

**EE1305 - Introduction to Elect/Comp Engineering – CRN 23590
(Cross-listed as ECE1300 – CRN 27442)**

Spring 2023 Syllabus

Instructor:

Dr. Robert C. Roberts

Email: rcroberts@utep.edu

Office Hours:

Wednesday

3:00 AM to 5:00 PM

Office: Engineering A310

Lecture Times and Locations:

UGLC 342

Tuesday/Thursday

03:00 PM to 04:20 PM

Lecture Course Description (EE1305/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 of 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: EE1105/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 EE 1305.

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.

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

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

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. Please feel free to email me whenever you have specific queries or concerns.

Teaching Assistants:

The teaching assistants will deliver the labs and lab lectures as well as provide support in answering your questions on lecture materials. The TA's in charge of the lab and their contact information is on the course website: <http://www.ece.utep.edu/courses/web1305/EE1305/>

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 EE1305/ECE1300 will consist of the following components.

Workshop Problem Sets (Team):	30%
Homework (Individual):	25%
Quizzes:	25%
Final Exam:	20%

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 course. 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. **It will be the responsibility of the student team to submit the workshop solution on a paper with the names of each team members by the due (generally on the same class day). If one or more of the team members are absent, please do not add their names on the workshop.**

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 25% of the course grade. There are ten 10 –15 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, with one scheduled at the mid-point, and one scheduled near the end of the semester. Students can optionally take these quizzes to replace their two lowest (or missed) quiz scores. Students will not be provided with a retake missed quizzes until the situation is unavoidable.

Exams: The final 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. Circle your final exam now. **Note that the class meeting time and the exam time are not the same. Please note down your class and final exam schedule.**

Final Exam: Thursday, May 11th - 04:00 pm to 06:45 pm
Location same as class (You will be notified of any changes)

Homework: Individual homework problems will be shared during class and/or posted on the website 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 a paper with their names by the due (generally at the beginning of next class day).**

Grading Scale:

- 90 to 100=A
- 80 to 89=B
- 70 to 79=C
- 60 to 69=D
- 0 to 59=F

Teams: Students will be placed into teams during the first 2 weeks of class. Student teams will typically 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 as a team for the workshop problems. 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: Mar 30th, 2023

Drop Policy: Students can drop the course before Mar 30th, 2023 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.*

**EE1105: Lab for Intro to Elect/Comp Engineering
(Cross-listed at ECE1100)**

Spring 2023 Syllabus

Instructor: Dr. Robert C. Roberts
Email: rcroberts@utep.edu

TA: Bhushan Lohani
Email: blohani@miners.utep.edu
Office Hours: TBD

TA: Sheikh Dobir Hossain
Email: shossain6@utep.edu
Office Hours: TBD

EE1105 Lab Times and Locations:
CRN 21362 – Monday 10:30-13:20
Engineering E301E
(above also ECE1100 CRN 27443)
CRN 23646 – Tuesday 10:30-13:20
Engineering E301E
CRN 21363 – Wednesday 7:30-10:20
Engineering E301E
CRN 22102 – Friday 10:30-13:20
Engineering E301E

Laboratory Course Description (EE1105/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: EE 1305/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://www.ece.utep.edu/courses/web1305/EE1305/>

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

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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 on the course website:

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Course Grade: Your grade for EE1105/ECE1100 will consist of the following components:

First 8 Lab Modules/Reports: 80% (10% for each lab/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 highly recommended 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 two components to the lab report grade. The first component consists of a module checklist form and the second component consists of the complete worksheet.

Modules are worth 100% of the course grade and each lab report is worth 100 points, with the exception of the final lab which is worth 200 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 are provided on the course website to help students understand the lab report requirements.

The last lab of the course will ask students to write up a more formal lab report format than other labs, giving 2 weeks to complete (and worth more points). An example and rubric will be located on the website.

Lab reports are typically due at the beginning of your scheduled lab period.

Late lab reports lose 10% in value for every 24 hours late submission unless arrangements are made with the instructor/TA prior to the deadline.

Teams: Students will be placed into teams during the first 2 weeks of class. Student teams will typically 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.**

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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.

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Acknowledgement:

I acknowledge that I have received the syllabus for EE1305/ECE1300 (23590, 27442) and EE1105/ECE1100 (21362,27443,21363, 22102, 23646) for the Spring 2023 semester, and that I understand all attendance, competency, and assignment requirements.

Print Name

Student Signature

Date