ELPL1121  Fundamentals of Electric Distribution 3

COURSE DESCRIPTION: This is a continuation of Fundamentals of Electric Distribution 2, only into the three-phase construction of overhead and underground systems. 4 Cr (1 lec/pres, 3 lab, 0 other)

COURSE FOCUS: This course covers the construction of overhead three-phase lines, calculating wire tension conductor sag, types of fuses, circuit breakers, and oil circuit reclosures. Covered also the installation of underground conductors and equipment used in underground. Working with and around electrical equipment and apparatus in substations will also be covered. If time allows, the use of chain saws, chain saw safety, and field maintenance.

PREREQUISITES: ELPL1106 - Fundamentals of Electric Distribution 2

TEXT AND REFERENCES: Manufacture's recommendations and OSHA requirements will be provided in class. The Lineman Cablemans Handbook. REA Spec. Book

COURSE GOALS: The following list of course goals will be addressed in the course. These goals are directly related to the performance objectives. All goals will be completed except if time does not allow.

1. describe BEFORE-DIGGING PRECAUTIONS
2. build three-phase overhead lines
   a. describe load factor
   b. set poles
      a. aligns and rake poles
      b. plumb poles
   c. install anchors
   d. tension guys
   e. install conductor
      a. dead-end conductors
      b. use sag targets
      c. use sag stopwatch
   f. tie in conductors
      a. install manufactured ties
      b. armor rod conductors
      c. install hand ties
   g. install ground assembly
3. build regulator station
   a. bypass regulator
4. build capacitor bank
5. build breaker bank
   a. bypass breaker bank
6. Build a three-phase transformer bank
a. install secondary metering
7. splice 600 volt underground
8. use underground cable preparation tools
   a. install 15 KV URD TERMINATOR
   b. install 15 KV URD elbow
   c. install 15 KV URD cable splice
   d. ground URD cable
9. install substation equipment
   a. install regulators
   b. install breakers
   c. install primary CT
10. build wishbone transmission lines
11. retire three-phase line
    a. pull poles
    b. remove anchor rods
    c. retire hardware
    d. use pole trailer
    e. bin poles
    f. salvage overhead wires
    g. wind up wire
12. perform aerial basket rescue
13. perform pole top rescue
14. clean-up pole sight and building
15. installing security lighting
16. define chain saw safety
    a. describe kickback
    b. describe saw pinching
    c. describe chain break
    d. disassemble and assemble chain saw

STUDENT CONTRIBUTIONS: Each student will spend at least 4 hours per week preparing for class. Attendance is critical in this class: Each class worth 15 points, late for class 10 points, call for absence 5 points, do not show up or notify –10 points. Excuse two absences.

COURSE EVALUATION: Your performance in this course will be converted to percent. A (100-94), A- (93-90), B+ (89 -87), B (86-84), B- (83-80), C+ (79 -76), C (75-72), C- (71-67), and F (below 67)

COURSE SCHEDULE: The class meets for 1 lecture hour and 6 lab hours per week.

The information in this course outline is subject to revision

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