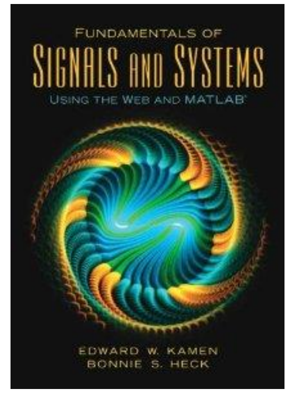
MISSISSIPPI STATE UNIVERSITY
JAMES WORTH BAGLEY COLLEGE OF ENGINEERING
Department of Electrical and Computer Engineering

ECE 3443 Signals and Systems
Syllabus



Instructor: Minglong Zhang
Email: mz354@msstate.edu
Office: Simrall 405

Lecture Time: Monday Wednesday Friday 12pm-12.50pm

Lecture Location: Old Main 3320
Office Hours: Mon and Wed: 4.30 to 5.30 pm

Prerequisites: Grade of C or better in ECE 3424 (Intermediate Electronic Circuits)

Textbook: E. W. Kamen and B. S. Heck, Fundamentals of Signals and Systems Using the Web Matlab, 3rd ed., Prentice Hall, 2007. ISBN: 0-13-168737-9.
Software: Matlab & Simulink Student Version Release 2011a (or above), Mathworks, Inc.

SI leader: Brendan Harrison (bph201@msstate.edu)
TA: MD Rafi (mr2513@msstate.edu)

Website: canvas.msstate.edu

Course Description and Objectives
Two and half hours lecture per week. The objectives of this course are to introduce students to the basic concepts of signals, system modeling, and system classification; to develop students' understanding of time-domain and frequency domain approaches to the analysis of continuous and discrete systems; to provide students with necessary tools and techniques to analyze electrical networks and systems; and to develop students' ability to apply modern simulation software to system analysis.

After successfully completing this course, the students will be able to:
- Understanding the fundamental concept of signals, such as continuous-time signals, discrete-time signals and systems.
- Familiarity with modeling and simulation by using Matlab.
- Ability to analyze responses of systems in time domain and frequency domain.
- Understanding of the principles of signal processing techniques, such as Fourier transform and Laplace transform.

MSU Syllabus
The Mississippi State University Syllabus contains all policies and procedures that are applicable to every course on campus and online. The policies in the University Syllabus describe the official policies of the University and will take precedence over those found elsewhere. It is the student's responsibility to read and be familiar with every policy. The University Syllabus may be accessed at any time on the Provost website under Faculty and Student Resources and at https://www.provost.msstate.edu/faculty-student-resources/university-syllabus.

Methods of Evaluation and Standards of Achievement

Types of graded assignments include:

(a) **Progress Exam**– TWO progress exams will be given during the semester after completion of each major topic. These exams are held during class hours for face-to-face students. Unless stated otherwise, all exams will be closed book and closed notes. If you miss a progress exam, zero will be awarded.

(b) **Final Exam** – an in-person final, comprehensive exam will be administered according the university scheduled for face-to-face students. The final exam is also closed book and closed notes.
Final exam date: **12pm-3 pm, Dec 5, 2025**.

(c) **Homework & Project** – Homework and Matlab project will be assigned for most weeks. Homework and Matlab project must be turned in by the due date, which will be indicated for each assignment. Late homework or project will be accepted with 10% penalty if it is returned at most 1 day late. No assignment or project will be accepted later than ONE day. No assignments & projects will be accepted after solutions are posted.

(d) **Quiz** – All quizzes will be online and should be completed within their availability dates. No late submissions accepted.

Any kind of missed assignment submissions will be awarded as zero for grading purposes. It is your responsibility to keep track of assignments and due dates. Only those who never miss Homework & Project are eligible to attend a quiz with extra points. You are encouraged to develop and share ideas for solutions of HW with others in the class but the work you submit cannot closely duplicate that submitted by another student. Plagiarism or any form of academic dishonesty will be reported to the MSU honor council. Please refer to www.honorcode.msstate.edu for more information.

Homework submissions must meet the following guidelines: They are intended to help you develop a good mathematical style and to allow us to grade in a sensible manner. If you don't make a good -faith attempt to follow them, we reserve the right to take off lots of points or (in extreme case) give you a zero for the homework.

