SYLLABUS

ELPT 2305
MOTORS & TRANSFORMERS

INDUSTRIAL AND COMMERCIAL ELECTRICITY
BRAZOSPORT COLLEGE

LAKE JACKSON TEXAS

The Brazosport College District shall not discriminate against, or exclude from participation in any benefits or activities either on the staff or in the student body, any person on the grounds of sex, race, color, religion, national origin, age, or handicap.

Brazosport College
500 College Dr.
Lake Jackson, Texas 77566

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COURSE EVALUATION

STUDENT EVALUATION

A. Participation will account for no more than 15% of total grade.
B. Homework will account for no more than 15% of total grade.
C. Quizzes will account for no more than 35% of total grade.
D. Labs will account for no more than 15% of the total grade.
E. Final exam will account for no more than 20% of total grade.

INSTRUCTOR EVALUATION

A. Students will be given an opportunity to evaluate their instructor and the course content.
B. The instructor will review and evaluate in terms of withdrawal rate.
C. Final grades given will be reviewed in an effort to determine if a pattern of high or low grades exists.

DEPARTMENT EVALUATION OF COURSE

A. Faculty and the Division Chair will review student grades and withdrawal trends.
B. Faculty and the Division Chair will review the Course Competencies and Perspectives Assessment.

GENERAL GOALS/OBJECTIVES

A study of the principles of operation of single and three phase motors and transformers. Topics include transformer banking, power factor correction, and protective devices.

Instructor: Christopher Sterling

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COURSE DESCRIPTION

An introduction to basic direct current (DC) theory including electron theory and direct current applications. NCCER credit available. (3 SCH, 2 lecture, 2 lab)

TEXT AND REFERENCES

NCCER Contren Learning Series, Electrical Level 3 & 4 Trainee Guide, Electric Power System Fundamentals, Robert M. Clough 2nd edition ISBN:978-1-939815-06-4

National Electric Code, 2014 published by National Fire Protection Association. ISBN:978-145590672-7

"Required course materials are available at the Brazosport College bookstore, on campus or online at http://www.brazosport.edu/bookstore. A student of this institution is not under any obligation to purchase a textbook from the college bookstore. The same textbook is/may also be available from an independent retailer, including an online retailer."

Modules:

26307-14 Transformers

26403-14 Stand-by & Emergency Systems

26406-14 Specialty Transformers

26407-14 Advanced Controls

26410-14 Motor Operations & Maintenance

STUDENTS WITH DISABILITIES

Brazosport College is committed to providing equal education opportunities to every student. Brazosport College offers services for individuals with special needs and capabilities including counseling, tutoring, equipment, and software. Please contact the Special Populations Counselor at

(979) 230-3236 for further information.

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ACADEMIC HONESTY

Brazosport College assumes that students eligible to perform on the college level are familiar with the ordinary rules governing proper conduct including academic honesty. The principle of academic honesty is that all work presented by you is yours alone. Academic dishonesty including, but not limited to, cheating, plagiarism, and collusion shall be treated appropriately. Please refer to the Brazosport College Student Guide for more information. This is available online at http://www.brazosport.edu. Click on the CATALOGS AND SCHEDULES link under STUDENTS.

Academic dishonesty violates both the policies of this course and the Student Code of Conduct. In this class, any occurrence of academic dishonesty will be referred to the Dean of Student Services for prompt adjudication, and will, at a minimum, result in 0 for that assignment in this course. Sanctions may be imposed beyond your grade in this course by the Dean of Student Services.

COURSE GOALS

The following list of course goals will be addressed in the course. These goals are directly related to the performance objectives (Addendum A).

(* designates a CRUCIAL goal)

When you have completed this module, you will be able to do the following:

1. Test motor winding resistance.
2. Select and use motor testing equipment.

3. Troubleshoot and repair electric motors.
4. Describe transformer operation
5. Select and install solid-sate relays for specific applications motor control circuits.
6. Select and install electromechanical and solid-state timing relays for specific applications in motor control circuits.
7. Connect a multi-tap transformer for the required secondary voltage.
8. Compute transformer sizes for various applications.
9. Perform preventive maintenance and troubleshooting tasks in motor control circuits.

