EEL 3105  Analytical Methods in Electrical Engineering

1. Catalog Description – (3 credits) Application of calculus to develop the analytical tools used in electrical engineering. Real and complex functions; linear spaces, eigenvalue problem; linear differential operators; approximation, curve-fitting, interpolation

2. Pre-requisites - MAC 2313 ; Co-requisites - MAP 2302 and EEL 3135

3. Course Objectives - To introduce the analytical and mathematical fundamentals of the electrical and computer engineering curriculum. The course prepares students for junior and senior level courses in the areas of control systems, communications, and signal processing. This course also features MATLAB as a common analysis and design tool that is used in many fields of engineering.

4. Contribution of course to meeting the professional component (ABET only – undergraduate courses) - 3 credits of Engineering Science

5. Relationship of course to program outcomes: Skills student will develop in this course (ABET only undergraduate courses) - EE2, EE3, a, e

6. Instructor – Dr. Haniph Latchman
   a. Office location: 463 NEB
   b. Telephone: 392-4950
   c. E-mail address: latchman@list.ufl.edu
   d. Class Web site: www.list.ufl.edu
   e. Office hours: T R 3rd

7. Teaching Assistant – Jason Novak
   a. Office location: 222 NEB
   b. Telephone: 727-243-3989
   c. E-mail address: janovak@ufl.edu
   d. Office hours: M W F 12:15 pm-1:45 pm

Teaching Assistant – Devam Mayank
   a. Office location: T 3-5pm W 3-4 pm
   b. Telephone: 412-230-6768
   c. E-mail address: devam@ufl.edu
   d. Office hours: 222 NEB

8. Meeting Times – T 7th, R 7th – 8th

9. Class/laboratory schedule - 3 class periods consisting of 50 minutes each

10. Meeting Location – 202 NEB
11. Material and Supply Fees - None

12. Textbooks and Software Required -
   a. Title: Advanced Engineering Mathematics with Matlab
   b. Author: Harman, Dabney and Richert
   c. Publication date and edition: Brooks & Cole, 2<sup>nd</sup> Ed
   d. ISBN number: 0-534-37164-7

13. Recommended Reading - None

14. Course Outline –
   • Introduction to Control Communications and DSP and MATLAB
   • Complex numbers, vectors, inner products
   • Matrices and linear algebra
   • Eigenvalues and eigenvectors
   • Polynomials, rational functions, and partial fraction decompositions.
   • Complex valued functions of a complex variable.
   • Linear differential equations
   • Approximation and interpolation of functions

15. Attendance and Expectations – Class attendance is not required but all students are responsible for all material and information disseminated during class sessions as such information may not be posted on websites or otherwise. Cell phone use (including texting) is prohibited in class.

   Homework and other assignments will be given periodically and will be due within the first 5 minutes of class on the designated due-date. Use regular-size paper, staple the sheets together, fold and put your name and homework number at the top. Late homework will be accepted only in exceptional circumstances which need to be discussed with the Instructor for approval. Homework assignments will not be given over the phone. Graded homework will be returned in class or during office hours.

   The midterm test and the final examination will be given in class and dates for these will be announced in class. The final examination will be comprehensive, but with emphasis on material covered since the midterm exam. All tests and examinations will be closed book but students will be allowed one sheet of letter-sized paper written (in their own original handwriting) on one side for the midterm test and on both sides for the final examination.

16. Grading – midterm test 35%, final exam 45%, assignments
17. Grading Scale –
90-100 A
85.9-89.9 A-
81.8-85.8 B+
77.7-81.7 B
73.6-77.6 B-
68.5-72.5 C+
64.4-68.4 C
60.3-64.3 C-
56.2-60.2 D+
52.1-56.1 D
48.0-52.0 D-
0-47.9 F

“A C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit: https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

18. Make-up Exam Policy – If you have a University-approved excuse and arrange for it in advance, or in case of documented emergency, a make-up exam will be allowed. For information on UF policies concerning attendance, please visit: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx#absences

19. Honesty Policy – All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.

20. Accommodation for Students with Disabilities – Students Requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

21. UF Counseling Services – Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:
   · UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.
   · Career Resource Center, Reitz Union, 392-1601, career and job search services.

22. Software Use – All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do
so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.