

Department of Mathematics
King Abdulaziz University
Syllabus Math 207
 (Calculus-III for Engineers)

Second Semester: 2015-2016 --1436-1437

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

Chapter Title	Section Title	Examples	Exercises	HW
Chapter 12 Vectors and the Geometry of Space	12.1 Three-Dimensional Coordinate Systems	1,2,4,6	11,15,17	7,8,16,23
	12.2 Vectors	1-6	9,15,21,25	7-16,17,18,20,22
	12.3 The Dot Product	1-6	23,41	1,2,3-10,15-20,35-40
	12.4 The Cross Product	1-5	33	1-6,29-32,36
	12.5 Equations of Lines and Planes	1,2,4-7,9	24,31,71	2-5,20,23-28,31,35, 43-45
	12.6 Cylinders and Quadric Surfaces	1-3, 4,6		

Chapter Title	Section Title	Examples	Exercises	HW
Chapter 13 Vector Functions	13.1 Vector Functions and Space Curves	1,2,4		1,3,4,6,15
	13.2 Derivatives and Integrals of Vector Functions	1,2,4,5	9,35	9-12,17,23,24,33-37
	13.3 Arc Length and Curvature	1,3,4,5,6	1,19	1,2,5,9,21-25,43,44
	13.4 Motion In Space: Velocity and Acceleration	1-3,7	9,37	11,13,39,41

Chapter Title	Section Title	Examples	Exercises	HW
Chapter 14 Partial Derivatives	14.1 Functions of Several Variables	1,4,6,8	9,13,17	10,11,15,19
	14.2 Limits and Continuity	1-8	5,9,13,29,33	7,11,15,17
	14.3 Partial Derivatives	1-9	15,21,59	17,19,55,61
	14.4 Tangent Planes and Linear Approximation	1,2,4	1,3,,25	3,5,6,27
	14.5 The Chain Rule	1,3,5,8,9	1,7,21,27,31	3,5,30,33
	14.6 Directional Derivatives and Gradient Vector	2-6,8	9,12,25,43	7,11,21,23,41
	14.7 Maximum and Minimum Values	3	5,7	9,11
	14.8 Lagrange Multipliers	2,3	3,7	5,9

Chapter Title	Section Title	Examples	Exercises	HW
Chapter 15 Multiple Integrals	15.1 Double Integrals over Rectangles	1-3	1,2	3
	15.2 Iterated Integrals	1-5	3,9,17,25	5,7,13,15,20
	15.3 Double Integrals over General Regions	1-5	1,5,14,17,49,52	3,9,13
	15.4 Double Integrals in Polar Coordinates	1-4	5,7,11,18,29,	6,9,17,23,31
	15.5 Applications of Double Integrals	2-4	5,8	3,10
	15.6 Surface Area	1,2	3,7,9	1,2
	15.7 Triple Integrals	1-5	5,8,11,15,19,29	3,9,16
	15.8 Triple Integrals in Cylindrical Coordinates	1-4	9(a),10(a),17,29	9(b),10(b),18,30
	15.9 Triple Integrals in Spherical Coordinates	1-4	9(a),21,35	9(b),22,23
	15.10 Change of Variables in Multiple Integrals	1,2,3	5,17	1,3,15

Chapter Title	Section Title	Examples	Exercises	HW
Chapter 16 Vector Calculus	16.1 Vector fields	1,2,6	23,26	21,25
	16.2 Line Integrals	1,2,4-8	3,10,21,29(a)	1,11,19,30
	16.3 The Fundamental Theorem For Line Integrals	2-5	5,7,12,15	3,4,13,17
	16.4 Green's Theorem	1-4	7,8,9	1,3,5
	16.5 Curl And Divergence	1-4	1,4,13,15	2,3,4,14
	16.6 Parametric Surfaces And Their Areas	4-11	33,39,45,46	34,41
	16.7 Surface Integrals	1-4	9,23	10,25
	16.8 Stokes Theorem	1,2	3,7	2,9
	16.9 The Divergence Theorem	1,2	5,7	3,11

Instructions:

All the mentioned examples will be solved in the class by the instructor

All the mentioned exercises will be solved in the tutorial class

Homework must be submitted to the tutorial class teacher in the beginning of each week

Marks Distribution : Exam I (25 marks), Exam II (25 marks), Final Exam (35 marks), Section (15 marks)

Dr. Lamia Alqahtani

Coordinator

Faculty of Science, Office #3156.