King Fahd University of Petroleum and Minerals
Department of Mathematical Sciences

Math 102 – Syllabus

2006-2007(062)
Prepared by Dr. Ibrahim Al-Rasasi (Coordinator)

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%, a common multiple choice exam. It will be on Sunday, March 25, 2007.
2. Exam II: 25%, a written exam. Each instructor will prepare an exam for his students. It will be on Sunday, May 6, 2007. The dates of the exams are selected by the College of Sciences to avoid any conflict with exams of other courses.
3. Class Work: 15%
    a. Quizzes, HW, … or any other activities determined by the instructor. Any quiz or test under class activity will be of written type and not of multiple choice type.
    b. At least two quizzes should be given before Exam I.
4. Final Exam: 35%, a comprehensive common multiple choice exam. It will be on Thursday, June 7, 2007 at 7:30 am.

Exam II and Class Work Average. Let X be the section average of Exam I out of 100. Then the section average of Exam II and Class Work must belong to the interval [X, X+10]

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: No makeup exam will be given under any circumstance. When a student misses Exam I for a legitimate reason (such as medical emergencies), his grade for this exam will be determined based on his Final Exam grade. Further, the student must provide an official excuse within one week of Exam I.

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
1	Feb. 17-21	5.1 5.2*	Areas and Distances The Definite Integral
2	Feb. 24-28	5.3 5.4	The Fundamental Theorem of Calculus Indefinite Integrals and the Net Change Theorem
3	March 3-7	5.5 5.6	The Substitution Rule The Logarithm Defined as an Integral
4	March 10-14	6.1 6.2	Areas between Curves Volumes
5	March 17-21	6.2 6.3	Volumes (Continued) Volumes by Cylindrical Shells
Exam I(25%): Sunday, March 25, 2007. Material: 5.1 → 6.2			
6	March 24-28	6.5 7.1	Average Value of a Function Integration by Parts
7	March 31-April 4	7.2 7.3	Trigonometric Integrals Trigonometric Substitution
8	April 7-11	7.4 7.5	Integration of Rational Functions by Partial Fractions + Exc. # 55 Strategy for Integration
Midterm Vacation: Thursday- Sunday, April 12- 15			
9	April 16-18	7.8	Improper Integrals (up to page 536 only)
10	April 21-25	8.1 8.2	Arc Length Area of a Surface of revolution
11	April 28-May 2	11.1 11.2	Sequences (up to page 708 only) Series
Exam II(25%): Sunday, May 6, 2007. Material: 6.3 → 8.2			
12	May 5-9	11.3 11.4	The Integral Test and Estimates of Sums The Comparison Tests
13	May 12-16	11.5 11.6	Alternating Series Absolute Convergence and the Ratio and Root Tests
14	May 19-23	11.7 11.8	Strategy for Testing Series Power Series
15	May 26-30	11.9 11.10**	Representations of Functions as Power Series Taylor and Maclaurin Series (Remainder Theorem is not included)
16	June 2-3		Review and/or Catching up
Final Exam (35%): Thursday, June 7, 2007. Comprehensive MCQ Exam			

* Students must know Formulas 4, 5, 6, 7 (p.383).
** Students must know the Maclaurin series listed in the Table of p.767.

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Homework and Recitation Problems

Section	Homework Problems	Recitation Problems	CAS*
5.1	3, 12, 18, 20	2, 21,22	9
5.2	1, 18, 23, 27, 34, 37, 52, 68	9, 28, 40, 48, 61	-
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	11(a), 4	3	-
6.1	4, 14, 18, 24, 29, 47	10, 26, 46	33
6.2	4, 12, 36, 43, 49, 56	6, 16, 35, 58	40
6.3	5, 11, 16, 23, 37	12, 19, 26, 38	36
6.5	4, 10, 13	8, 14	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, 10, 19, 27, 46, 54, 56	22, 37, 40, 50, 59	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	-
8.1	6, 8, 15, 31, 37	12, 20, 29	3
8.2	8, 11, 14, 16, 26	25, 29	24
11.1	6, 10, 20, 32, 39, 51, 56	12, 25, 35, 58	43
11.2	9, 12, 20, 26, 29, 33, 40, 45, 50	14, 23, 32, 44, 53	5
11.3	8, 10, 19, 24, 25, 30	12, 20, 28, 32	-
11.4	4, 12, 24, 27, 32, 35	6, 15, 28, 45	-
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	-

*** 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.