A. Course Description
   - Credits: 2.00
   - Lecture Hours/Week: 2.00
   - Lab Hours/Week: 0.00
   - OJT Hours/Week: 0
   - Prerequisites: None
   - Corequisites: None
   - MnTC Goals: None

   This course covers analysis and troubleshooting of logic controllers, AC and DC electronic drives, energy management systems, heating and cooling systems, fire alarm and security systems, and integrated voice/video/data and infrared systems. Prerequisites: ELEC2130, ELEC2140.

B. Course Effective Dates: 3/9/03 – Present

C. Outline of Major Content Areas
   - As noted on course syllabus

D. Learning Outcomes
   1. Describe DC drives and usage
   2. Program Energy Management systems
   3. Analysis AC drives
   4. Analysis DC drives
   5. Analyze Energy Management systems
   6. Analyze HVAC
   7. Analyze fire alarm programming
   8. Analyze programmable logic controllers programming
   9. Analyze security systems
   10. Calculate
   11. Calculate HVAC systems
   12. Calculate the layout of the fire alarm systems
   13. Define AC drives
   14. Define DC drives
15. define Energy Management systems
16. define HVAC (heating, ventilating, air conditioning)
17. define fire alarm system
18. define infer-red systems
19. define programmable logic controllers
20. define types of security systems
21. describe AC drives
22. describe fire alarm system
23. describe infer-red systems
24. describe programmable logic controller
25. describe security systems and uses
26. determine lay out of security systems

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

F. Learner Outcomes Assessment
   
   As noted on course syllabus

G. Special Information
   
   None noted