COMMON COURSE OUTLINE: Course discipline/number/title: BU 1540: Power Plant Operation

A. CATALOG DESCRIPTION
1. Credits: 4
2. Hours/Week: 8
3. Prerequisites (Course discipline/number): Enrollment in the BUM program or Instructor permission.
4. Co-requisites (Course discipline/number): None
5. MnTC Goals (if any): NA

This course will provide students the opportunity to operate a High Pressure Boiler, turbine generator, related appurtenances and connect to the electric grid. Students will become familiar with fittings, accessories, water treatment, computerized controls, fuels, and combustion and flue gas analysis. Power Plant operations such as OSHA safety and EPA regulations will be discussed. Student will also earn required boiler hours toward the Minnesota 2A operator's license.

B. DATE LAST REVISED (Month, year): January, 2015

C. OUTLINE OF MAJOR CONTENT AREAS:
1. High Pressure boilers and safe system operations.
2. Turbine generator operations.
3. Steam/condensate cycle, trapping, condensers and returns.
4. Water treatment, testing and Boiler chemicals.
5. Power Plant systems maintenance and trouble shooting.
6. Fuels and combustion controls, EPA regulations.

D. LEARNING OUTCOMES (GENERAL): The student will be able to:
1. Operate high pressure computerized controlled boilers, generate electricity, and connect to the city electrical grid.
2. Operate, maintain and troubleshoot related systems.
3. Test and treat make up, feed and return water systems.
4. Operate and control fuel/draft systems to maintain EPA requirements.
5. Take and analyze draft and flue gas recordings.
6. Describe and draw the 4 major systems w/fittings and accessories.
7. Prepare boiler for inspections.
9. Record, Log and communicate Plant information.
10. Earn hours toward 2A licensing requirements.

E. LEARNING OUTCOMES (MNTC): NA

F. METHODS FOR EVALUATION OF STUDENT LEARNING:
1. Operating quizzes.
2. Operation observations
3. Parts Identification tests
4. Final exam.

G. RTC CORE OUTCOME(S) ADDRESSED:
- Communication
- Critical Thinking
- Global Awareness/Diversity
- Civic Responsibility
- Personal/Professional Accountability
- Aesthetic Response

H. SPECIAL INFORMATION (if any): Hazardous materials usage.