# Introduction to Elect/Comp Engineering
# ECE1300 – CRN 15253, 14583

## Fall 2024 Syllabus

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|---|---|
| **Instructor** | Dr. Martha Torres |
| **Email** | **mltorreslozano@utep.edu** **Use ONLY this email account** |
| **Lecture Times and Locations** | CRN 15253 – MW-3:00pm – 4:20pm, Quinn Hall, Room 212<br>CRN 14583 – TR-1:30pm – 2:50pm, Liberal Arts Building, Room 107 |
| **Office Hours:** | **MW 9:30am - 10:30 am and 12:00pm-2:00pm in person** |
| **Office Room** | Engineering Building E326 |

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**Lecture Course Description (ECE1300)**: In this course students will learn **foundational** concepts of analog and digital circuits, as well as how to use electronic components to build and design circuits for a variety sensor types and 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, (3) sinusoidal signal characteristics, basic filter responses and bandwidth concepts, and (4) that engineering is amazing.

**Co-requisite for Course:** ECE1100 **Pre-requisites for Course:** Precalculus (e.g. MATH 1508) or MATH 1411 with a grade of "C" or better, may be taken concurrently with ECE 1300.

**COVID-19 PRECAUTION STATEMENT**

Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you have tested positive for COVID-19, prior to, after, and/or during your time enrolled in your course(s), you are highly encouraged to report your results to covidaction@utep.edu as well as to let our office know at ppp@utep.edu.

The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people. The best way that Miners can take care of Miners is to get the vaccine. If you still need the vaccine, it is widely available in the El Paso area, and will be available at no charge on campus during the first week of classes. For more information about the current rates, testing, and vaccinations, please visit epstrong.org.

**Blackboard Platform:** This is the platform used at UTEP for the Course sessions. During the semester, I will include the Syllabus, PowerPoint lectures, Assignments, announcements, etc. In addition, I usually collect the homework via Blackboard. Student must be responsible for his/her Blackboard account. If you have problems with your Blackboard account or Email account, please contact helpdesk@utep.edu, or https://www.utep.edu/technologysupport/

**Course Communications:** Announcements will be posted on **Blackboard** on a regular basis. They will appear on your Blackboard dashboard when you log in and/or will be sent to you directly through your UTEP email ID. Please make sure to check them regularly, as they may contain important information about upcoming assignments or class problems. In courses it is normal to have many questions about things those relate to the course, such as clarification about assignments, course materials, or assessments. Also, please, feel free to email me whenever you have specific queries or concerns, **use only your UTEP account**. In the subject include your name and CRN of the course session. (for example, Martha Torres – CRN 10846**)**

**Learning Outcomes:**

1. Become proficient fundamental circuit analysis concepts including Ohm's law, power, KVL, KCL, and the voltage divider techniques.
2. Be introduced to resistors, capacitors, and operation amplifiers (ideal model)
3. Gain an understanding of low pass, high pass and band pass filters, both passive and active.
4. Learn bode plots in order to characterize filters and predict signal response.
5. Use complex impedance to model and analyze Op-Amp circuits.

**Textbook:** None. All course material for the lecture is included on Blackboard.
Some optional textbooks are :

1. FREE PDF Textbook : Circuits Analysis and Design, F. Ulaby, M. Maharbiz, C. Furse. Second Edition, Link URL: cad2e.eecs.umich.edu , ISBN 978-1-60785-876-8 (electronic book-Free of charge).
2. Fundamentals of Electric Circuits, 7th Edition Charles Alexander & Matthew Sadiku McGraw-Hill Education, 2021, 992 pages ISBN: 978-1-26-022640-9
3. Electric Circuits (11th Edition) . James W. Nilsson, Susan Riedel. Ed. Pearson. ISBN-13: 978-0134746968, ISBN-10: 0134746961

**Teaching Assistants:**
The teaching assistants will deliver the labs and lab lectures as well as provide support in answering your questions on lecture materials.

**Attendance:** In order to be successful in the course, attendance in the lab and lecture session is highly recommended every day. In case of absence, 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 me as soon as possible. Emergencies

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

**Course Grade:** Your grade for ECE1300 will consist of the following components.

| Activities | Percentage | Grade Scale | Letter Grade |
|---|---|---|---|
| Workshop Problem Sets (Team): | 30% | 90 to 100 | **A** |
| Homework (Individual): | 25% | 80 to 89 | **B** |
| Quizzes: | 25% | 70 to 79 | **C** |
| Final Exam: | 20% | 60 to 69 | **D** |
| **Total** | **100%** | 0 to 59 | **F** |

Workshop problems and homework are graded with 100-points if everything is correct in format and math, all procedures and calculations must be included in the homework submitted. If your Blackboard submission is late, 20 points will be reduced per day or fraction hour late.

