King Fahd University of Petroleum and Minerals  
Department of Mathematics and Statistics  
SYLLABUS MATH 302  
Semester 113 (Summer 2012)  
Instructor: F.D. Zaman

| Course | Math 302  
|--------|------------|
| Title | Engineering Mathematics  
| Week | Date  
|-------|------------------|
| 1 | June 09 – 13  
| 7.6 | The Vector Spaces \( (\mathbb{R}^n) \)  
| 8.2 | System of Linear Algebraic Equations  
| 8.3 | Rank of a Matrix  
| Homework | 1, 3, 22, 23, 26  
| | 1, 7, 12  
| | 8, 9, 10, 14  
| 2 | June 16 – 20  
| 8.6 | Inverse of a Matrix (Using Theorem 8.6.4)  
| 8.8 | Eigenvalue Problem  
| 8.10 | Orthogonal Matrices  
| 8.12 | Diagonalization  
| Homework | 1, 2, 19, 30, 52  
| | 1, 8, 16  
| | 5, 8, 9, 16  
| | 2, 14, 28  
| 3 | June 23 – 27  
| 8.12 | Diagonalization (Continued)  
| 9.1 | Vector Functions  
| 9.5 | Directional Derivatives  
| 9.6 | Tangent Plane and Normal Lines  
| 9.7 | Curl and Divergence  
| Homework | 1, 2, 4, 14, 28  
| | 2, 15, 18, 36  
| | 6, 8, 14, 23  
| | 6, 16, 34, 38  
| | 8, 10, 26, 30  
| 4 | June 30 – July 04  
| 9.8 | Line Integral  
| 9.9 | Independence of Path  
| 9.12 | Green’s Theorem  
| 9.13 | Surface Integrals  
| Homework | 6, 14, 23, 30  
| | 2, 12, 15, 22, 25  
| | 1, 2, 17, 20, 29  
| | 1, 2, 6, 18  
| 5 | July 07 – 11  
| 9.14 | Stokes’ Theorem  
| 9.16 | Divergence Theorem  
| 17.1 | Complex Numbers  
| 17.2 | Powers and Roots  
| 17.4 | Functions of a Complex Variable  
| Homework | 1, 2, 5, 6  
| | 2, 4, 11, 14  
| | 2, 18, 30, 34  
| | 6, 16, 33, 34  
| | 8, 10, 14, 21, 32  
| 6 | July 14 – 18  
| 17.5 | Cauchy Riemann Equations  
| 17.6 | Exponential and Log. Function  
| 17.7 | Trigonometric and Hyperbolic Functions  
| 18.1 | Contour Integrals  
| 18.2 | Cauchy- Goursat Theorem  
| Homework | 1, 2, 6, 22  
| | 13, 28, 32, 47  
| | 8, 10, 16  
| | 3, 7, 9  
| | 2, 5, 15  
| 7 | July 21 – 25  
| 18.4 | Cauchy Integral Formula  
| 19.2 | Taylor Series  
| 19.3 | Laurent Series  
| 19.4 | Zeros and Poles  
| 19.5 | Residue Theorem  
| Homework | 4, 10, 14  
| | 2, 4  
| | 2, 6, 21, 26  
| | 2, 4, 6, 10, 16  
| | 2, 6, 8 22  
| 8 | July 28 – 30  
| 19.6 | Evaluation of Real Integrals  
| Homework | 11, 12, 32  

**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 [http://regweb.kfupm.edu.sa](http://regweb.kfupm.edu.sa)
- 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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**Office Hours:** 11:35 – 12:35 PM

**Grading Policy:** Two Majors each 25%; Quizzes 10%; HW 3%; Attend. 2%; Final 35%