

**Department of Mathematics**  
**King Abdulaziz University**  
**Syllabus Math 206**  
 (Calculus-II for Engineers)

**Spring Semester: 2015-16 (1436-37)**

**Textbook: CALCULUS**  
**Early Transcendental, Seventh Edition (2012)**  
**Author: James Stewart**

<b>Chapter Title</b>	<b>Section Title</b>	<b>Examples</b>	<b>Exercises</b>	<b>HW</b>
<b>Chapter 5</b> <b>Integrals</b>	<b>5.1</b> Areas and Distances	1,2,3	21,23	19,22
	<b>5.2</b> The Definite Integral	1,4,6,7,8	17,47,49	18,29
	<b>5.3</b> The Fundamental Theorem of Calculus	2,4-9	7,11,13,17,19,31,35,55	29,37,57
	<b>5.4</b> Indefinite Integrals and the Net Change Theorem	1-5	9,13,15,17,33,35,37	11,25,27
	<b>5.5</b> The Substitution Rule	1-11	11,17,21,23,30,45,55,59	5,23,37,41,69
<b>Chapter 6</b> <b>Applications of Integration</b>	<b>6.1</b> Areas Between Curves	1,2,5,6	1,7	1-11 (odd)
	<b>6.2</b> Volumes	2,3,4,5,6	1,3,11,15	5-11
	<b>6.3</b> Volumes by Cylindrical Shells	1,2,3,4	3,5,7	3-7 (odd) 15-19 (odd)

<b>Chapter Title</b>	<b>Section Title</b>	<b>Examples</b>	<b>Exercises</b>	<b>HW</b>
<b>Chapter 7</b> <b>Techniques of Integration</b>	<b>7.1</b> Integration by Parts	1-5	3,9,14,15,25	5,13,31,41
	<b>7.2</b> Trigonometric Integrals	1-9	1,7,11,21,23,41,43	3,7,11,17,31,47
	<b>7.3</b> Trigonometric Substitution	1,3,4,5,7	1,3,9,11	11,17,19,23
	<b>7.4</b> Integration of Rational function by Partial Fractions	1,2,3,5,7,9	9,19,23,47,51	1-3, 7,11, 21,25,31
	<b>7.5</b> Strategy for Integration	1-5	-	1-61 (odd)
	<b>7.6</b> Integration Using Tables and Computer Algebra System	1-4	-	1-12 (odd)
	<b>7.8</b> Improper Integrals	1-10	13,14,25,33	7,11,15,21,35

<b>Chapter Title</b>	<b>Section Title</b>	<b>Examples</b>	<b>Exercises</b>	<b>HW</b>
<b>Chapter 8</b> <b>Further Applications of Integration</b>	<b>8.1</b> Arc Length	1-4	7,9,13,15	7,11,12,15,17
	<b>8.2</b> Area of a Surface of Revolution	1-2	5,11,13	7,9,15
	<b>8.3</b> Applications to Physics and Engineering	3-6	23,26,27,29	25,28, 33,35
<b>Chapter 10</b> <b>Parametric Equations and Polar Coordinates</b>	<b>10.1</b> Curves Defined by Parametric Equations	1,2,3,5	5,7,9,13	11,15,17
	<b>10.2</b> Calculus with Parametric Curves	1,2,3,4,5,6	3,5,11,13,31,33,41,43	9,17
	<b>10.3</b> Polar Coordinates	1,2,3,4,5,6,7,9	17,22,25,55	1,3,5,15,17
	<b>10.4</b> Areas and Arc Length in Polar Coordinates	1	1,3,9,23	2,17,31,47
	<b>10.5</b> Conic Sections	1,2,3,4,5	1,3,11,13,19,21	5,15,31,37,43
	<b>10.6</b> Conic Sections in Polar Coordinates.	1,2	1,2,3,9,13	5,15

Chapter Title	Section Title	Examples	Exercises	HW
<b>Chapter 11</b> <b>Infinite Sequences and Series</b>	<b>11.1</b> Sequences	1,2, 4-13	5,7,17,21,25,41,43,45	3,13,15,19,27,33
	<b>11.2</b> Series	1-10	13,23,25,27,31,35	9,24,26,28
	<b>11.3</b> The Integral Test and Estimate of Sums	1-4	3,11,13,17,21	5,12,22
	<b>11.4</b> The Comparison Tests	1-4	5,9,14,23,31	4,18,24
	<b>11.5</b> Alternating Series	1-3	4,5,7,9,11	3,8,10
	<b>11.6</b> Absolute Convergence and the Ratio and Root Tests.	1-6	4,5,14,18,21,23	3,8,20,22
	<b>11.7</b> Strategy for Testing Series	1-6	3,11,13	1-28(odd)
	<b>11.8</b> Power Series	1-5	7,9,12,17,19	3,5,8,18
	<b>11.9</b> Representations of Functions as Power Series	1-3,5-7	5,6,7,13,14(a,b),15	3,4,9
	<b>11.10</b> Taylor and Maclaurin Series	1,3-6,9	5,15,16,17,19,25,45(a)	6,7,26

**Instructions:**

1. All the mentioned examples and exercises will be solved in the class by the instructor.
2. Homework must be submitted to the class teacher in the beginning of each week.
3. **Marks Distribution:** Exam. I (30 marks), Exam. II (30 marks), Final Exam. (40 marks).

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