

King Fahd University of Petroleum and Minerals

Department of Mathematics & Statistics

Math 445 Syllabus, Term 192

Professor: Dr. J. Joo

The Course Code and Name: Math 445, Introduction to complex variables

The Course Credit Hours: 3-0-3

The Course Objective: The objective of the course is to introduce students to the concepts and fundamental properties of complex analytic functions and applications

Text: Fundamentals of Complex Analysis, authored by E. B. Saff and A. D. Snider, 3rd ed.

The Course Content: Complex numbers, Analytic functions, Harmonic functions, Contour integrals and Cauchy's theorem, Cauchy integral formula, Power series, Residue theorem.

The Course Prerequisite: Series of Calculus (Math 101, 102, 201, 202 (1st order ODE)), Part of Math 333 (line integrals, Green's theorem for vector fields)

The Course Learning Outcomes: Students are expected to learn differences between real and complex differentiations, Properties of analytic functions, Computation of harmonic conjugates, Contour integrals and Residue theorem, and Applications to the evaluation of real integral.

The Course Grading Policy:

HW 30% (will be assigned through Blackboard), Midterm Exam 30%, Final Exam 40%.