

Dakota County Technical College

BMET 1123: AC Electricity

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 2

Lab Hours/Week: 1

OJT Hours/Week: *.*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course introduces the principles of alternating current. Circuits will consist of resistive, capacitive, and inductive devices. Ohm's and Watt's laws, along with Norton's and Thevenin's theorems will be used to simplify complex combinations of RCL circuits. Test equipment introduced includes the VOM (volt-ohm-meter), DMM (digital-multimeter), signal generator, and oscilloscope. The course concludes with resonating circuits. Prerequisites: BMET1112 or equivalent.

B. COURSE EFFECTIVE DATES: 08/21/2006 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

D. LEARNING OUTCOMES (General)

1. Analyze A. C. voltage and current circuits
2. Analyze audio generator
3. Analyze parallel circuits with conductance
4. Compute power in all passive A.C. circuits
5. Construct parallel circuits
6. Construct series circuit
7. Construct series parallel circuits
8. Define inductance
9. Demonstrate electrical safety
10. Describe AC alternator's operation
11. Describe electrical safety
12. Identify voltmeter controls
13. Use DC power supply
14. Use voltmeter
15. Analyze transformer operation
16. Construct CR circuit
17. Construct LR circuit
18. Define mutual inductance
19. Describe LR operation
20. Describe effect of self-inductance
21. Describe factors effecting inductance
22. Analyze LR and CR time constants
23. Analyze capacitors in series and parallel
24. Analyze inductors in series and parallel
25. Analyze oscilloscope operation
26. Construct AC CR circuit
27. Construct AC LCR circuit
28. Construct AC LR circuit
29. Define AC parameters rms, average, peak
30. Define capacitance
31. Define frequency
32. Define period time
33. Describe electrostatic fields
34. Describe factors effecting capacitance
35. Describe oscilloscope controls
36. Use oscilloscope
37. Analyze capacitive inductive circuit
38. Construct parallel resonant circuit
39. Define resonance
40. Describe difference between series and parallel resonance
41. Explain capacitive reactance
42. Explain inductive reactance
43. Record parallel resonant characteristics
44. Record series resonant characteristics

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

None

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted