

Electronic Fabrication: Lecture / CETT 1321

INSTRUCTOR CONTACT INFORMATION

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**LAMAR INSTITUTE
OF TECHNOLOGY**

CREDIT

3:2:3 Semester Credit Hours (2 Hours Lecture, 3 hours Lab)

MODE OF TRUCTION

Face to Face

PREREQUISITE/CO-REQUISITE:

None.

COURSE DESCRIPTION

This course provides a comprehensive introduction to basic electronics and electronic circuit fabrication techniques used in engineering technology and industrial applications. Students develop foundational knowledge of electrical and electronic principles while gaining practical skills in the construction, testing, and troubleshooting of electronic circuits.

The course covers fundamental concepts of electricity, voltage, current, resistance, power, and energy, as well as series, parallel, and combination circuits. Students explore the use of electronic test instruments, electrical measurements, magnetism, electromagnetic induction, transformers, capacitors, inductors, and semiconductor devices. Emphasis is placed on hands-on circuit fabrication techniques, including magnetic board, wire wrapping, printed circuit board (PCB) assembly, soldering and desoldering methods, component identification, and safe laboratory practices.

Students will construct, analyze, and troubleshoot electronic circuits using industry-standard fabrication methods and laboratory equipment. The course prepares students for advanced studies in electronics, circuit design, instrumentation, and engineering technology while reinforcing practical skills required in modern electronic manufacturing and maintenance environments.

COURSE OBJECTIVES

Upon completion of this course, the student will be able to

1. Explain the fundamental principles of electricity, including voltage, current, resistance, power, and energy.
2. Apply Ohm's Law and basic circuit laws to analyze electrical and electronic circuits.
3. Analyze the behavior of series, parallel, and series-parallel circuit configurations.

4. Interpret electronic schematics, symbols, and technical documentation.
5. Safely use common electronic test equipment, including digital multimeters, power supplies, and oscilloscopes.
6. Demonstrate proper laboratory safety procedures when working with electrical and electronic systems.
7. Describe the principles and applications of magnetism, electromagnetic induction, and transformers.
8. Analyze the characteristics and applications of capacitors and inductors in electronic circuits.
9. Identify electronic components and explain their functions within electrical and electronic systems.
10. Explain the operating principles of semiconductor devices, including diodes and transistors.
11. Construct and test electronic circuits using breadboards and prototype development techniques.
12. Demonstrate proper wire-wrapping techniques for circuit assembly and interconnection.
13. Fabricate and assemble circuits using printed circuit boards (PCBs).

REQUIRED TEXTBOOK AND MATERIALS

1. Scientific calculator
2. Laptop
3. Textbook: "GROB'S BASIC ELECTRONICS" By Mitchel E. Schultz. Edition ISBN- 978—1-265-46800-2

ATTENDANCE POLICY

The campus policy mandates that students attend 80% of their scheduled instructional days. Class attendance is critical for understanding the topics. This will be tracked in Starfish via student access in Blackboard and participation during specified meeting times. Excessive unexplained absences will result in a ten-point penalty from the final semester grade (at the discretion of the instructor).

DROP POLICY

If you wish to drop a course, you are responsible for initiating and completing the drop process by the specified drop date as listed on the Academic Calendar. If you stop coming to class and fail to drop the course, you will earn an "F" in the course.

COURSE EVALUATION

Final grades will be calculated according to the following criteria:

Homework	20%
Assignments	20%
Quiz:	20%
Exam:	40%

GRADE SCALE

- 90-100 A
- 80-89 B
- 70-79 C
- 60-69 D

- 0-59 F

LIT does not use +/- grading scales.

STUDENT EXPECTED REQUIREMENT

For every hour in class (or unit of credit) students should expect to spend at least two to three hours per week studying and completing assignments. For 3 credit hour class students should prepare to allocate approximately six to nine hours per week outside of class in a 16 week session or approximately twelve to eighteen hours in an 8-week session. Online/Hybrid students should expect to spend at least as much time in this course as in the traditional, face-to-face class.

