

## Electrical Safety And Tools (ELPT 1321)



**Credit:** 3 semester credit hours (2 hours lecture, 4 hours lab)

**Prerequisite/Co-requisite:** None.

### Course Description

Safety rules and regulations. Includes the selection, inspection, use, and maintenance of common tools for electricians.

### Required Textbook and Materials

1. Electrical Essentials For Powerline Workers, Wayne Van Soelen
2. OSHA handouts
3. Handout literature

### Course Objectives

Explain electrical hazards and how to avoid them in the workplace; discuss safety issues concerning lockout/tagout procedures; and demonstrate safe work habits using common hand and power tools for electricians.

1. The student will learn how to inspect and store common tools.
2. The student will demonstrate safe work habits using common hand and power tools for electricians.
3. The student will learn rescue procedures.
4. The student will learn OSHA standards.
5. The students will learn how to administer First Aid/ CPR.
6. The students will learn equipment safety.
7. The student will explain electrical hazards and how to avoid them in the workplace.
8. The student will discuss safety issues concerning lockout/tagout procedures.

### Course Outline

- |                                 |                            |
|---------------------------------|----------------------------|
| I. OSHA 1910-269                | A. Speaking, listening     |
| A. Qualified person             | B. Technical communication |
| B. Rubber protective equipment  | C. Interviews              |
| C. Approach distances           | III. Vehicle Operation     |
| D. Mechanical equipment         | A. Digger – derrick        |
| E. PPE                          | 1. Inspection              |
| F. First aid/cpr                | 2. Outrigger safety        |
| G. Ladders                      | 3. Derrick operation       |
| H. Tailboard discussion         | B. Hand signals            |
| II. Interpersonal Communication | 1. Spotter                 |
|                                 | C. Lifting loads           |

Approved

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Course Syllabus

- 1. Safe loading
  - 2. Load charts
- V. Tools
- A. Proper inspection and use and storage
    - 1. Cover up
    - 2. Power tools
    - 3. Insulated tools
    - 4. Grounds
    - 5. Hoists
    - 6. Test equipment
    - 7. Ladders
    - 8. Load binding equipment
    - 9. Hotsticks
- VI. Basic Construction
- A. Pole framing
  - B. Specifications
  - C. Grounds
- D. Guys and anchors
  - E. Wire sagging
- VII. Transformer installation
- A. Specifications
  - B. Connections
  - C. Installation procedure
- IV. Resume
- A. Writing resumes
    - 1. Formatting
    - 2. Word use
    - 3. Presentation
  - B. Interview skills
    - 1. Proper dress
    - 2. Body language
    - 3. Presentation

**Grade Scale**

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

**Course Evaluation**

Final grades will be calculated according to the following criteria:

<i>Activity</i>	<i>Percentage</i>
OSHA Exam	15%
Communication Exam	10%
Basic Construction	10%
Conductor sagging	10%
Equipment Operation	15%
Basic hotstick	10%
Transformer Install	15%
Daily Grades	15%
<b>Total</b>	<b>100%</b>

**Grade points will be awarded in accordance with the college catalog**

1. Assignments are due on the due date assigned. Late assignments will not be accepted.
2. Tests must be taken on the announced date.
3. Daily grades include participation in classroom labs and skill level evaluations.

### **Course Requirements:**

1. Explain and follow relevant OSHA safety rules
2. Perform effective communication
3. Perform safe vehicle operation
4. Meet certification requirements for first aid/CPR
5. Perform proper inspection, use, and storage for required tools
6. Inspect and use basic hotsticks
7. Apply specifications for power line construction
8. Perform power line construction
9. Perform transformer installations and connections

### **Attendance Policy:**

1. Class attendance is important to obtain the educational objectives of this course. Prospective employers may also review your attendance records. Regular attendance and being on time for classes will have a positive effect on your academics and employment opportunities.
2. Two absences will result 1 letter grade drop, three absences drop 2 letter grades.
3. **Four absences result on an F for the semester.**

### **Course Policies**

1. No food or drinks in class.
2. Daily Lab grades cannot be made up
3. No make ups for Lab tests.
4. Any written test retake has an 80 points as maximum grade..
5. LIT is a tobacco free campus- no tobacco products allowed
6. Students must have and wear all required clothing including climbing boots at all times, and have PPE and tools for participation in class.
7. Students must have and wear **all required clothing, including climbing boots at all times**, and have PPE and tools for participation in **class and Lab**.
8. Turn off all Cell Phones during class and when on the field. Unauthorized cell phone use will result in a 0 for the daily grade.
9. Do not bring children to class.
10. Cheating of any kind will not 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.
11. If you wish to drop a course, the student is 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.

## 12. 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. Used for classroom research or as directed.
- d. Any unauthorized use of the internet will not be tolerated.
- e. Improper usage of the internet, such as profanity, pornography, gambling, etc... will result in disciplinary action not limited to expulsion from LIT.

## Disabilities Statement

The Americans with Disabilities Act of 1992 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. Among other things, these statutes require that all students with documented disabilities be guaranteed a learning environment that provides for reasonable accommodations for their disabilities. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409) 880-1737 or visit the office in Student Services, Cecil Beeson Building.

## 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](http://www.lit.edu) or obtained in print upon request at the Student Services Office.

## Course Schedule

Week	Topic	Reference
1	Course introduction and policies <ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Vehicle maintenance, inspection, operation</li></ul>	Handouts
2/3/4	OSHA 1910.269 <ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Vehicle operation, inspection</li><li>• Project: Set pole circle</li></ul>	Handouts
5/6	Communication <ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Communication exercises</li></ul>	Handouts
7/8	Resume preparation <ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Writing resume</li></ul>	Handouts
9/10/11	Wire sagging <ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Tool inspection and use</li><li>• Project: Sag primary conductor</li></ul>	Handouts

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Course Syllabus

<b>Week</b>	<b>Topic</b>	<b>Reference</b>
12/13	Construction <ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Staking sheets and material</li><li>• Project: Build single phase line</li></ul>	Handouts
14/15	Transformer installation <ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Tool inspection and use</li><li>• Project: Install single phase transformer</li></ul>	Chapter 10 Handout
16	Hotsticks <ul style="list-style-type: none"><li>• Lecture</li><li>• Lab: Hotstick application</li></ul>	Handout

**Contact Information:**

**Program Coordinator/Instructor:** Mr. Russell Koenig

**Office:** Silsbee/Robinson Center

**Telephone:** (409) 386-0018

**Cell:** (409) 656-1644

**E-mail:** rwkoenig@lit.edu

**Office Hours:** 7:30-8:00 AM, 12:00-1:00PM