King Fahd University of Petroleum and Minerals
Department of Mathematics & Statistics
Math 102 – Syllabus
2008-2009 (081)
<u>**Coordinator: Dr. Ibrahim Al-Rasasi**</u>

Title: Calculus II
Credit: 4-0-4
Textbook: Calculus (Early Transcendentals), by J. Stewart, 5th edition, Thomson, 2003
Description: Definite and indefinite integrals of functions of a single variable. Fundamental Theorem of Calculus. Techniques of integration. Application 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: 25% (100 points), a common multiple choice exam. It will be on **Tuesday, Nov. 11, 2008.**
2. Exam II: 25% (100 points), a common written exam. It will be on **Tuesday, Dec. 30, 2008.**
3. Class Work: 15% (60 points). It is based on quizzes (around 5 quizzes), homework, or other class activities determined by the instructor. Any quiz or test under class activity should be of written type and not of a multiple choice type.
4. Final Exam: 35% (140 points), a comprehensive common multiple choice exam.

Class Work Average. The section average X of the Class Work out of 60 should satisfy

$$X \in [36,45].$$

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

Missing an Exam: 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 Department policy. Further, the student must provide an official excuse within one week of the missed exam.

Attendance: 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.

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Week	Date	Sec.	Topics (28 sections)
1	Oct. 11-15, 2008	5.1 5.2*	Areas and Distances The Definite Integral
2	Oct. 18-22	5.3 5.4	The Fundamental Theorem of Calculus Indefinite Integrals and the Net Change Theorem
3	Oct. 25-29	5.5 5.6	The Substitution Rule The Logarithm Defined as an Integral
4	Nov. 1-5	6.1 6.2	Areas between Curves Volumes
5	Nov. 8-12	6.2 6.3 6.5	Volumes (Continued) Volumes by Cylindrical Shells Average Value of a Function
Tuesday, Nov. 11, 2008: Exam I (25%): 5.1-6.2 (A Multiple Choice Exam)			
6	Nov. 15-19	7.1 7.2	Integration by Parts Trigonometric Integrals
7	Nov. 22-26	7.3 7.4	Trigonometric Substitution Integration of Rational Functions by Partial Fractions + **Exc. #55**
8	Nov. 29-Dec. 2	7.5 7.8	Strategy for Integration Improper Integrals (up to page 536 only, End of example 8)
Eid Al-Adha Break: Wednesday, Dec. 3- Saturday, Dec. 13, 2008			
9	Dec. 14-18**	7.8 11.1	Continued Sequences (up to page 708 only)
10	Dec. 20-24	11.2 11.3	Series The Integral Test and Estimates of Sum
11	Dec. 27-31	11.4 11.5	The Comparison Tests Alternating Series
Tuesday, Dec 30, 2008: Exam II (25%): 6.3-11.3 (A Written Exam)			
12	Jan. 3-7	11.6 11.7	Absolute Convergence and the Ration and Root Tests Strategy for Testing Series
13	Jan. 10-14	11.8 11.9	Power Series Representations of Functions as Power Sreies
14	Jan. 17-21	11.10***	Taylor and Maclaurin Series (Remainder Theorem is not Included.)
15	Jan 24- 28	8.1 8.2	Arc Length Area of a Surface of Revolution
16	Jan 31		Review and/or Catching up
Final Exam: A Comprehensive Multiple Choice Exam, Date is to be announced			

*: Students must know Formulas 4, 5, 6, 7 in page 383.
**: Thursday, December 18, 2008 is a Normal Wednesday Class.
***: Students must know the Maclaurin Series listed in the Table of page 767.

King Fahd University of Petroleum and Minerals
Department of Mathematical Sciences
Math 102 (081)
Homework and Recitation Problems

Section	Homework Problems	Recitation Problems	CAS*
5.1	3, 12, 18, 20	2, 21,22	9
5.2	1, 5(b), 12, 18, 21, 33, 36, 48, 50, 53, 61	6(a), 24, 37, 47, 52, 62	-
5.3	2, 8, 27, 42, 50, 53, 61	48, 52, 55, 62	-
5.4	8, 13, 34, 35, 54	25, 40, 45, 56	-
5.5	12, 22, 36, 43, 60, 65, 80	38, 44, 57, 73	71
5.6	1(a), 3	4	-
6.1	4, 14, 18, 24, 29, 47	10, 26, 46	33
6.2	4, 12, 36, 43, 49, 58	6, 16, 35, 57	40
6.3	5, 11, 16, 23, 37	12, 19, 26, 38	36
6.5	7, 10, 14	4, 13	11
7.1	8, 12, 16, 28, 35, 46, 52, 58, 63	10, 22, 29, 34, 48	38
7.2	3, 15, 30, 42, 56, 61	10, 38, 45, 48	-
7.3	8, 21, 26, 30, 41	5, 12, 28, 34	37
7.4	6, 9, 20, 28, 46, 54, 58	22, 37, 40, 50, 57	52
7.5	14, 23, 32, 52, 59, 69, 70	31, 44, 65, 68, 78	-
7.8	2(a, c), 8, 23, 28, 30, 40	2(b, d), 22, 37, 59	-
11.1	4, 9, 12, 18, 22, 27, 36, 43, 60	10, 25, 34, 58	43
11.2	9, 12, 20, 21, 27, 30, 37, 44, 50	23, 34, 38, 45, 53	5
11.3	7, 10, 13, 24, 26, 33	12, 20, 27, 34	-
11.4	4, 12, 24, 27, 32	6, 15, 28, 37	-
11.5	4, 10, 14, 24, 27, 32	16, 17, 28, 34	22
11.6	5, 11, 16, 21, 28, 30, 33	4, 9, 24, 26	-
11.7	5, 6, 14, 17, 22, 29, 35, 38	8, 18, 23, 31	-
11.8	6, 17, 24, 27, 30	8, 20, 29	-
11.9	4, 9, 11, 14, 18, 25, 38(a, b)	8, 16, 30, 38(c)	-
11.10	1, 10, 14, 28, 40, 46, 51, 56	18, 30, 48, 52, 60	-
8.1	6, 8, 16, 31, 37	12, 20, 29	3
8.2	10, 11, 14, 15, 26	25, 29	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.