STUDENT CONTRIBUTIONS

Each student will spend at least 4 hours per week preparing for class. The student will have an opportunity to evaluate the instructor.

COURSE EVALUATION

Student grades will be assigned according to the following criteria:

PARTICIPATION 15%
HOMEWORK 15%
QUIZZES 35%
LABS 15%
FINAL EXAM 20%

The student will be graded in accordance with established college policy.
Grades of A through F will be assigned according to the chart below:

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

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ATTENDANCE AND WITHDRAWAL POLICIES

The class meets for 2 lecture hours and 2 lab hours per week. Each student will spend at least 4 hours per week preparing for class.

Attendance is critical since this class meets only once a week. Attendance will be taken each class period. If you miss a class, it is your responsibility to schedule any make-up test, homework, or lab with the instructor.

Because many assignments are prepared during class time, absences may adversely affect the final grade in the class.

Students will be dropped if they miss more than 20% of the classes before the drop date.

Tardies and leaving early will count as one half of an absence.

Students are also expected to take care of the equipment in the classroom. **PLEASE DO NOT BRING FOOD, DRINKS, OR UNAUTHORIZED PERSONS INTO THE CLASSROOM.**
It is the student's responsibility to withdraw from a course if circumstances occur that could prevent the student from successfully completing that course. Students should notify instructor of decision to withdraw and must not assume the instructor will complete the paperwork for the student. The instructor will complete required paperwork only if the instructor decides to drop a student for cause. Failure to notify instructor of withdrawal could result in the student failing the course.

During class, cell phones are to be turned off or set on “vibrate” mode for the entire class period. If you are expecting a call of an urgent nature, please inform me before class to make arrangements in handling the call.

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ASSIGNMENTS AND MAKE-UP POLICY

Students are responsible for completing all reading and homework assignments prior to class. All assignments are due on the date assigned. No late work will be accepted unless the student has an excused absence. An excused absence is when the student notifies the instructor of his or her absence prior to class.

Please note that changes in the Texas Education Code state that students enrolling for the first time in a Texas public institution of higher education in the fall of 2007 or after, will not be permitted to withdraw from more than a total of six courses (no minimum number of credit hours on each course) in which the student is officially enrolled during the student's period of undergraduate study at all such institutions (this includes any course a transfer student has dropped at another institution of higher education). See http://www.brazosport.cc.tx.us/CurStu.html for more information.

SCANS Competencies:

The Secretary's Commission on Achieving Necessary Skills (SCANS) identified competencies in the area of Resources, Interpersonal, Information, Systems, and Technology; and foundation skills in the area of Basic Skills, Thinking Skills, and Personal Qualities. This course is part of a program in which each of these competencies and skills in this course, see **Addendum A**.

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ADDENDUM A

PERFORMANCE OBJECTIVES

Module 26307-14 No Performance

Module 26403-14 No Performance

Module 26406-14

Objective	Task
1	Identify various specialty transformers.
2	Using a clamp-on ammeter, demonstrate the principles of a current transformer.
3	Identify the primary winding, then calculate & measure the effects of increasing the number of turns in the primary winding.
4	Connect a buck & boost transformer to a single-phase circuit so that it will first be in the boost mode and then be in the buck mode. Record the voltage increase & decrease for each configuration

Module 26407-14

Objective	Task
1	Identify & connect various control devices.

Module 26410-14 Motor Operations & Maintenance- No Performance

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COURSE SYLLABUS AGREEMENT FORM

YEAR_____ SEMESTER_____

LAST/FIRST NAME (PRINT) _____

DATE_____ TIME _____

INSTRUCTOR _____

I have enrolled in ELPT 2305 MOTORS & TRANSFORMERS and agree that I have received a copy of the course syllabus. I agree as a condition of enrollment and participation in the course that I have read the syllabus and will comply with the requirements. It is understood that during the semester the instructor may have to make adjustments to the weekly class schedule.

SIGNATURE **DATE**