednesday, Feb 26, 2013	**Time: 06:00-08:00 PM**	
2. **Exam II** A common written exam	**Material:** (7.1-8.7)	**Place:** Building 54	25% (100 points)
	Date: Sunday, April 07, 2013	**Time: 06:30-08:30 PM**	
3. **Final Exam** A comprehensive common multiple choice exam	**Material:** (Comprehensive)	**Place:** Building 54	35% (140 points)
	Date: Tuesday, May 21, 2013	**Time: 12:30-3:30 PM**	
4. **Class Work**	**i) Online Homework:** The web address for online homework is kfupm.mylabsplus.com		5% (20 points)
	ii) Class Activities: It is based on 4 written quizzes (34 points) and attendance (6 points). The average x (out of 40) of class activities of the sections taught by the same instructor should be **an integer** in the interval [24, 30].		10% (40 points)

Exam Questions:
The questions of the common exams are based on the examples, homework problems, recitation problems and the exercises of the textbook.

Missing Exam I or Exam II:
No makeup exam will be given under any circumstance. When a student misses Exam I or Exam II for a legitimate reason (such as medical emergencies), his grade for this exam will be determined based on the existing formula which depends on his performance in the non-missing exam and in the final exam.

Attendance:
Attendance is a University Requirement. A DN grade will be awarded to any student who accumulates 12 unexcused absences (lecture and recitation).

Academic Integrity: All KFUPM policies regarding ethics apply to this course.

Office hours: 09:00 am--10:50 am on Saturday, Monday and Wednesday, (office: 203-5, Building 5)

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Pacing Schedule

Week	Dates (/2013)	Sec.	Topics
1	January 26-30	5.3	The Definite Integral
		5.4	The Fundamental Theorem of Calculus
2	February 02-06	5.5	Indefinite Integrals and the Substitution Method
		5.6	Substitution and Area Between Curves
3	February 09-13	5.6	(Continued) Substitution and Area Between Curves
		6.1	Volumes Using Cross-Sections
4	February 16-20	6.2 6.3	Volumes Using Cylindrical Shells Arc Length
5	February 23-27	6.4	Areas of Surfaces of Revolution
		7.1	The Logarithm Defined as an Integral
		Exam I	Tuesday, Feb 26, 2013 [06:00-08:00 PM] Building 54; Material [5.3-6.4]
6	March 02-06	7.3	Hyperbolic Functions
7	March 09-13	8.1	Integration by Parts
		8.2	Trigonometric Integrals
8	March 16-20	8.3	Trigonometric Substitutions
		8.4	Integration of Rational Functions by Partial Fraction
March 21-29 (Midterm Vacation)			
9	Mar 30-Apr 03	8.4	(Continued) Integration of Rational Functions by Partial Fraction
		8.7	Improper Integrals
10	Apr 06-10	**Exam II**	Sunday, April 07, 2013 [06:30-08:30 PM] Building 54; Material [7.1-8.7]
		10.1	Sequences
11	Apr 13-17	10.2	Infinite Series
		10.3	The integral Test
12	Apr 20-24	10.4	Comparison Tests
		10.5	The Ratio and Root Tests
13	Apr-27-May 01	10.6	Alternating Series, Absolute and Conditional Convergence
		10.7	Power Series
14	May 04-08	10.8	Taylor and Maclaurin Series
		10.9*	Convergence of Taylor Series
15	May 11-15	10.10**	The Binomial Series and Applications of Taylor Series
		Catch up / Revision	
	Final Exam Tuesday May 21, 2013 [12:30-3:30 PM] Building 54, Material: Comprehensive		

*** Theorem 24 and Examples 2 & 3 are not included**
**** Students are required to know the series listed in Table 10.1, P. 620**

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Homework & Recitation Problems

Section	Homework Problems	Recitation Problems	CAS*
5.3	6, 9, 16, 22, 29, 40, 52,60, 73, 78	14,62,65,76	92, 101
5.4	6,9,16,24,27,32,40,48,57,67,73,77	14,31,44,60,68	88
5.5	4,14,21,26,39,52,53,66,70,76	15,25,40,62,74	
5.6	2,4,9,15,20,26,39,47,63,68,74,84,85,105	8,58,75,106	120
6.1	2,6,12,15,17,20,27,29,42,46,52,55	6,24,32,53	62(c)
6.2	2,8,19,24,28a,28b,33,39,48	4,11,22,27,35	
6.3	1,4,9,11,20,23	2,10,14,19	36
6.4	1a,4a,10,14,17,24,25	8a, 9,13,19	4(b,c)
7.1	2,4,8,18,30,40,48,52,53	1,11,31,54	58(c), 66
7.3	4, 9, 11,14,17,23,26,30,34,40,42,54,67,79	1,10,18,43,74	
8.1	4,11,24,26,29,33,36,50,53,59,73	6,28,37,50,74	
8.2	3,7,14,23,28,36,38,44,48,56,58,63,68,70	4,16,44,47,55	
8.3	1,8,13,16,23,32,36,46,52,54	5,11,21,45,50	
8.4	6, 13, 16, 17, 20, 22, 29, 34, 43, 48, 55	7, 15, 19, 33, 46	59
8.7	2, 5, 10, 19, 22, 29, 32, 33, 37, 40, 42, 45, 56, 71	21, 29, 46, 52, 70	76 (a)
10.1	4, 10, 16, 25, 28, 38, 42, 52, 60, 71, 84, 88, 91, 97	11, 18, 39, 59, 86, 92	142
10.2 Part I	6, 10, 12, 18, 23, 30, 31, 37, 38, 41, 44, 47	5, 13, 17, 37, 45, 65, 77, 90	
10.2 Part II	50, 54, 59, 62, 66, 68, 71, 74, 75, 78, 79, 91		
10.3	3, 8, 12, 16, 19, 22, 26, 40	6, 15, 21, 37, 39	43(b)
10.4	7, 10, 14, 23, 27, 35, 45, 54	9, 24, 25, 28, 53	69
10.5	4, 8, 12, 14, 22, 25, 29, 42, 62	6, 15, 26, 53, 61	
10.6	2, 8, 12, 16, 23, 29, 43, 46, 50	4, 11, 28, 45, 49	67
10.7	4, 5, 12, 14, 22, 34, 35, 40, 44, 49	6, 16, 21, 33, 48	
10.8	10, 12, 18, 22, 25, 30, 34	17, 24, 33	
10.9	2, 4, 10, 22, 24, 28, 30	3, 7, 9, 21, 33	54
10.10	2, 10, 12, 20, 26, 32, 36, 44, 52, 68	9, 19,25, 37, 67	15, 24

*** CAS** problems require the use of a technology tool (e.g., graphing calculators or a computer). You are encouraged to do these problems in order to enhance your understanding of the concepts involved.

Tips on how to enhance your problem-solving abilities:

1. Please do all the homework assignments on time.
2. You are urged to practice (but not memorize) more problems than the above lists.
3. You should always try to solve a problem on your own before reading the solution or asking for help.
4. If you find it difficult to handle a certain type of problems, you should try more problems of that type.
5. You should try the recitation problems before coming to class.
6. You are encouraged to solve some of the review problems at the end of each chapter.
7. The practice you get doing homework and reviewing the class lectures and recitations will make exam problems easier to tackle.
8. Try to make good use of the office hours of your instructor.