

EE2353 Syllabus PROPOSED based on Roberts textbook

CONTINUOUS-TIME SIGNALS AND SYSTEMS

SYLLABUS FOR FALL 2019, Version 4

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OFFICE HRS.: Monday, Wednesday 11:20-12:20 PM (between two class periods)
Tuesday, Thursday 11:55 AM - 12:25 PM
Friday (unless other meetings) 11:00 AM - 12:00 PM (send e-mail or call before to confirm)

CLASS TIME/PLACE: **Section 1:** Tuesday and Thursday 10:30 AM – 11:50 AM (CRN: 12631)
Physical Science Building 314
Section 2: Tuesday and Thursday 3:00 PM – 4:20 PM (CRN: 15727)
Liberal Arts Building 207

TEXTBOOK: Signals and Systems: Analysis Using Transform Methods & MATLAB, 3rd Edition 2018, McGraw-Hill, by M. J. Roberts, with McGraw-Hill's *Connect* online tools, smart e-book, etc. ([available through the bookstore](#))

Catalog Description: Representation and analysis of continuous time signals; time and frequency analysis of linear time-invariant systems; convolution, differential equations, Laplace transform, Fourier series and transform, filters.

Pre-requisites (Subject to updates): MATH1312 Calculus 2, and MATH 2326 Differential Equations, all with a minimum grade of “C”.

Co-requisite (Subject to updates): EE2351 Electric Circuits 2 (thus, EE2350 Electric Circuits 1 is a pre-requisite).

Prerequisites by topic: calculus and differential equations; complex numbers and functions; basic time-domain and steady-state (**and transform based**) Circuit Analysis; basic familiarity with the MATLAB software tools.

Specific Outcomes for the Course. By the end of the semester the student will demonstrate the ability to:

- Carry out transformations of signals and understand characteristics of continuous-time signals and systems.
- Apply convolution and properties to solve linear-time-invariant (LTI) systems.
- Use Fourier series, and Fourier transforms and their properties to analyze continuous time signals and systems.
- Compute and use impulse and frequency responses of linear time invariant systems.
- Use the Laplace transforms to analyze continuous time systems.

COURSE GRADING

• In-class two Semester Exams (allowed self-prepared notes)	40% (*or 25%) TBD
• Homeworks and e-book exercises on <i>Connect</i> , MATLAB Projects	15% (*or 20%) TBD
• Quizzes and MATLAB Projects	15% (*same) TBD
• Comprehensive Final Exam (self-prepared notes) during Final Exams week	30% (*or 50%) TBD
• (Section 1: Dec. 12 10:00 AM – 12: 45; Section 2: Dec. 12, 4:00 PM – 6:45)	
TOTAL	100%

* Alternative weighting used only if it gives you a higher grade.

DROP DAY: November 1, 2019 (Friday)

USE OF E-MAIL: Each student is required to read their officially registered UTEP e-mail account often enough to monitor ongoing information related to this course. All assignments will be sent via e-mail. Treat e-mail correspondence as a professional exchange of information. Use an accurate “Subject” and never “reply to all” when an e-mail is sent to the whole class. Maybe for Fall 2019, blackboard may replace or duplicate the use of direct e-mail.

COMPUTER USAGE: The MATLAB software package (with many Toolboxes) is made available via download or a DVD or direct install on your laptop to all Engineering Students from the Engineering Technology Center (ETC) Engineering building E351D (3rd floor between CRBL and Eng. Bldg.) <http://etc.utep.edu/>
Tel. (915)747-5223, E-mail: etchelpdesk@utep.edu

TOPICS TO BE COVERED FROM THE TEXTBOOK (the exact order, pages and/or sections and subsections will be listed in homework assignment handouts). See the Appendices for very useful review and reference material as well as tables of transform pairs.

- a. Signals and systems defined, continuous-time (C-T) system examples, use of MATLAB (Chap. 1)
- b. C-T signals useful in this course. C-T signal time and amplitude transformation and basic properties. (Chap. 2)
- c. C-T systems modeling and system properties (Chap. 4). Convolution and impulse response of C-T LTI systems. Evaluation of the convolution integral. Convolution properties, system connections. (Chap. 5)
- d. Definition and evaluation of Fourier series (FS) coefficients, tables and properties. Definition and evaluation of the Fourier transform (FT), tables and properties. (Chap. 6)
- e. Sampling of C-T signals, bandlimited signals, aliasing and interpolation. (Chap. 10)
- f. Frequency response analysis of C-T LTI systems, ideal and low-order filters, passive and active filters. (Chap. 11)
- g. LTI system analysis using Laplace transform, system poles and zeros, introduction to feedback (Chap. 12)

EFFORT, PARTICIPATION and ETIQUETTE:

- Students (domestic or international, no exceptions) that are clearly not doing the homeworks, are failing quizzes, and who fail Exam 1 will be dropped from the course unless there are extenuating circumstances (let’s discuss it).
- Come to class and show up on time. Habitual late comers may not be allowed in class without a justification.
- Leaving early is considered disruptive, unprofessional, and somewhat offensive, it should be kept to a minimum. Inform the instructor ahead of time if you must leave early and sit near the door to minimize disruptions.
- Ask questions of ***broad interest***, your fellow students will also benefit.
- Bring your book and laptop/smartphone to class if you find it useful. **More on this later.**
- Turn down the sound on cell phones, beepers, i-pods, etc. during the class period.
- The use of cellular phones during exams and quizzes is strictly prohibited, put them away and out of reach.
- Do not bring ***smelly food*** into the classroom unless you are willing to share with me and everyone else that will suddenly become hungry! Eating other things during class should be done very quietly and as a last resort.
- Use of the ***restroom during exams and quizzes*** should be done with permission of the proctor/instructor; rules apply (mobile phones should be surrendered, etc.).

ACADEMIC INTEGRITY

Please review the statements below and UTEP's Web page on Policy on Academic Integrity at:
<https://www.utep.edu/student-affairs/osccr/student-conduct/academic-integrity.html>

OTHER STATEMENTS?