

King Fahd University of Petroleum and Minerals
 Department of Mathematics & Statistics
 Math 102 - Term 163 - Syllabus
 Coordinator: Jaafar Almutawa

Title	Calculus II
Credit	4-0-4
Textbook	Calculus: Early Transcendentals, 8 th Edition, Metric International Version, by James Stewart, Cengage Learning (2016)
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 Maclaurin series.
Learning Outcomes	Upon completion of this course, students should be able to: <ol style="list-style-type: none"> 1. Comprehend the concept of definite and indefinite integrals; 2. Comprehend the concept of Fundamental theorem of calculus; 3. Apply various techniques of integrations; 4. Comprehend the concept of finding area, arc length, surface and volume of solid of revolution; 5. Apply improper integrals and techniques to solve improper integrals; 6. Describe infinite sequence and series and different methods to check for convergence and divergence; 7. Comprehend the representation of a function as a power series; 8. Describe Taylor and Maclaurin series representation of functions.

Grading Policy	Exam I: A common multiple choice exam	Material: 5.1-6.2	Place: Building 54	25% (100 points)
		Date: Monday, July 24th	Time: 7:00-9:00 pm	
	Exam II: A common multiple choice exam	Material: 6.3 – 8.2	Place: Building 54	25% (100 points)
		Date: Tuesday, August 8th	Time: 7:00-9:00 pm	
	Final Exam: A common comprehensive multiple choice exam	Material: Comprehensive	Place: Building 54	35% (140 points)
		Date: Monday, August 21th	Time: 7:00- 10:00pm	
Online Homework	The online homework is provided through Blackboard.		(5% 20 points)	
Class Work	It is based on quizzes, class tests, or other class activities determined by the instructor. Any quiz or test under class activity should be of written type and not of multiple-choice type. The average \bar{x} (out of 40) of the class work of the sections taught by an instructor must be in the interval [28,30].		10% (40 points)	
Passing Grade	A student must score at least 50% (200 points) to pass the course.			

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 an existing formula, which depends on his performance in the non-missed 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.

King Fahd University of Petroleum and Minerals
 Department of Mathematics & Statistics
 Math 102 - Term 162 - Syllabus
 Coordinator: Jaafar Almutawa

Pacing Schedule	Week	Date (2017)	Section	Topics (27 sections)
	1	July 09-13	5.1	Areas and Distances
			5.2 ⁽¹⁾	The Definite Integral
			5.3	The Fundamental Theorem of Calculus
			5.4	Indefinite Integrals and the Net Change Theorem
	2	July 15-20	5.5	The Substitution Rule
			6.1	Areas between Curves
			6.2	Volumes
			6.3	Volumes by Cylindrical Shells
			6.5	Average Value of a Function
	3	July 23-27	7.1	Integration by Parts
			Exam I	Monday, July 24th; Time: 7:00-9:00 pm; Location: Building 54; Material [5.1 – 6.2]
			7.2	Trigonometric Integrals
			7.3	Trigonometric Substitution
			7.4	Integration of Rational Functions by Partial Fractions + Exercise 59
	4	July 30-Aug. 03	7.5	Strategy for Integration
			7.8	Improper Integrals (up to end of Example 8)
			8.1	Arc Length
			8.2	Area of a surface of revolution
			11.1	Sequences
	5	Aug. 06-Aug. 10	11.2	Series
			11.3 ⁽²⁾	The Integral Test and Estimates of Sums
			Exam II	Tuesday, August 8th; Time: 7:00-9:00 pm; Location: Building 54; Material [6.3 – 8.2]
			11.4	The Comparison Tests
			11.5	Alternating Series
			11.6	Absolute Convergence and the Ratio and Root Tests
	6	Aug. 13-Aug. 17	11.7	Strategy for Testing Series
			11.8	Power Series
11.9			Representation of Functions as Power Series	
11.10 ⁽³⁾			Taylor and Maclaurin Series	
7	Aug. 13		Review	
Final Exam (Comprehensive, MCQ): Monday, August 21, 2017, Building 54, 7:00-10:00 pm				

Notes:(1): Students should know Formulas 5, 6, and 7 on page 374.

(2): Students should know the “Remainder Estimate for the Integral Test”. Example 5a and Example 6 are excluded.

(3): Students should know the Maclaurin Series listed in the table on page 762.

King Fahd University of Petroleum and Minerals
 Department of Mathematics & Statistics
 Math 102 - Term 162 - Syllabus
 Coordinator: Jaafar Almutawa

Recitation and Suggested Homework Problems	Sec.	Suggested Homework Problems	Recitation Problems	CAS*
	5.1	2, 14, 19, 22	3, 20, 23	11
	5.2	4, 6, 18, 22, 30, 33, 37, 44, 47, 51, 58, 61, 63	1, 17, 23, 40, 42, 48, 52, 57	13, 31
	5.3	2(a,b), 8, 16, 29, 43, 46, 56, 63, 70, 72, 75	13, 44, 48, 57, 74	--
	5.4	14, 18, 38, 46, 60	3, 13, 31, 40, 62	47
	5.5	19, 23, 38, 39, 59, 62, 86, 90, 91	28, 43, 69, 87	76
	6.1	13, 17, 22, 23, 31, 55	4, 12, 52(b)	36
	6.2	4, 16, 17, 33, 42, 49, 54	12, 34, 39, 56	37
	6.3	4, 12, 19, 22, 38, 45	11, 16, 26, 37, 47	36
	6.5	6, 9, 14	4, 13	12
	7.1	8, 12, 18, 30, 39, 42, 54, 62	11, 21, 22, 26, 33, 61	44
	7.2	2, 10, 27, 41, 50, 58, 64	15, 26, 34, 43	51
	7.3	8, 16, 21, 24, 28, 41	11, 27, 30, 34	36
	7.4	6, 16, 20, 28, 36, 45, 62	15, 24, 30, 47, 61	55
	7.5	6, 22, 23, 32, 52, 67, 73	39, 71, 80	--
	7.8	8, 22, 27, 33, 40, 57, 58	1, 2, 7, 30, 34, 59	--
	8.1	8, 14, 18, 31, 41	10, 12, 33	21
	8.2	10, 11, 14, 15, 26	25, 29	24
	11.1	14, 30, 42, 55, 70, 76	37, 44, 74	58
	11.2	15, 20, 25, 30, 41, 44, 52, 62, 67	22, 35, 46, 59, 74	12
	11.3	6, 10, 20, 30, 40	8, 12, 19, 32	--
	11.4	8, 12, 19, 32	6, 13, 27, 45	--
	11.5	6, 10, 12, 23, 34	5, 15, 24, 32	22
	11.6	5, 11, 18, 21, 28, 32	4, 13, 16, 23, 30, 37	--
	11.7	5, 8, 17, 18, 20, 32, 38	14, 23, 24, 31	--
	11.8	8, 17, 24, 28, 30	9, 20, 27, 29	--
	11.9	4, 9, 14, 16, 28, 40(a,b)	8, 17, 32, 40(c)	--
	11.10	12, 20, 33, 49, 54, 60, 67	17, 32, 56, 59, 68	39
*: 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 problem, 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.