For example, if the deadline is at 10:00 am and your submission is at 10:01am or 10:30am or 10:59am, 20 points will be reduced from your assignment grade. **So, DO NOT SUBMIT YOUR ASSIGMENTS LATE.**

**Workshop Problem Sets:** Workshop problem sets are worth 30% of the course grade. All problem-solving type homework should be in a neat and legible manner using the homework format discussed in class and is to be completed working together in the teams assigned in the session. All assignments completed in class will be graded by team but each student needs to upload the corresponding answers into Blackboard. Students are expected to discuss the problem-solving procedure for each problem to make sure everyone is on the same page. In addition, Students will turn in homework assigned outside of class, and in this case, each student's work will be graded individually. **SUBMIT ONLY ONE PDF FILE. Attendance list will be generated during the workshop.**

**Workshop Problem sets answers format should include the following:**

1. **Include ECE 1300, Names, 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 25% of the course grade. There are eight 15 –25 minute quizzes given throughout the semester. 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. **Quizzes will typically be given at the beginning of lecture, so it is important to arrive on time. Students arriving late to lecture will not be given additional time.** Two makeup quizzes will be offered during the semester, one scheduled at the middle of the semester, and the other scheduled near the end of the semester. The topics of the makeup quizzes could be any of the concepts reviewed from the beginning to the middle for the first quiz and the concepts studied from the middle of the semester to the end for the second quiz. In addition, Students can optionally take these quizzes to replace their two lowest (or missed) quiz scores.

**Exams:** The final exam grade will be worth 20% of the course grade. The 100-point exam will be given at the end of the semester and will be based on the quizzes, workshops problem sets and homework completed throughout the semester.

**Homework:** Individual homework problems will be assigned during class and/or posted on Blackboard after lecture. The assignment will be graded individually. Teamwork is encouraged but we **DO NOT** allow any sort of copying or plagiarism. The homework will be worth 25% of the final grade. **It will be the responsibility of each individual student to submit the homework solution on Blackboard by the deadline in PDF format ONLY, One PDF File.**

**Homework answers format should include the following:**

1. **Include ECE 1300, Name, 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**

**All assignments must include the full procedures; showing only the results will result in a grade of zero.**

**Teams:** Students will be placed into teams for workshop lectures and labs. Student teams will typically consist of 2 to 3 students per team. During these assignments, students are still individually accountable for their own work, and should NOT copy from another team. If any student misses the workshop problems or labs, the grade will be zero.

**Course Drop Deadline:** Nov 1st, 2024

**Drop Policy:** Students can drop the course before November 1st, 2024 with a grade of "W". Students who drop the course after this date 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.

**Policy relating to Disability / CASS**: In Section 504 of the Vocational Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990, if a student needs an accommodation then the Office of Disabled Student Services located at UTEP need to be contacted. If you have a condition, which may affect your ability to perform successfully in this course, you are encouraged to discuss this in confidence with the instructor and/or the director of the Disabled Student Services. Written guidelines r/t accommodations from CASS must be submitted to the course manager PRIOR to the start of the course. If you have a disability and need classroom accommodations, please contact CASS at 747-5148, or by email to cass@utep.edu, or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at www.sa.utep.edu/cass. *CASS' Staff are the only individuals who can validate and if need be, authorize accommodations for students with disabilities.*

# ECE1100: Lab for Intro to Elect/Comp Engineering
# Fall 2024 Syllabus

**Instructor: Dr. Martha Torres Email: mltorreslozano@utep.edu Office Hours: MW 12pm- 2:00pm in person or by appointment**

