A. CATALOG DESCRIPTION
1. Credits: 3
2. Hours/Week: 3
3. Prerequisites (if any): BUM II courses or background in Electricity
4. Co-requisites (if any): None
5. MnTC Goals (if any): NA

This course covers the principles of HVAC controller systems. Various types of electro-mechanical, electronic, and pneumatic systems will be presented and discussed with an emphasis put on computer aided control. Recommended Entry Skills/Knowledge: Electrical and/or Mechanical Ability.

B. DATE LAST REVISED (use current date): April, 2004

C. OUTLINE OF MAJOR CONTENT AREAS:
1. Explain HVAC fundamentals.
2. Explain commercial HVAC systems.
3. Explain control principles
4. Explain and describe a control system.
5. Describe and explain an Andover Energy Management System.
6. Describe and explain an electrical control system.
7. Describe and explain an electronic control system.
8. Describe and explain building automation systems and controllers.
9. Describe and explain operator interfaces.
10. Describe and explain pneumatic actuators.
11. Describe and explain pneumatic dampers.
12. Describe and explain pneumatic valves.
13. Describe and explain pneumatic thermostats.
14. Describe and explain pneumatic humidistats.
15. Describe and explain pneumatic pressure switches.
16. Describe and explain pneumatic transmitters.
17. Describe and explain pneumatic receiver controllers
18. Describe and explain pneumatic auxiliary devices.
19. Describe and explain pneumatic control system applications.
20. Describe heat control circuits.
22. Describe heat/cool control circuits.
23. Describe AC major components.
24. Describe high-pressure controls.
25. Describe contactors.
26. Describe and explain energy management systems.
27. Describe and explain computer control of systems.

D. LEARNING OUTCOMES (GENERAL): The Student will be able to:
1. Test.
2. Analyze.
3. Repair.
4. Install.
5. Operate HVAC Control Systems.

E. LEARNING OUTCOMES (MNTC): NA
F. METHODS FOR EVALUATION OF STUDENT LEARNING:
   1. Written Class Tests
   2. Fully Operational Lab Tests
   3. Workbook answers
   4. Quizzes

G. SPECIAL INFORMATION (if any): None