Spring 2016

AE 5332-001 and 002 – Engineering Analysis

Instructor: Dr. Dora E. Musielak

The main objective of this course is to study and solve partial differential equations and complex variable theory for application to modeling of physical engineering systems.

Prerequisite: Undergraduate degree in engineering, physics, or mathematics.

Text Book: Advanced Engineering Mathematics, M. D. Greenberg, Prentice-Hall.

Course Overview:

Part IV: Fourier Methods and Partial Differential Equations

- Chapter 17 - Sturm-Liouville problems
- Chapter 18 - Diffusion equations
- Chapter 19 - Wave equation
- Chapter 20 - Laplace equations

Part V: Complex Variable Theory

- Chapter 21 - Functions of Complex Variable
- Chapter 22 - Conformal Mapping
- Chapter 23 - The Complex Integral Calculus
- Chapter 24 - Taylor Series, Laurent Series and the Residue Theorem

Class Time: M-W 4:00 p.m. – 5:20 p.m.
Class Room: WH 404
Office Hours: 2:30 p.m. - 3:30 p.m., Monday and Wednesday, or by appointment
Professor Office: 132B Science Hall
TA: Sarvi Ghaffari – sarvenaz.ghaffari@mavs.uta.edu
TA Office Hours: Tuesday and Thursday, 9 :00 am to 10 am, WH 323H

EXAMINATIONS: (Tentative dates - Any change to dates below will be announced in class)

- Two Midterm Exams: February 22, and April 4
- One Final Exam: May 2016

Final Exam: The final exam is comprehensive (will cover all course material) and mandatory.

MAKE-UP EXAMINATION POLICY:

If you miss a midterm exam for an authorized reason, which can be verified with official documentation, please **contact me immediately via email:** dmusielak@uta.edu. I will consider the circumstances and determine how to make-up the test.

NO TEXT MESSAGING, NO TWEETS, NO PHOTO-TAKING DURING CLASS!

Class Rules:

- During the lecture time, all attention should be focused on the instruction/lecture.
- Please turn off your ipods/ipads, cell-phones/other e-communication devices. If you need to make or take a call, please step outside the classroom.
- No texting/no tweeting, and no photo-taking during the lecture.
- Professional ethical behavior and mutual respect are expected of all during class.
- During exams, students are not allowed to talk or communicate in any way with each other. Please refer to the UTA Statement of Ethics, Professionalism, and Conduct.

Grading : Final course grade = Mid-Term Exam 1 (30%) + Mid-Term Exam 2 (29%) + Homework (11%) + Final Exam (30%).

I will not curve the grades! Letter grades will be assigned in the ranges below:

A: 90 – 100
B: 80 – 89
C: 70 – 79
D: 60 – 69
F: 0 – 59

Homework: I will assign problems every Wednesday and require that you solve and submit them the following Wednesday. No assignment will be accepted after the due date. This is a very important activity outside the classroom to help you learn the concepts taught in class and to prepare for exams. If you need hints for challenging problems, email me and/or ask the TA.

Attendance: I strongly encourage you to be present in *all* classes. I expect all graduate students to be active participants in learning, i.e., *ask and answer questions*! Please arrive on time for class. Late arrivals are distracting and disrespectful to your classmates and to me.

Important Remarks

A university graduate classroom provides an ambience that is significantly different than the ambience found in undergraduate classes. In graduate courses, the burden of the educational effort is on the shoulders of the student —the instructor conveys information, guides students and answers their questions, but it is the *student's responsibility to become an active learner*.

Also, the amount of outside work (i.e., homework, research) required for a graduate class will be significant. As a minimum, for every hour (i.e., standard 50 minute period) spent in the classroom, a graduate student should plan on spending at least two hours outside the classroom learning the subject matter of the course through additional reading, and especially solving the problems in the weekly assignments.

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Engineers are smart and exhibit the highest standards of honesty and integrity. Be proud that you are one!