

**King Fahd University of Petroleum and Minerals**  
**Department of Mathematics and Statistics**  
**SYLLABUS MATH 302**  
**Semester 113 (Summer 2012) Class: SUMTW. 10:30 – 11:30. Bldg 59, 1011.**  
**Instructor: F.D. Zaman**

Course		Math 302		
Title		Engineering Mathematics		
Textbook		Advanced Engineering Mathematics by Zill, Wright and Cullen (Fourth Edition, 2011).		
Bulletin Description		Vector analysis including vector fields, gradient, divergence, curl, line and surface integrals, Gauss' and Stokes' theorems. Introduction to complex variables. Vector spaces and subspaces. Linear independence, basis and dimension. Solution of linear Equations . Orthogonality. Eigenvalues and eigenvectors. Applications to systems of differential equations.		
Week	Date	Sec.	Material	Homework
1	June 09 – 13	7.6	The Vector Spaces ( $R^n$ only )	1, 3, 22, 23, 26
		8.2	Sytem of Linear Algebraic Equations	1, 7, 12
		8.3	Rank of a Matrix	8, 9, 10, 14
2	June 16 – 20	8.6	Inverse of a Matrix (Using Theorem	1, 2, 19, 30, 52
		8.8	8.6.4)	1, 8, 16
		8.10	Eigenvalue Problem	5, 8, 9, 16
		8.12	Orthogonal Matrices Diagonalization	2, 14, 28
3	June 23 – 27	8.12	Diagonalization (Continued)	1, 2, 4, 14, 28
		9.1	Vector Functions	2, 15, 18, 36
		9.5	Directional Derivatives	6, 8, 14, 23
		9.6	Tangent Plane and Normal Lines	6, 16, 34, 38
		9.7	Curl and Divergence	8, 10, 26, 30
<b>First Major Exam Saturday, June 30, 2012</b>				
4	June 30 – July 04	9.8	Line Integral	6, 14, 23, 30
		9.9	Independence of Path	2, 12, 15, 22, 25
		9.12	Green's Theorem	1, 2, 17, 20, 29
		9.13	Surface Integrals	1, 2, 6, 18
5	July 07 – 11	9.14	Stokes' Theorem	1, 2, 5, 6
		9.16	Divergence Theorem	2, 4, 11, 14
		17.1	Complex Numbers	2, 18, 30, 34
		17.2	Powers and Roots	6, 16, 33, 34
		17.4	Functions of a Complex Variable	8, 10, 14, 21, 32
6	July 14 – 18	17.5	Cauchy Riemann Equations	1, 2, 6, 22
		17.6	Exponential and Log. Function	13, 28, 32, 47
		17.7	Trigonometric and Hyperbolic Functions	8, 10, 16
		18.1	Contour Integrals	3, 7, 9
		18.2	Cauchy- Goursat Theorem	2, 5, 15
<b>Second Major Exam Saturday, July 21, 2010</b>				
7	July 21 – 25	18.4	Cauchy Integral Formula	4, 10, 14
		19.2	Taylor Series	2, 4
		19.3	Laurent Series	2, 6, 21, 26
		19.4	Zeros and Poles	2, 4, 6, 10, 16
		19.5	Residue Theorem	2, 6, 8 22
8	July 28 – 30	19.6	Evaluation of Real Integrals	11, 12, 32
<b>Final Exam Comprehensive Wednesday August 01, 2012 at 09:00 PM</b>				

**Important Dates**

June 16	Last day for dropping course(s) without permanent record
July 04	Last day for dropping course(s) with grade of "W" thru <a href="http://regweb.kfupm.edu.sa">http://regweb.kfupm.edu.sa</a>
July 11	Last day for withdrawal from all courses with grade of "W" thru the Registrar Office
July 25	Last day for withdrawal from all courses with grade of "WP/WF" thru the Registrar Office

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**webpage** <http://faculty.kfupm.edu.sa/math/fzaman/>    **Office Hours:** 11:35 – 12:35 PM  
**Grading Policy:** Two Majors each 25%; Quizzes 10%; HW 3%; Attend. 2 %; Final 35%