

EE1305: Intro to Elect/Comp Engineering Spring 2019 Syllabus

Instructor: Dr. Aрызbe Najera
E-mail: adiaz6@utep.edu
EE1305 (27045), CRBL C305
EE1105 (23708 and 27241)
Office Hrs: Engineering E327
TH 10:30am – 1:30pm

Instructor: Dr. Robert C. Roberts
E-mail: rcroberts@utep.edu
EE1305 (21259), LART 122
EE1105 (22287 and 22288)
Office Hrs: Engineering A310
M 3:00pm – 5:00pm
W 10:00am – 12:00pm

Lecture Course Description (EE1305): In this course students will learn how to use electronic components to build and design circuits for a variety of medical and miscellaneous sensor applications. Through hands on activities, the course will emphasize (1) mathematical and systems concepts that form the basis for electrical engineering, (2) an introduction to circuit components, voltage and current concepts, and (3) sinusoidal signal characteristics, basic filter responses and bandwidth concepts.

Co-requisite for Course: EE1105 **Pre-requisites for Course:** MATH 1411 with a grade of "C" or better, may be taken concurrently with EE 1305.

Laboratory Course Description (EE1105): Introduction to Electrical Engineering laboratory procedures, causes, and correction of errors in measurements theory of operation and usage of basic Electrical Engineering test instruments, and report writing. **Co-requisite:** EE 1305.

Course Website: The course website will include the syllabus, class schedule, PowerPoint lectures, and other resources (syllabus/schedule, homework list, required lab supplies, report resources, soldering videos, and other resources). The course website also includes instructor and TA contact information.

<http://www.ece.utep.edu/courses/web1305/EE1305/>

Learning Outcomes:

1. Become familiar with the Analog Discovery device (oscilloscope and waveform functions).
2. Use MATLAB to model experimental data.
3. Analyze Simple Circuits using KVL, KCL and voltage divider methods.
4. Build circuits using passive and active components. Build and analyze signals through circuits with low pass, high pass and band pass filters.
5. Use Bode Plots to characterize filters and predict signal response.
6. Build circuits using sensor inputs to create a measureable output.

7. Use complex impedance to model and analyze Op-Amp circuits.

Textbook: None. All course material for the lecture is included on the course website. Lecture power point slides are available that provide a comprehensive resource for learning fundamental circuit theory with plenty of examples and links to educational videos. Additional circuit theory resources are also provided.

Teaching Assistants:

The teaching assistants will deliver the labs and lab lectures. The TA's in charge of the lab and their contact information is listed below.

- *Alejandro Martinez-Acosta*
PhD Student
amartinezacosta@miners.utep.edu
- *Maryamsadat Shokrehodaei*
PhD Student
mshokrehod@miners.utep.edu
- *Hector Mota-Aguilar*
Undergraduate Student
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- *Zenait Lopez-Gallegos*
Undergraduate Student
zlopezgallegos@miners.utep.edu

Course Grade: Your grade for EE1305 and EE1105 will consist of the following components, and will result in the same average and letter grade for both EE1305 and EE1105.

Lab Modules/Reports: 40%

Quizzes – 20%

Homework (Workshop): 20%

Exam – 20%

Attendance: In order to be successful in the course, attendance in the lab and lecture is highly recommended every day. When absent, the student is responsible for obtaining notes, handouts, and assignments and will be required to meet the same deadlines as the rest of the class. If you do have an emergency, please notify your instructor as soon as possible. Emergencies

happen, unexpected situations arise, and you should use common sense and safe precautions when trying to get to lecture and/or lab.

Homework (Workshop): Homework is worth 20% of the course grade. All problem-solving type homework should be completed on engineering paper in a neat and legible manner using the homework format discussed in class. All homework completed in class will be graded by team. While each student completes the assignment, one paper from each team will be collected. Students are expected to discuss the problem solving procedure for each problem to make sure everyone is on the same page. Students will also turn in homework assigned outside of class, and in this case, each student's work will be graded individually.

Homework format should include the following:

1. Include EE 1305, Name, Group No., Date
2. Statement of the problem with each solution
3. Equations and Diagrams used to solve the problem
4. Answer Underlined
5. Horizontal line separating each question

Quizzes: The quizzes will be worth 20% of the course grade. There is one 10 – 15 minutes quiz for every lecture. Quizzes will be given in the lecture to help emphasize problem solving and circuit analysis concepts. Students should prepare for the quiz by working all homework problems.

Exams: The exam grade will be worth 20% of the course grade. The 200-point exam will be given at the end of the semester and will be based on the quizzes and homework completed throughout the semester.

Homework: No Homework outside class will be assigned, instead an engineering problem will be given during the last portion of lecture. **The assignment will be graded individually.** Teamwork it is encouraged but we DO NOT allow any sort of copying or plagiarism. The homework will be worth 20% of the final grade.

Modules and Checklists: There are two components to the lab report grade. The first component consists of a module checklist form and the second component consists of the written lab report.

Modules are worth 40% of the course grade and each lab report is worth 100 points. Students are usually given one week to complete each written lab report (unless indicated otherwise on the schedule) and lab reports are due at the beginning of the lab. A lab report template and rubric is provided on the course website to help students understand the lab report requirements. **Late**

lab reports will not be accepted, even if you are absent from your lab. Graded lab reports will be returned to students one week after they are turned in.

The modules that will be completed in the lab are: Angle Sensor, Strain Gauge I and II, EKG, O₂ Sensor, Blood Pressure Sensor and Ultrasonic Sensor (assignment dates for each module is included on the course schedule).

Teams: Students will be placed into teams during the first 2 weeks of class. Student teams will consist of 3 to 4 students per team and students will be on the same team in the lab and lecture. Students are asked to work on an assignment as a team in the lecture. During these assignments, students are still individually accountable for their own work, and should NOT copy from another student's paper. All labs modules are individual assignments. Students should **NOT** complete work for other students or **COPY** work from other students, but they are encouraged to share their knowledge to help others understand challenging concepts. **All data and content submitted in all student lab reports should be individual and reflect their individual lab results.**

Course Drop Deadline: April 5th

Drop Policy: Students can drop the course before April 5th with a grade of "W". Students who drop the course after April 5th will be assigned the grade earned in the course.

Scholastic Integrity: As an entity of The University of Texas at El Paso, the Department of Electrical and Computer Engineering is committed to the development of its students and to the promotion of personal integrity and self-responsibility. The assumption that a student's work is a fair representation of the student's ability to perform forms the basis for departmental and institutional quality. **All students within the Department are expected to observe appropriate standards of conduct. Acts of scholastic dishonesty such as cheating, plagiarism, collusion, the submission for credit of any work or material that are attributable in the whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student, or the attempt to commit such acts will not be tolerated. Any case involving academic dishonesty will be referred to the Engineering Dean's Office and the Office of the Dean of Students.** The Dean of Students will assign a Student Judicial Affairs Coordinator who will investigate the charge and alert the student as to its disposition. Consequences of academic dishonesty may be as severe as dismissal from the University. See the Office of the Dean of Students' home page at www.utep.edu/dos/acadintg.htm for more information.

Acknowledgement:

I acknowledge that I have received the syllabus for EE 1305 (27045, 21259) and EE1105 (23708, 27241, 22287, and 22288) for the Spring 2019 semester, and that I understand all attendance, competency, and assignment requirements.

Print Name

Student Signature

Date