Title	Calculus II
Credit	4-0-4
Textbook	Calculus: Early Transcendentals, 8th 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:
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: B-57**	25% (100 points)
	Date: 09 October, 2018	**Time: 6:00-8:00 pm**	
Exam II A common multiple choice exam	**Material: 6.3-7.8**	**Place: B-57**	25% (100 points)
	Date: 13 November,2018	**Time: 6:00-8:00 pm**	
Final Exam A common comprehensive multiple choice exam	**Material:** Comprehensive	**Place:**	35% (140 points)
	Date:	**Time:**	
Online Homework	The online homework is provided through **Blackboard.**		5% (20 points)
Classwork	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 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.

Pacing Schedule

Week	Date (2017)	Section	Topics (27 sections)
1	Sept. 2 – 6	5.1	Areas and Distances
		5.2[(1)]	The Definite Integral
2	Sept. 9 – 13	5.2	The Definite Integral
		5.3	The Fundamental Theorem of Calculus
3	Sept. 16 – 20	5.4	Indefinite Integrals and the Net Change Theorem
		5.5	The Substitution Rule
4	Sept.24 – 27	6.1	Areas between Curves
5	Sept.29–Oct.4	6.2	Volumes
		6.3	Volumes by Cylindrical Shells
6	Oct. 7 – 11	6.5	Average Value of a Function
		7.1	Integration by Parts
		Exam I	Tuesday, 9 Oct. 2018; Time: 6:00-8:00 pm; Location: B-57; Material [5.1 – 6.2]
7	Oct. 14 – 18	7.2	Trigonometric Integrals
		7.3	Trigonometric Substitution
8	Oct. 21–25	7.4	Integration of Rational Functions by Partial Fractions + **Exercise 59**
		7.5	Strategy for Integration
9	Oct.28–Nov.1	7.8	Improper Integrals (up to end of Example 8)
		8.1	Arc Length
10	Nov. 4 – 8	8.2	Area of a surface of revolution
		11.1	Sequences
11	Nov. 11 – 15	11.2	Series
		Exam II	Tuesday, 13 Nov. 2018; Time: 6:00-8:00 pm; Location: B-57; Material [6.3 – 7.8]
12	Nov. 18 – 22	11.3[(2)]	The Integral Test and Estimates of Sums
		11.4	The Comparison Tests
13	Nov.25 – 29	11.5	Alternating Series
		11.6	Absolute Convergence and the Ratio and Root Tests
14	Dec. 2 – 6	11.7	Strategy for Testing Series
		11.8	Power Series
15	Dec. 9 – 13	11.9	Representation of Functions as Power Series
		11.10[(3)]	Taylor and Maclaurin Series
Final Exam (Comprehensive, MCQ)			

Notes:
(1) Students must know Formulas 5, 6, and 7 on page 381.
(2) The "Remainder Estimate for the Integral Test". Example 5a and Example 6 are excluded.
(3) Students must know the Maclaurin Series listed in Table 1 on page 768.

	Sec	Suggested Homework Problems	Recitation Problems	CAS*
Recitation and Suggested Homework Problems	**5.1**	2, 7, 14, 21, 24	3, 23, 25	11
	5.2	4, 6, 18, 22, 30, 33, 37, 47, 51, 58, 61, 63,74	1, 9, 17, 23, 34, 40, 42, 48, 52, 57, 73	13, 31
	5.3	2(a,b), 8, 16, 29, 43, 46, 56, 63, 70, 75, 83	13, 44, 48, 57, 74, 76	-
	5.4	14, 18, 38, 46, 60	3, 13, 31, 40, 62	47
	5.5	19, 23, 38, 39, 59, 62, 88, 91	28, 43, 69, 73, 87, 92	76
	6.1	13, 17, 22, 23, 33	4, 12, 29, 35	30
	6.2	4, 16, 17, 33, 42, 49, 54, 58	12, 34, 39, 56, 63	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, 66	11, 21, 22, 33, 40, 61	44
	7.2	2, 10, 27, 41, 50, 58, 64	15, 34, 43, 63	51
	7.3	8, 16, 21, 24, 28, 41	11, 27, 30, 34, 43	36
	7.4	6, 16, 20, 28, 36, 45, 49, 53, 62	15, 24, 30, 47, 54, 61	55
	7.5	6, 22, 23, 32, 52, 67, 73	39, 71, 80, 84	-
	7.8	8, 22, 27, 33, 40, 41, 57, 58	1, 2, 7, 30, 34, 42, 59	-
	8.1	8, 14, 18, 41, 45	10, 12, 19	21
	8.2	10, 11, 14, 15, 27	16, 28, 33, 35	24
	11.1	14, 30, 42, 55, 59, 76	37, 44, 62, 74	58
	11.2	15, 20, 25, 30, 41, 44, 52, 62, 67	22, 35, 46, 59, 75	12
	11.3	6, 10, 20, 30, 46	8, 12, 19, 32	-
	11.4	4, 10, 24, 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, 39	4, 13, 16, 23, 30, 37, 40	-
	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, 35, 41, 54, 63, 67, 73, 74	17, 32, 40, 42, 56, 68, 79	46

*: 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 mathematical skills and achieve better grades:

1. First, consult your instructor immediately whenever you need help.
2. Take notes during classes and study your notes and textbook on the same day.
3. Do each homework assignment immediately.
4. Master the examples and homework problems of each section plus the recitation problems.
5. Try solving the recitation problems before coming to class.
6. When practicing some problems, Time yourself to finish your solution before reading answers. That is, adapt yourself to the exam environment.
7. Solve some of the review problems at the end of each chapter.
8. Lastly and most importantly, study in a suitable place like the Library.