MATH 450 Advanced Mathematics for Engineers I Winter 2007

Section 1, TTh, 8.30 - 10.30 a.m., GGBL 2315

Instructor: Jorge Balbás, 4851 EH, (734) 763 5725, jbalbas@umich.edu

Office Hours:

TTh 10.30 - 11.30 at CSE 2705
W 11.00 - 12.00 at East Hall 4851

Course Website: www.math.lsa.umich.edu/∼jbalbas/math450.html

Text: "Advanced Engineering Mathematics", by Michael D. Greenberg, 2nd edition, Prentice Hall

Prerequisite: MATH 215, 255, or 285, and MATH 216, 256, 286, or 316.

Credit: 4 credits. **No credit after Math 454, and restricted credit after Math 350!!!**

Course Description and Contents:

Math 450 is an introduction to some of the main mathematical techniques in engineering and physics. It is intended to provide some background for courses in those disciplines with a mathematical requirement that goes beyond calculus. Model problems in mathematical physics are studied in detail. Applications are emphasized throughout.

Topics covered include: Fourier series and integrals; the classical partial differential equations (the heat, wave and Laplaces equations) solved by separation of variables; an introduction to complex variables and conformal mapping with applications to potential theory. A review of series and series solutions of ODEs will be included as needed. A variety of basic diffusion, oscillation and fluid flow problems will be discussed.

Homework:

Homework will be assigned and collected in class each week on Thursday. Students may work together in groups and discuss the homework problems with each other, but each student should write up and submit their own solutions. The homework should be written neatly. Please staple the sheets together and in order.

Grading – Please check your schedule for conflicts with exams ASAP

Homework	= 35%	
Midterm exam	= 30%	Thursday, February 22, 8.30 - 10.30 a.m.
Final exam	= 35%	Monday, April 23, 10.30 a.m. - 12.30 p.m.

Remaks:

1. Questions in class are encouraged – if something is unclear, ask a question.
2. Please verify your schedule and confirm possible conflicts with the examination schedule, don't wait until the week of the midterm (or the week before) to ask for an alternate exam.