AC/DC Motor Controls (INTC 1457) 1C1

CREDIT
4 Semester Credit Hours (3 hours lecture, 4 hours lab)

MODE OF INSTRUCTION
Hybrid

PREREQUISITE/CO-REQUISITE:
CETT 1403 & CETT 1405

COURSE DESCRIPTION
A study of electric motors and motor control devices common to a modern industrial environment. A presentation of motor characteristics with emphasis on starting, speed control, and stopping systems.

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

1. Describe the types of electric motors.

2. Explain the operation and function of various motor control devices.

3. Apply Ohm's law and the power formula to determine expected circuit values.

4. Identify types of electrical tools.

5. State the reason for grounding.

6. Identify electrical symbols in electrical power and control circuits.

7. Design, draw, and build common control circuits by following a line diagram.

8. Connect a dual-voltage wye-connected motor for high and low voltage.

9. Connect a dual-voltage delta-connected motor for high and low voltage.

10. Troubleshoot a Hand/Off/Auto circuit.

11. Hard wire and troubleshoot a reversing motor circuit.

12. Troubleshoot control circuits and components.

13. Apply On-delay and Off-delay timers and troubleshoot timer circuits.

INSTRUCTOR CONTACT INFORMATION

Instructor:	Joe Anderson
Email:	jeanderson1@lit.edu
Office Location:	PATC 233
Office Hours:	Thursday 30 minutes before/after class

REQUIRED TEXTBOOK AND MATERIALS

1. *Electrical Motor Controls 5th Edition by* Gary J. Rockis & Glen A. Mazur
   a. ISBN number is 9780826912268
2. Scientific calculator
3. Notebook.

ATTENDANCE POLICY

Students must be in class in order to complete lab activities for that day. Missing 20%, or more of classes will result in an automatic "F" for the course.

DROP POLICY

If you wish to drop a course, you are responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an "F" in the course.

COURSE CALENDAR (subject to change)

DATE	TOPIC	READINGS (Due on this Date)	ASSIGNMENTS (Due on this Date)
Week 1/2	Course introduction, policies, and safety	Chapters 3 & 4	Examine tools and test instruments
Week 3/4	Electrical symbols and diagrams	Chapter 2	Workbook exercises **EXAM 1**
Week 5	Control Logic	Chapter 5	Workbook exercises & labs
Week 6	Mechanical Input Devices & Solenoids	Chapters 6 & 7	Workbook exercises & labs **EXAM 2**
Week 8	Relays, Contactors, & Motor Starters	Chapters 8 & 12	Workbook exercises & labs
Week 9	Relays, Contactors, & Motor Starters	Chapters 8 & 12	Workbook exercises & labs **EXAM 3**
Week 10	DC generators & DC motors	Chapters 9 & 13	Workbook exercises & labs
Week 11/12	AC generators & AC motors	Chapters 10 & 14	Workbook exercises & labs **EXAM 4**
Week 13	Transformers, & Power Distribution	Chapter 11	Workbook exercises & labs
Week 14	Reversing Motor Circuits	Chapter 15	Workbook exercises & labs **EXAM 5**
Week 15	Final Exam Review		Practice Labs

COURSE EVALUATION
Final grades will be calculated according to the following criteria:
  EXAMS*- 30%
  Labs (Daily & Lab Exams)- 50%
  Quizzes/Assignments- 20%

  *There will be 5 major EXAMS and a FINAL EXAM. If you choose to *not* take the FINAL, your
  Exam Average of your first 5 exams will be used as your FINAL EXAM grade.

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

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
WiFi 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 (lit.edu).

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

. 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 flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic 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.

ADDITIONAL COURSE POLICIES/INFORMATION

1. No food, drinks, or use of tobacco products in class.

2. No foul or harsh language will be tolerated

3. Turn off all Cell Phones during lectures, unless otherwise instructed by me

4. Clean up work station after you complete your lab assignments. Materials left at work station will result in 10 points deducted from that lab assignment.

5. Take care of tools and equipment used during class

4. Headphones may be worn only upon Instructor approval

5. Do not bring children to class.

6. No Cheating of any kind will be tolerated. Students caught cheating or helping someone to cheat can and will be removed from the class for the semester. Cheating can result from expulsion from LIT.

7. Students must have access to, and knowledge of basic computer functions (including Blackboard)

8. Students should check Blackboard daily.

9. Internet Usage
    a. Classroom computers have access to the internet.
    b. Student usage of the internet will be monitored.
    c. Proper usage of the internet will be allowed for classroom research, classwork, tests, and assignments as directed.
    d. Any unauthorized usage of the Internet will not be tolerated.
    e. Improper usage of the Internet, such as profanity, nudity, gambling, etc. will result

in disciplinary action.

10. There will be NO make-up Exams. If you miss an Exam for any reason, you automatically forfeit your possible exemption from the Final.

11. There will be a 20 point penalty for each day deducted from late work (daily assignments only).

12. There will be NO make-up Labs.