Distribution Line Construction (LNWK 2322)

Credit: 3 semester credit hours (1 hour lecture, 6 hours lab)

Prerequisite/Co-requisite: LNWK 1311

Course Description

Study of electric distribution line construction. Includes reading staking sheets and framing specifications, tailboard discussions, pole framing, and setting, installing conductors, transformers and other line equipment, and OSHA and NESC regulations

Required Textbook and Materials

1. Electrical Essentials For Powerline Workers, Wayne Van Soelen
    a. ISBN number: 0-7668-1080-1
2. OSHA handouts
3. Handout literature

Course Objectives

Determine equipment and material needed from staking sheet information; describe safe work procedures and tailboard; explain framing specifications; and demonstrate pole framing. Discuss and apply pole setting procedures; discuss and apply safe conductor and equipment installations; and discuss and apply all relevant safety rules and procedures.

1. Assess equipment and materials needed from staking sheet information. *SCAN SKILLS: F1.4, F2.4, F5.4, F6.4, F7.3, F8.4, F9.3, F10.4, F11.4, F12.3, F13.4, F14.3, C1.4, C3.4, C5.4, C6.4, C7.4, C9.4, C10.3, C12.3, C15.4, C18.4, C19.4, C20.3*
2. Perform safe work procedures hold tailboard discussions. *SCAN SKILLS: F1.4, F2.4, F5.4, F6.4, F7.3, F8.4, F9.4, F10.3, F11.4, F12.4, F13.3, F14.3, C1.3, C4.3, C5.4, C6.4, C7.4, C9.4, C10.3, C13.3, C15.4, C16.3, C18.4*
3. Perform pole framing from pole specifications. *SCAN SKILLS: F1.4, 2.3, F5.4, F6.3, F7.4, F8.4, F9.4, F10.4, F11.4, F12.3, F13.4, F14.3, C1.4, C3.3, C4.3, C5.4, C6.4, C7.4, C9.4, C10.4, C13.3, C14.3, C15.4, C16.3, C18.4, C19.4, C20.4*
4. D. Perform pole setting according to staking sheet criteria. *SCAN SKILLS: F1.3, F2.3, F5.4, F6.4, F8.4, F9.4, F10.4, F11.4, F12.4, F13.4, F14.4, C1.3, C3.3, C5.4, C6.4, C7.4, C9.4, C10.3, C12.4, C14.3, C16.4, C18.4, C19.3, C20.3*
5. Safely perform conductor and equipment installations. *SCAN SKILLS: F1.4, F2.3, F3.2, F7.4, F8.4, F9.4, F10.3, F11.4, F12.3, F13.3, F14.3, C1.4, C3.4, C5.4, C6.4, C17.4, C9.4, C10.3, C13.3, C15.4, C16.4, C18.5, C19.5, C20.4*
6. Apply and observe all relevant safety rules and procedures. *SCAN SKILLS: F1.4, F2.4, F5.4, F6.4, F7.2, F8.4, F9.4, F11.4, F12.4, F13.4, F14.4, F15.3, F16.3,*

F17.4, C1.3, C4.3, C5.4, C6.4, C7.4, C9.4, C10.3, C12.3, C15.3, C16.4, C18.4, C19.

SCANS Skills and Competencies

Beginning in the late 1980's, the U.S. Department of Labor **S**ecretary's **C**ommission on **A**chieving **N**ecessary **S**kills (SCANS) conducted extensive research and interviews with business owners, union leaders, supervisors, and laborers in a wide variety of work settings to determine what knowledge workers needed in order to perform well on a job. In 1991 the Commission announced its findings in *What Work Requires in Schools.* In its research, the Commission determined that "workplace know-how" consists of two elements: foundation skills and workplace competencies.

Course Outline

I. Safety
- A. Safe work procedures
- B. Tailboard discussions
- C. Safety Equipment

II. Staking Sheets
- A. Symbols
- B. Assemblies

III. Poles and Hardware
- A. Framing specifications
- B. Pole framing
- C. Grounding
- D. Pole setting

IV. Conductors
- A. Stringing conductors
- B. Sagging conductors
- C. Conductor Ties
  Neutrals and Grounds

V. Transformers
- A. Installing transformers
- B. Secondary services
- C. Connections

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:

Activity	Percentage
Written Exam	15%
Lab Project 1	15%
Lab Project 2	15%
Lab Project 3	15%
Daily Grades	40%
Total	***100%***

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

1. Assignments are due on the due date assigned. Assignments turned in late will not receive full credit.

2. Tests must be taken on the announced date.
3. Daily grades include participation in classroom labs and skill level evaluations.
4. Late Penalties assessed on all work turned in late. 5 points per day
5. A student can only make up a practical test with the instructor's approval.

Course Requirements

1. Demonstrate safe work procedures and use proper safety equipment
2. Participate in and hold tailboard discussions
3. Read and interpret staking sheets
4. Set and frame poles according to specifications
5. Properly install conductor
6. Install proper bonds
7. Install transformers and secondary drops

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 unexcused absences will result 1 letter grade drop.

Course Policies

1. No food or drinks in class.
2. Daily lab grades cannot be made up.
3. LIT is a tobacco free campus- no tobacco products allowed
4. Students must follow safety rules and procedures at all times. Failure to follow safety rules will require action from daily grade reduction to expulsion from LIT.
5. 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***.
6. **Turn off all Cell Phones during class, labs and when on the field**. Unauthorized cell phone use will result in a 0 for the daily grade.
7. Do not bring children to class.
8. 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.
9. 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.

10. 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.

Course Schedule

Week	Topic	Reference
1	Course introduction and policies • Lecture: Staking sheets and construction specifications • Lab: Equipment maintenance	Construction Handout
2	OSHA safety and tailboard discussions • Lecture: Staking sheets and construction specifications • Lab: Climbing, field preparation	Handout
3/4	OSHA safety and tailboard discussions • Lecture • Lab: Project • Project: Single phase line construction	Handout
5/6	OSHA safety and tailboard discussions • Written Exam • Lecture • Lab: Project • Project: Single phase line construction	Handout
7/8	OSHA safety and tailboard discussions • Written Exam • Lecture • Lab: Project • Project: Single phase line construction	Handout

Week	Topic	Reference
	• Project Graded	
9/10	Transformer installation • Lecture • Lab: Project • Project: Transformer installation • Project Graded	Handout, Chapter 10
11/12	Three phase construction • Lecture • Lab: Project • Project: Three phase conversion	Handout
13/14/15	Three phase construction • Lecture • Lab: Project • Project: Three phase conversion • Project Graded	Handout
15/16	Final Project • Lecture • Project: As Assigned	

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