

EE2353 Syllabus Posted Version 2
CONTINUOUS-TIME SIGNALS AND SYSTEMS
SYLLABUS FOR SPRING 2020, McGraw-Hill textbook and connect online tools

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OFFICE HRS.: Monday, Wednesday 11:30-12:20 PM (between two class periods)
(tentative) Tuesday, Thursday 11:30-12:20 PM (between two class periods)
Friday (if no other meetings) 11:00 AM - 12:00 PM (send e-mail or call before to confirm)

CLASS TIME/PLACE: **Section 1: Tuesday and Thursday 9:00 AM – 10:20 PM (CRN: 22387)**
Physical Science Building 314

TEXTBOOK WITH ONLINE TOOLS: Signals and Systems: Analysis Using Transform Methods & MATLAB, 3rd Edition 2018, McGraw-Hill, by M. J. Roberts. We will be using the McGraw-Hill's *Connect* online tools which includes a smart e-book, assignment submission and grading, etc. The Connect service is available for purchase (but arriving late) through the bookstore with (or without) an extra loose leaf textbook copy. It can also be purchased (without the paper copy of the textbook) directly from McGraw-Hill using this link:
<https://connect.mheducation.com/class/c-sergio-spring-2020-section1>

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 (change in progress): EE2351 Electric Circuits 2 with a minimum grade of “C”.

Co-requisite (change in progress):

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

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

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

COURSE GRADING

- Two in-class Semester Exams (self-prepared notes allowed) **50% (*or 30%)**
(tentatively first week of March and late April)
- Homeworks, e-book learn smart exercises on *Connect*, MATLAB Projects **25% (*same)**
and Quizzes.
- Comprehensive Final Exam (self-prepared notes) during Exams week **25% (*or 45%)**

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

DROP DAY: After Exam 1 and before Exam 2 can be extended via faculty drop. Students wanting to drop after Exam 2 can do so by asking the instructor to submit a faculty drop. These are usually routinely approved by Chairs and Deans.

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 via blind copy. Treat e-mail correspondence as a professional exchange of information and always use an accurate “Subject” matter. Never “reply to all” (should I forget to use blind copy) when an e-mail is sent to the whole class. In the future, 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 Appendixes 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 including a brief introduction to discrete-convolution applicable to the FS coefficients, see Section 5.3. (Chap. 6)
- e. Definition and evaluation of the Fourier transform (FT), tables and properties. (Chap. 6)
- f. Sampling of C-T signals, bandlimited signals, aliasing and interpolation. (Chap. 10)
- g. Frequency response analysis of C-T LTI systems, ideal and low-order filters, passive and active filters. (Chap. 11)
- h. LTI system analysis using Laplace transform, system poles and zeros, introduction to feedback (Chap. 12)
- i. Communication System Analysis (Chap. 15 from online download)

EFFORT, PARTICIPATION, ETIQUETTE and DECORUM:

- Students (domestic or international, no exceptions) that are clearly not doing the homeworks, are failing quizzes, and who fail Exam 1 will be advised to drop the course before Drop Day.
- 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 and unprofessional, it should be kept to a minimum. Inform the instructor ahead of time if you must leave early and please sit near the door to minimize disruptions.
- **Raise your hand** and wait for the go-ahead before answering and asking questions or giving comments.
- Use of laptop/smartphone during class is encouraged for the purposes of accessing the e-book, Connect, lecture slides, handouts, solutions, etc.
- Silence cellular phones during the class period.
- The use of **cellular phones during exams and quizzes** is strictly prohibited, turn them off and put them away and out of reach.
- Do not bring **smelly food** into the classroom. Eating other things during class should be kept to a minimum and done very quietly.
- Use of the **restroom during exams and quizzes** should be done under strict rules and with permission of the proctor/instructor (one student at a time, mobile phones should be surrendered, etc.).
- **NEW Fairness statement (version 3):** the key fairness criterion for this course is equal opportunity for all students to receive feedback, help, information, scores, handouts, etc., individual requests cannot be accommodated. Difficulty variation for quizzes and exams is adjusted by curving the scores before entering into the final semester score formula. Typically, this means obtaining a score on a scale of 100% by dividing the raw score by a constant S =approximately the 3rd highest score in the class on that Exam or for the total score for all homeworks+quizzes. Grades are not negotiable individually but fair adjustments can be made for the whole class.

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>