COURSE NUMBER AND TITLE:   ELPT 1411 - Basic Electrical Theory

COURSE (CATALOG) DESCRIPTION
Basic theory and practice of electrical circuits. Includes calculations as applied to alternating and direct current.

INSTRUCTORS: Fernando Figueroa / Enrique Carrillo
OFFICE: Building “J” Chemical Technology Building
OFFICE HOURS: 9:00 am-11:00 am Monday-Thursday  1:00pm-4:00pm M, W
OFFICE TEL: 956-364-4978 / 956-364-4729
AMIST LAB TEL: 956-364-4733

INSTRUCTOR EMAIL ADDRESS:  Fernando.figueroa@harlingen.tstc.edu
Enrique.carrillo@harlingen.tstc.edu

LEARNING OBJECTIVES:

Explain atomic structure and basic values such as voltage, current, resistance, and power; determine electrical values for combination circuits in direct current (DC) and alternating current (AC) containing resistance, inductance, and capacitance; summarize the principles of magnetism; calculate voltage drop based on conductor length, type of material, and size; and utilize electrical measuring instruments.

REQUIRED TEXT AND MATERIALS:

ON-LINE Course – Moodle Web Links provided- Amatrol e-learning
COURSE REQUIREMENT:

A. Explain atomic structure and basic values such as voltage, current, resistance, and power
   The student will:
   - Analyze the nature of electricity
   - Explain current flow (conventional and electron)
   - Differentiate between voltage, current and resistance
   - Explain what causes current to move through a conductor

B. Determine electrical values for combination circuits in direct current (DC) and alternating current (AC) containing resistance, inductance, and capacitance
   The student will:
   - Transpose mathematical calculations between the scientific and metric systems and use the common metric prefixes to express quantities in electrical systems
   - Manipulate equations and make calculations involving voltage, current and resistance
   - Explain the relationship between resistance, current flow and voltage drops in an electric circuit
   - Analyze the effects of shorts and opens in series and parallel circuits (troubleshooting)

C. Summarize the principles of magnetism
   The student will:
   - Explain the relationship between magnetism and electricity.

D. Calculate voltage drop based on conductor length, type of material, and size
   The student will:
   - Transpose mathematical calculations between the scientific and metric systems and use the common metric prefixes to express quantities in electrical systems
   - Manipulate equations and make calculations involving voltage, current and resistance
   - Explain the relationship between resistance, current flow and voltage drops in an electric circuit
   - Analyze the effects of shorts and opens in series and parallel circuits (troubleshooting)
E. Utilize electrical measuring instruments  
   The student will:  
   - Operate bench meters and handheld meters to measure voltages,  
     currents and resistances to validate mathematical analysis of the circuits

F. Solve problems and build employability skills such as critical thinking,  
   adaptability and work ethic  
   The student will:  
   - Use critical thinking skills to complete assignments correctly and on  
     time  
   - Readily makes adjustments to work strategies and methods when  
     maintaining and repairing turbine components  
   - Exhibit a work ethic in completing work on time and consistently  
     attending all scheduled classes and labs

Students may vary in their competency levels on these abilities. You can expect to acquire these abilities only if you honor all course policies, attend classes regularly, complete all assigned work in good faith and on time, and meet all other course expectations of you as a student.

GRADING CRITERIA

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<tr>
<td>Participation-------</td>
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<td>Lab Assignments----</td>
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DEPARTMENT PARTICIPATION POLICY:

Students must log in for a minimum of six hours per week.

“MAKE UP” EXAMS AND ASSIGNMENTS:

“Make-up” exams, quizzes or assignments will be allowed only up to three days late but the repercussions are as follows:

A). Eleven points deducted for each day late.
B). No further submissions will be accepted after the third day late, consequently, this will automatically constitute a zero grade on the quiz, exam, or on the assignment.

C) NO SUBMISSIONS WILL BE ACCEPTED PASS THE END OF THE COURSE DATE LINE!!

ACCOMMODATION STATEMENT: If you have a documented disability which will make it difficult for you to carry out classwork as outlined and/or if you need special accommodations due to a disability, please contact (956) 364-4520 or visit the Support Services Office in the Auxiliary Services Building as soon as possible to make appropriate arrangements.

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Communicating with your instructor (MyMail Email System and Moodle)

The use of Your Mymail TSTC College student e-mail account and posts to the forum (Moodle) will be the best way to communicate with the instructor and also receiving official notices from the college. When communicating with instructors and/or employees of the college you are required to use your TSTC Mymail student e-mail address. If you choose to forward your e-mail to another account, please be advised that all communication from and within the college will use your Mymail student e-mail.

"TSTC Harlingen faculty, staff, and students are asked to report all threats, perceived or real, immediately to College Police located in the Auxiliary Building. If the threat is imminent, the College Police emergency phone line at 364-4234 or 9-911 should be
called. College Police will then coordinate the proper response in accordance with State and federal laws and TSTC System/College rules and regulations."

**NOTE:** Any changes to this Course Information Sheet will be provided in writing to the student.