



MASTER COURSE OUTLINE

A. IMMR 2725 High Pressure Boiler

B. COURSE DESCRIPTION:

This course introduces the safety in the operation of high pressure boilers. Topics covered include boiler fittings, daily and monthly safety checks, operation and maintenance, feedwater accessories, steam accessories, turbines, and environmental control systems. This course is designed to prepare the student for a second-class high pressure boilers license. Prerequisites: IMMR 1720 or one year experience in boiler operation.
(3 Cr – 2 lect, 1 lab)

C. Core Theme: Critical Thinking

D. RIVERLAND INSTITUTIONAL LEARNING OUTCOMES:

This course addresses the following Riverland Institutional Learning Outcome(s):

- ILO 1: critical thinking (*Core Theme Goal 2*)
- ILO 2: awareness of the larger global community (*Core Theme Goal 7 or 8*)
- ILO 3: ethical, engaged citizenship (*Core Theme Goal 9 or Goal 10*)
- ILO 4: communication and collaboration (*Discipline Goal 1 and by any learning outcome(s) involving communication or collaboration*)

E. MAJOR CONTENT AREAS:

- Boiler types and uses
- Steam systems and appurtenances
- Boiler fittings and accessories
- Water treatment procedures
- Water/steam/condensate cycles
- Steam traps and their locations
- Fuel combustion and EPA (Environmental Protection Agency) regulations
- Safe boiler room and power plant operations and procedures
- PPE (Personal Protective Equipment) care and use
- Boiler operating conditions, plant hazards and safety procedures
- Maintenance practices, inspection preparations, and material handling
- Safety procedures and communication practices

F. GOAL TYPE, OBJECTIVES, AND OUTCOMES:

| <u>GOAL TYPE</u> | <u>OBJECTIVES</u> | <u>OUTCOMES</u> |
|----------------------------|---|--|
| **Critical Thinking | Students will be able to gather factual information and apply it to a given problem in a manner that is relevant, clear, comprehensive, and conscious of possible bias in the information selected. | <ol style="list-style-type: none"> operate and maintain a boiler within state requirements. understand and operate high pressure boilers their conditions. maintenance practices, inspection practices and material handling. demonstrate safety procedures and communication practices. |
| CS | prepare for second-class boiler engineer's license exam. | <ol style="list-style-type: none"> pass the state boiler exam to earn a second-class high pressure engineer's license. |

G. SPECIAL INFORMATION:

This course may require use of the Internet, the submission of electronically prepared documents and the use of a course management software program. Students who have a disability and need accommodations should contact Accessibility Services at the beginning of the semester. This information will be made available in alternative format, such as Braille, large print, or current media, upon request.

H. COURSE CODING INFORMATION: Course Code S/Class Maximum 24; Letter Grade

Revision date: 01/14/11; 03/01/23

AASC Approval date: 03/22/11; 04/18/23

| *Riverland Community College Disciplines | MnTC Goal Number |
|---|-------------------------|
| Communication (CM) | 1 |
| Natural Sciences (NS) | 3 |
| Mathematics/Logical Reasoning (MA) | 4 |
| History and the Social & Behavioral Sciences (SS) | 5 |
| Humanities and Fine Arts (HU) | 6 |

| **Riverland Community College Core Themes | MnTC Goal Number |
|--|-------------------------|
| Critical Thinking (CT) | 2 |
| Human Diversity (HD) | 7 |
| Global Perspective (GP) | 8 |
| Ethical and Civic Responsibility (EC) | 9 |
| People and the Environment (PE) | 10 |

*These five MnTC Goals have been identified as Riverland Community College Disciplines.

** These five MnTC Goals have been identified as Riverland Community College Core Themes.

NOTE: The Minnesota Transfer Curriculum “10 Goal Areas of Emphasis” are reflected in the five required discipline areas and five core themes noted in the Riverland Community College program of study guide and/or college catalog.

Riverland