- All problems should be stapled together with a cover sheet, scan them into **pdf format** and submit them via **Canvas** on time.
- Always start a new problem in a new sheet of paper. You can write on both sides of the sheet but make sure there is no ink smudging.
- Show the **<u>process</u>** of how you solve the problems and the final results.
- Make sure the following information is clearly visible, and legible, near the top of every sheet: **Your name, your net id**, **Homework number and problem number**
- Your homework should be neat and legible. The writing should be dark enough to be easily read

(d) **Grading** - Final course grade will be based on Homework and exams with weighing as described below.

Grade Composition			Grading Scale	
ASSIGNMENT TYPE	**PERCENT**		**GRADE**	**AVERAGE**
PROGRESS EXAM1	15%		A	**90.0-100**
PROGRESS EXAM2	15%		B	**80.0-89.9**
QUIZZES & PARTICIPATION	10%		C	**70.0-79.9**
HOMEWORK	20%		D	**60-69.9**
MATLAB PROJECTS	15%		F	**<60.0**
FINAL EXAM	**25%**			

LECTURE TOPICS (35 contact hours)

- Signals and Systems Concept,
- Basic Signals
- System Properties
- Time-Domain Models of Systems
- Differential and Difference Equations,
- Responses of Linear and Time Invariant Systems (Convolution)
- Fourier Series,
- Continuous Time, Discrete Time
- Fourier Transform
- Continuous Time, Discrete Time
- Fourier Transform Properties
- Fourier Analysis of Discrete-Time Signals and Systems
- Sampling

ECE 3443 CLASS INFORMATION

Expectations for the Classroom and Communication

The following policies for course communication apply for **ALL students**:

- You are required to check your MSU email account regularly. This is considered an official means of communication by MSU for distance education students.
- The course materials will be accessed through Canvas.
- All class announcements will be posted on the Canvas website.
- Assignment submissions will utilize Canvas unless otherwise specified by the instructor.
- You are required to have access to a computer that connects to the internet.
- Students should direct correspondence to the instructor directly related to the class via the mail feature in Canvas.
- Students should not discuss specific exam questions.
- Students are encouraged to discuss homework together in a group, but the assignment should be completed independently and individually.
- Email to the instructor must be sent from your official MSU email account (@msstate.edu).

Grading Policies

All quizzes, homework, and exams are INDIVIDUAL assignments. If you share quiz questions, copy another student's work, or allow another student to copy your work, then you are guilty of academic dishonesty.

Students shall not bring or have any computing equipment in the exam, including programmable calculators, mobile phones, books, dictionaries, electronic organizers, notes or paper, and other materials as shall be authorized by the professor.

Minimum Technology Requirements

The following minimum technology requirements are necessary **for all students** to complete the course:

- Computer with Matlab & Simulink (Student Version), web browser, Microsoft Office, and Adobe Reader
- Internet access

Quizzes are administered online via Canvas. **Ensure you have adequate internet access and power for your computer BEFORE you begin the quiz.** You will only be able to start the quiz one time. There are no time extensions available.

Technical Assistance

If you have questions about this course, please contact the instructor via Canvas messaging. For technical support (e.g., computer support, Canvas issues), please contact help@ece.msstate.edu or engr-dist-support@lists.msstated.edu or www.bagley.msstate.edu/distance.

Attendance Policy for face-to-face instruction

Students registered in face-to-face sections are expected to attend all class meetings. Please refer Academic Operating policy 12.09. (http://www.policies.msstate.edu/policypdfs/1209.pdfLinks to an external site.), regarding attendance expectations and accommodations.

Note that official, university-approved and documented absences are not subjected to attendance penalties. It is the student's responsibility to initiate a request of making up course work in a timely manner. Unless impractical, all communication regarding official, university-approved and documented absences and make-up work should take place prior to the absence. Students are responsible for all material covered during class and any in-class announcements.

Copyright

Copyrighted materials within the course are only for the use of students enrolled in the course for purposes associated with this course and may not be retained or further disseminated.

Course materials must not be posted on any website or added to any database without the instructor's written permission. Do not distribute test problems, homework, or any other materials. Do not post course materials on websites such as chegg.com, slader.com, etc. Violations of this policy will be referred to the Honor Court.