ACADEMIC DISHONESTY

Students found to be committing academic dishonesty (cheating, plagiarism, or collusion) may receive disciplinary

action. Students need to familiarize themselves with the institution's Academic

Dishonesty Policy available in the Student Catalog & Handbook at

<http://catalog.lit.edu/index.php>

TECHNICAL REQUIREMENTS

The latest technical requirements, including hardware, compatible browsers, operating systems, etc. can be online at <https://lit.edu/online-learning/online-learning-minimum-computer-requirements>. A functional broadband internet connection, such as DSL, cable, or Wi-Fi is necessary to maximize the use of online technology and resources.

DISABILITIES STATEMENT

The Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. LIT provides reasonable accommodations as defined in the Rehabilitation Act of 1973, Section 504, and the Americans with Disabilities Act of 1990, to students with a diagnosed disability. The Special Populations Office is located in the Eagles' Nest Room 129 and helps foster a supportive and inclusive educational environment by maintaining partnerships with faculty and staff, as well as promoting awareness among all members of the Lamar Institute of Technology community. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409)-951-5708 or email specialpopulations@lit.edu. You may also visit the online resource at [Special Populations - Lamar Institute of Technology](#)

STUDENT CODE OF CONDUCT STATEMENT

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the LIT Catalog and Student Handbook. The LIT Catalog and Student Handbook may be accessed at www.lit.edu. Please note that the online version of the LIT Catalog and Student Handbook supersedes all other versions of the same document.

STARFISH

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.

COURSE ASSESSMENT

Quiz: A quiz will be given every other week. The duration of the quizzes will be 15 to 20 minutes. We will continue the class sessions after the quizzes. It is to make sure that the students are studying the class materials on a regular basis.

Optional Homework: Students will regularly receive optional homework assignments. These assignments will not be graded. The purpose of the homework is to support the students' learning process.

Extra Credits: Extra credit opportunities will be announced during class lectures. The extra credits will be reflected on students overall grade points at the end of the semester.

Exams: Instructions and dates will be announced at least one week in advance. The calendar in the syllabus shows tentative dates.

ADDITIONAL COURSE POLICIES/INFORMATION

1. Any assignment that Blackboard considers late will be manually graded with a deduction of 20 points.
2. The Final Exam cannot be late for ANY reason. The semester ends when the Final Exam is due.
3. Changes will be made to the calendar's topics and assignments because of any unanticipated circumstances.

SYLLABUS SCHEDULE

The schedule below is the tentative semester schedule which is subject to revision.

Week	Topic	Reference
Week 1	Introduction to power • Soft skill Develop • Introduction to powers	Introduction to powers – Questions and problems.
Week 2	Chapter 1- Electricity	Chapter 1- Questions and Problems
Week 3	Chapter 2: Resistors	Chapter 2- Questions and Problems
Week 4	Chapter 3,4 • Ohm's Law • Series Circuit	Chapter 3,4 Problems and Questions
Week 5	Chapter 5,6 • Parallel Circuit • Series- Parallel Circuits	Chapter 5,6 Problems and Questions
Week 6	Chapter 7,8	Chapter 7,8 Problems and Questions

Week	Topic	Reference
	- Voltage and Current Dividers - Analog and Digital Multimeter	
Week 7	Chapter 9,10 - Kirchhoff's Laws - Network Theorems	Chapter 9,10 Problems and Questions
Week 8	Chapter 11 Conductors and Insulators	Chapter 11 Problems and Questions
Week 9	Lab Project 1	Lab Work
Week 10	Lab Project 2: Series Circuit Analysis	Lab Work
Week 11	Lab Project 3: Series Circuit Analysis	Lab Work
Week 12	Lab Project 4: Turn Signal ECU Experiment	Lab Work
Week 13	Chapter 12: Batteries	Chapter 12: Problems and Questions
Week 14	Chapter 13: Electromagnetism	Chapter 13 Problems and Questions
Week 15	Final Exam	

Notes:

- This schedule is tentative and subject to change