



**Angelina College
Technology and Workforce Division
ELPT 2305 Motors and Transformers
Instructional Syllabus**

I. BASIC COURSE INFORMATION:

A. Course Description:

Three hours credit. Operation of single- and three-phase motors and transformers. Includes transformer banking, power factor correction, and protective devices. Students will be able to match the type of single-phase motor with its principles of operation; compare the operating characteristics of the three types of three-phase motors; explain the advantages of Wye and Delta connections in motor and transit applications; size overcurrent, short circuit, and ground fault protective devices; and utilize nameplate information. Prerequisite: ELPT 1411. Two lecture and two lab hours each week. Lab fee.

B. Intended Audience:

Intermediate

C. Instructor: David Turbeville

Office Location: TW-111

Office Hours: Monday and Wednesday 8-11am, Friday 8-Noon

Phone: (936) 633-5246 (Front Office)

E-mail Address: dturbeville@angelina.edu

II. INTENDED STUDENT OUTCOMES:

A. Core Objectives Required for this Course

- 1. Critical Thinking:** to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.
- 2. Communication:** to include effective development, interpretation and expression of ideas through written, oral and visual communication.
- 3. Empirical and Quantitative Skills:** to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

B. Course Learning Outcomes for all Sections

1. Match the type of single-phase motor with its principles of operation.
2. Compare the operating characteristics of the three types of three-phase motors.
3. Explain the advantages of Wye and Delta connections in motor and transit applications.
4. Size overcurrent, short circuit and ground fault protective devices.
5. Utilize nameplate information.

III. ASSESSMENT MEASURES

A. Assessments for the Core Objectives:

- 1. Critical Thinking:** Students will design a motor control system, requiring students to understand electrical requirements, interpret wiring diagrams, develop a plan and complete installation. A standard rubric is used to assess this objective.
- 2. Communication:** Students are required to develop a presentation to discuss the operation of their motor control system. A standard rubric is used to assess this objective.
- 3. Empirical and Quantitative Skills:** Students will select all components of a motor control system based on nameplate data as well as data in the National Electrical Code. A standard rubric is used to assess this objective.



B. Assessments for Course Learning Outcomes

1. Students will select a single-phase motor for a specific application through questions included in the midterm exam. Performance is assessed using a rubric.
2. Students will select a three-phase motor for a specific application through questions included in the midterm exam. Performance is assessed using a rubric.
3. Students will identify the advantages of Wye and Delta connections in motor and transit applications through questions included in the midterm exam. Performance is assessed using a rubric.
4. Students will select overcurrent, short circuit and ground fault protective devices as part of a unique final design project. Performance is assessed using a rubric.
5. Students will utilize nameplate information to select all components required for a complete motor and transformer installation as part of a unique final design project. Performance is assessed using a rubric.

IV. INSTRUCTIONAL PROCEDURES:

This course is being delivered in a hybrid format. This means is that some instruction will be delivered outside of the classroom. Content delivered outside of the classroom may include, video, audio, images and links to external websites. Students are encouraged to consult with their instructor if additional instruction is needed.

Lab activities are required in this course. The lab portion of the class appears on your schedule along with a room number. Attendance during the on-campus part of the course is mandatory. Completion of in-class work is also mandatory.

V. COURSE REQUIREMENTS AND POLICIES:

A. Required Textbooks and Recommended Readings, Materials and Equipment

Textbook: Electrical Transformers and Rotating Machines, Third Edition, Stephen L. Herman.

Lab Manual: Experiments in Electricity (Lab-Volt), Stephen L. Herman.

Equipment:

1. 3M Safety Glasses (11326-00000-20)
2. EMT Tool Kit # M2O39875RV1
3. Texas Instrument TI-30X IIS Scientific Calculator

B. Course Policies – This course conforms to the policies of Angelina College as stated in the Angelina College Handbook.

1. **Academic Assistance** – If you have a disability (as cited in Section 504 of the Rehabilitation Act of 1973 or Title II of the Americans with Disabilities Act of 1990) that may affect your participation in this class, you should see Steve Hudman in the Student Center. At a post-secondary institution, you must self-identify as a person with a disability; Mr. Hudman will assist you with the necessary information to do so.
2. **Attendance** – Attendance is required as per Angelina College Policy and will be recorded every day. Any student with three (3) consecutive absences or four (4) cumulative absences may be dropped from the class. Records will be turned in to the academic dean at the end of the semester. Do not assume that non-attendance in class will always result in an instructor drop. **You must officially drop a class or risk receiving an F.** This is official Angelina College Policy.
3. **Additional Policies Established by the Instructor**
 - Because safety is valued in the workplace, if you choose to ignore the safety guidelines of the class, I must drop you from class. Please adhere to our safety guidelines.
 - Handling conductors energized above 48V is not allowed.



- The EMT Tool Kit contains professional quality tools, and is required for this and all classes that have a lab. It is available through the AC Bookstore.
- Food is not allowed in class or lab. Drinks with a lid are allowed in the classroom but not in the lab areas. Liquids create a slip and shock hazard. Whoever spills it, cleans it up.
- I want you to succeed in this and all classes. Cell phones are very distracting, and should stay in your pocket or backpack. Texting and social media have become part of our daily lives, and are now a habit for many people. Step out of class if you have to take a call.
- I use a sign-out sheet to document attendance. It is available at approximately 20 minutes prior to the end of class.
- I assess your abilities in class, and I will expect each student to be able to demonstrate proficiency of the course learning outcomes. Our goal is your success in class, but also upon graduation. We want you to be able to demonstrate confidence and ability upon leaving the class.
- If a team project is assigned, each student must demonstrate ability to construct, operate or modify the project.
- All communication concerning assignments are sent to your Angelina College student email address.
- Students should be ready to make a short (3 minute) presentation on a class topic at any time. I will randomly select one or more students from the sign-in sheet each class period.

VI. COURSE OUTLINE: Description of the Course Activities including due dates, schedules, and deadlines.

At a minimum, there will be a midterm exam consisting of a written exam as well as a demonstration of skills. In addition, there will be a final exam which also consists of a written exam and a demonstration of skills. Additional assignments and quizzes will be delivered through Blackboard during the course of the semester.

VII. EVALUATION AND GRADING:

All exams and assignments are delivered through Blackboard. Each exam and assignment is assigned a point value. Your score for the class is based on the percentage of points achieved. Extra points are not available. Attendance is not counted as a score.

Above 89.5%	A
between 79.5 and 89.5%	B
between 69.5 and 79.5%	C
between 59.5 to 69.5%	D
Below 59.5%	F

- A. The instructor may modify the provisions of the syllabus to meet individual class needs by informing the class in advance as to the changes being made.
- B. As a student enrolled in a Technology & Workforce program, you will encounter certain risks while you are in a classroom, laboratory experience, or in a clinical or practicum setting. In the event that you sustain an injury and/or require any medical testing or care, all resulting medical expenses (hospital, ambulance, or physician fees), are your financial responsibility and not the responsibility of Angelina College or the clinical/practicum site.
- C. Effective August 27, 2012 Angelina College prohibits the use of tobacco products on campus, except in your personal vehicle. This measure was approved by the College Board of Trustees, and includes smoking and smokeless tobacco products.