Signal and System Analysis (AEE 2410)
Course syllabus
Sem1 (2019/2020)

Instructor: Dr. Abdelouahab Bentrcia
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Class Timings: see time table on my website or on the office door.
Office Hours: see time table on my website or on the office door

Textbook:
- A. V. Oppenheim, A. S. Willsky, and S. H. Nawab, "Signals and Systems", Prentice Hall, 1997.

Pre-requisite:
- AEE 2110 Electric Circuits I.

References:
- C.-T. Chen, Signals and Systems, Oxford University Press, NY, 2004.

Grading Criteria:
- 15% Quizzes (worst quiz will be cancelled for each student)
- 5% Project
- 20% Midterm Exam I (7th week)
- 20% Midterm Exam II (11th week)
- 40% Final Exam

Credit hours:
- 3(3,1,0) hours

Tentative Schedule

Textbook	week	Topics to be covered
Chapter 1	1,2,3,4	**1. Signals and Systems.**
Chapter 2	5,6	**2. Linear Time-Invariant Systems.**
Lecture notes	7	**Correlation Analysis**
Chapter 3	8,9	**3. Fourier Series Representation of Periodic Signals.**
Chapter 4	10	**4. The Continuous-Time Fourier Transform.**
Chapter 5	11	**5. The Discrete-Time Fourier Transform.**
Chapter 9	12-13	**9. The Laplace Transform.**
	14	**General Review for the Final Exam**

Course Learning Outcomes

1. Describe signals mathematically, perform mathematical operations on signals and identify signals and systems properties (a,e)
2. Determine the response of a linear time-invariant system to any input signal using convolution and characterize input-output relationships of linear time-invariant systems using impulse response and transfer function representations (a,e)
3. Use correlation operation to measure similarity between the signal and itself and similarity between different signals.(a,e)
4. Represent both continuous-time and discrete-time periodic signals in terms of a Fourier series. (a,e)

5. Use the Fourier transform and the Laplace transform to analyze continuous-time signals and systems. (a,e)
6. Use the discrete-time Fourier transform to analyze discrete-time signals and systems. (a,e)
7. Use computers and MATLAB to create, analyze and process signals, and to simulate and analyze systems in both time and frequency domains. (b)

Course Policy

- **General policies**
1. Course material such as lecture slides, homework …etc. will be posted on my website; however posted material is not a substitute for the text book. Therefore, students are expected to purchase the textbook.
2. The student is responsible to check his email (university email) <u>daily</u> for any class announcements.
3. Use of mobile phone or other electronic devices or equipment is not allowed during class. All such systems must be turned off or silenced and not used during classes without prior permission from the instructor.
4. It is the student's responsibility to ask questions, for me if you don't ask questions then I assume that you are happy. If for one reason or another, my answer is not satisfactory for you, then you are welcome to visit my office for more discussions and details.

- **Exam policy**
1. There is no need to memorize formulas, a formula sheet will be provided in the exam.

- **Attendance**
1. Only official excuses are accepted. Personal excuses are not accepted.
2. Three late arrivals = One absence.
3. Any student who misses more than 25% of all lectures will not be allowed to enter the final exam.

- **Makeup policy**
1. No make-up will be provided for exams unless an official excuse exists.
2. Students who miss a quiz will not be offered a makeup quiz.
3. Any official excuse should be presented to the instructor within one week from the absence.

- **Assignments Policy**
1. HWs will be announced in tutorial classes and will be sent to you through LMS. Although HWs should not be submitted, they should be solved because HW problems might be brought in quizzes.
2. The HW solution will be posted maximum 2 weeks after HW announcement.