**TA: Kevin Soto**
**Email: ksoto8@miners.utep.edu**
**Office Hours: By appointment**

**TA: Melanie Walsmith**
**Email:mcwalsmith@miners.utep.edu**
**Office Hours: By appointment**

**TA: Benjamin Gurovich**
**Email:bgurovichv@miners.utep.edu**
**Office Hours: By appointment**

**TA: Ismael Luna**
**Email:ialuna@miners.utep.edu**
**Office Hours: By appointment**

**EE1100 Lab Times and Locations:**

**CRN 15625 – Monday 12:00pm-2:50pm**
**Room: Engineering E301E**

**CRN 15630 –Monday 9:00am-11:50am**
**Room: Engineering E301E**

**CRN 15629 –Tuesday 12:00pm-2:50pm**
**Room: Engineering E301E**

**CRN 18007 –Tuesday 9:00am-11:50am**
**Room: Engineering E301E**

**CRN 15626 –Wednesday 9:00am-11:50am Room: Engineering E301E**

**CRN 18128 –Thursday 9:00am-11:50am**
**Room: Engineering E301E**

**CRN 17990 –Friday 9:00am-11:50am**
**Room: Engineering E301E**

**CRN 15628 –Friday 12:00pm-2:50pm**
**Room: Engineering E301E**

**Laboratory Course Description (ECE1100):** Introduction to Electrical Engineering laboratory procedures, causes, and correction of errors in measurements theory of operation and usage of basic Electrical Engineering test instruments, data collection, and report writing. **Co-requisite:** ECE1300.

**Course Website:** Additionally, a course website is available that 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://www3.ece.utep.edu/courses/web1305/EE1305/index.html

**COVID-19 PRECAUTION STATEMENT**

Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you have tested positive for COVID-19, prior to, after, and/or during your time enrolled in your course(s), you are highly encouraged to report your results to covidaction@utep.edu as well as to let our office know at ppp@utep.edu.

The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people. The best way that Miners can take care of Miners is to get the vaccine. If you still need the vaccine, it is widely available in the El Paso area, and will be available at no charge on campus during the first week of classes. For more information about the current rates, testing, and vaccinations, please visit epstrong.org.

**Learning Outcomes:**

1. Become familiar with the Analog Discovery device/ ADALM2000 (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 measurable 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. http://www3.ece.utep.edu/courses/web1305/EE1305/index.html

**Course Communication:** Announcements will be posted in **Blackboard** on a regular basis. They will appear on your Blackboard dashboard when you log in and/or will be sent to you directly through your UTEP email ID. Please make sure to check them regularly, as they may contain important information about upcoming assignments or class problems. In courses it is normal to

have many questions about things those relate to the course, such as clarification about worksheet (pre-lab or post-lab questions), lab procedure, and data analysis. Please feel free to email me or TAs whenever you have specific queries or concerns.

**Teaching Assistants:**
The teaching assistants will deliver the labs and lab lectures.

**Course Grade:** Your grade for ECE1100 will consist of the following components:

First 8 Lab Modules/Reports: 80% (10% for each lab demonstration/Worksheet-report)
Final Lab Module & Lab Report: 20%

**Grading Scale:**
90 to 100=A
80 to 89=B
70 to 79=C
60 to 69=D
0 to 59=F

**Attendance:** In order to be successful in the course, attendance in the lab sessions is **MANDATORY** for each module. In case of absence, 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 me or TAs as soon as possible. Emergencies happen, unexpected situations arise, and you should use common sense and safe precautions when trying to access online lecture sessions and/or lab sessions.

**Modules and Checklists:** There are three components to the lab report grade. The first component consists of a module checklist form, the second component is the demonstration part (show the circuits functionality at the lab) and the third component consists of the complete worksheet/Lab report.
**NOTE: If a student fails to attend one or more labs and does not demonstrate circuit implementation, he or she will be unable to submit the worksheet and will receive a zero grade.**

**Modules** are worth 100% of the course grade, each worksheet/lab report is worth 50 points, each demonstration part is worth 50 points with the exception of the final lab which is worth 200 points (100 points for demonstration part and 100 points for worksheet/lab report).
Students must submit the worksheet/lab report before next Lab session. A worksheet/lab report template and rubric are provided on the course website to help students understand the W/lab report requirements.
The last lab of the course will ask students to write up a more formal lab report format than other labs. An example and rubric will be located on the website.

**Late lab reports /worsheets are not allowed unless arrangements are made with the instructor/TA prior to the deadline.**

**Teams:** Student teams will typically consist of 2 to 3 students per team and students will be on the same team during the lab course. 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 and calculations.**

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**Acknowledgement:**
I acknowledge that I have received the syllabus for ECE1300 and ECE 1100 for the Fall 2024 semester, and that I understand all attendance, competency, and assignment requirements.

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**Print Name**

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**Student Signature**

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**Date**