

Dakota County Technical College

ELLW 1130: Basic Electricity

A. COURSE DESCRIPTION

Credits: 2

Lecture Hours/Week: 1

Lab Hours/Week: 1

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course covers the introduction to electrical circuits and magnetic circuits, both AC and DC. The student will use mathematics to calculate voltage, resistance, and current in each type of circuit. This course is an introduction to the use of formulas needed to do the calculations that the lineworker may encounter in this field. The introduction to the magnetic circuits will be the basis for transformer application. The safety aspects of calculating voltages and currents will be used to identify the exposure in such applications that could be a safety hazard. Prerequisites: None

B. COURSE EFFECTIVE DATES: 03/22/1998 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

D. LEARNING OUTCOMES (General)

1. apply delta system characteristics
2. apply left hand rule
3. apply right hand rule
4. apply wye system characteristics
5. calculate circuit average values
6. calculate circuit effective values
7. calculate circuit maximum values
8. calculate parallel circuit currents
9. calculate parallel circuit resistance
10. calculate series circuit voltage
11. calculate series circuit current
12. calculate series circuit resistance
13. calculate wire resistances
14. compare system protection equipment AC versus DC monitoring
15. define a combination circuit
16. define a parallel circuit
17. define a series circuit
18. define a solenoid
19. define AC current
20. define a parallel circuit
21. define a sucking solenoid
22. define AC current
23. define AC sources
24. define counter electro motive force
25. define DC current
26. define DC sources
27. define electromagnetism
28. define magnetic induction
29. define rectified AC current
30. determine battery polarities
31. determine circuit polarities
32. determine coil polarities
33. determine magnetic polarities
34. explain a complete circuit
35. explain AC generation
36. explain an open circuit
37. explain difference of potential
38. explain in phase effects
39. explain induction principles
40. explain leading effects
41. explain phase angles
42. identify AC current lagging voltage
43. identify AC current leading voltage
44. explain phase angles

45. identify an AC sine wave
46. identify current and voltage directions
47. identify current and voltage in phase
48. identify resistances in combinatio
49. identify resistances in parallel
50. identify resistances in series

E. Minnesota Transfer Curriculum Goal Area(s) and Competencies

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted