COURSE TITLE: Electrical Circuits Fundamentals Lab     COURSE NUMBER: ELCO 1105

COURSE DESCRIPTION:
This course provides students with theoretical and practical experience in electric circuits for both DC and AC using scientific method, analysis and deduction. Topics covered will be safety, resistor color code, meter use, Ohm's law, series and parallel circuits, complex circuits, oscilloscope operation, alternating current and voltage, capacitance, capacitive reactance, capacitive circuits, inductance, inductive reactance.

3 Credits (0 lect/pres, 3 lab, 0 other)

COURSE GOALS:
The following list of course goals will be addressed in the course. These goals are directly related to the performance objectives. (*designates a CRUCIAL goal)

1. exhibit dependability
2. differentiate conductors/insulator
3. apply Ohms Law
4. measure watts
5. connect ammeters
6. measure volt-amps
7. connect voltmeters
8. measure vars
9. measure voltage
10. calculate power factor
11. measure current
12. use single-phase wattmeter
13. measure resistance
14. connect single-phase motor circuit
15. use single-phase varmeter
16. measure motor power factor
17. construct series circuits
18. interpret resistance color code
19. connect delta circuit
20. test delta circuit
21. construct parallel circuits
22. connect wye circuit
23. test wye circuit
24. construct series parallel circuits
25. connect unbalanced wye system
26. test unbalanced wye system
27. calculate polyphase power
28. calculate polyphase apparent power
29. calculate polyphase vars
30. measure polyphase power
31. calculate polyphase power factor
32. apply Nortons theorem
33. read watthour meters
34. operate bells/buzzers/relays
35. apply electromagnetic induction principles
36. measure peak-to-peak voltage
*37. measure effective voltage
38. construct AC inductive circuits
39. construct AC capacitive circuits
40. construct RC circuits
41. construct RL circuits
42. construct RLC circuits
43. calculate series resonance
44. apply series resonance
45. calculate parallel resonance
46. apply parallel resonance
47. calculate AC resistive power
48. calculate series reactive power
49. calculate parallel reactive power

ATTENDANCE:
Students will be required to attend a minimum of 95% to satisfactorily complete this course.

The information in this course outline is subject to revision

Veteran Services: Minnesota West is dedicated to assisting veterans and eligible family members in achieving their educational goals efficiently. Active duty and reserve/guard military members should advise their instructor of all regularly scheduled military appointments and duties that conflict with scheduled course requirements. Instructors will make every effort to work with the student to identify adjusted timelines. If you are a veteran, please contact the Minnesota West Veterans Service Office.

To receive reasonable accommodations for a documented disability, please contact the campus Student Services Advisor or campus Disability Coordinator as arrangements must be made in advance. In addition, students are encouraged to notify their instructor.

This document is available in alternative formats to individuals with disabilities by contacting the Student Services Advisor or by calling 800-658-2330 or Minnesota Relay Service at 800-627-3529 or by using your preferred relay service.

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