

King Fahd University of Petroleum and Minerals
 Department of Mathematical Sciences
SYLLABUS
 Semester I, 2006-2007 (061)
 (Dr. A. Lyaghfour)

Course #: Math 533
Title: Complex Analysis
Textbook: Complex Analysis by Lars V. Ahlfors (Third Edition)

Objective: This course aims to strengthen the introductory concepts of complex analysis taken in the undergraduate course. By the end of this course, the student should have well understood the concepts of Analyticity of functions, complex integration, and get an idea about the conformal mappings.

Wk	Date	Chapters	Material
1	Sep. 10-12	Chapter 1	The Algebra of Complex Numbers and Representations
2	Sep. 17-19	Chapter 2	The Spherical Representation Concept of Analytic Functions: Limits – Continuity – Analyticity – The Cauchy-Riemann Equations
3	Sep. 24-26		The Exponential, Trigonometric and Logarithmic Functions.
4	Oct. 1-3	Chapter 4	Fundamental Theorems
5	Oct. 8-10		Cauchy's Integral Formula
6	Oct. 29-31		Local Properties of Analytical Functions
7	Nov. 5-7		General Form of Cauchy's Theorem
8	Nov. 12-14		Calculus of Residues
9	Nov. 19-21		Harmonic Functions
10	Nov. 26-28	Chapter 5	Power Series Expansions
11	Dec. 3-5		Partial Fraction and Factorization
12-15	Dec. 10- Jan. 16	Chapter 6	Conformal Mapping. Dirichlet's Problem