

# Minnesota State College Southeast

## **ELEC 2216: Servicing Techniques**

### **A. COURSE DESCRIPTION**

Credits: 3

Lecture Hours/Week: 1

Lab Hours/Week: 4

OJT Hours/Week: \*.\*

Prerequisites: None

Corequisites: None

MnTC Goals: None

This course provides a background in some of the techniques used to service personal computers.

Throughout this course you will disassemble, reassemble and test a microcomputer system. (Prerequisite: ELEC2210) (3 Credits: 1 lecture/2 lab)

**B. COURSE EFFECTIVE DATES:** 10/14/1998 - Present

**C. OUTLINE OF MAJOR CONTENT AREAS**

**D. LEARNING OUTCOMES (General)**

1. Analyze block diagram
2. Apply safety practices
3. Locate individual circuits
4. Describe control status
5. Analyze diagnostic test
6. Describe logic probe operation
7. Use cross references
8. Troubleshoot with a logic probe
9. Describe busses
10. Analyze synchronizing
11. Associate troubles on a schematic
12. Analyze power supply circuits
13. Analyze control signals
14. Analyze address bus signals
15. Analyze power supply protection devices
16. Analyze data bus signals
17. Locate power supply circuitry
18. Analyze display signals
19. Measure power supply voltages
20. Analyze keyboard signals
21. Measure I/O voltages
22. Troubleshoot using performance checks
23. Describe troubles on a schematic
24. Describe principles of static control
25. Describe single cycle operation
26. Identify video faults
27. Operate in the step mode
28. Troubleshoot defective circuits
29. Describe signal tracing techniques
30. Describe signal injection techniques
31. Replace defective components
32. Complete trouble report
33. Troubleshoot using static control
34. Show troubles on a schematic
35. Analyze logic signals on a scope
36. Describe multiplexer operation
37. Perform multiplexer operation
38. Test busses with a multiplexer
39. Troubleshoot with a multiplexer
40. Specify troubles on a schematic
41. Describe logic analyzer operation
42. Operate a logic analyzer
43. Test for logic errors
44. Describe signature analyzer operation

45. Use a signature analyzer
46. Troubleshoot with a signature analyzer
47. Validate troubles on a schematic

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

None

**F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

**G. SPECIAL INFORMATION**

None noted