



MASTER COURSE OUTLINE

A. IMMR 2755 Distribution and HVAC Systems

B. COURSE DESCRIPTION:

This course covers various basic aspects of the plumbing trade. Consideration will be given to sanitary and waste systems including proper venting. In lab actual plumbing situations that will be encountered, and students will solve plumbing installation problems. Other activities include using pipe, wrenches, identifying different types of pipe and fittings, and establishing proper draining. HVAC (heating, ventilation and air-conditioning) operational principles includes operating, testing and analyzing gas and oil-fired furnaces, hydronic heating systems, heat pump systems, air conditioning including installation practices and operations air distribution systems. This course will also cover indoor air quality measurements concerns and issues including comfort and psychometrics. Recommended skills and knowledge in electrical with mechanical aptitude.
(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:

- Plumbing shop safety
- Use of tools in various types of pipe, soldering, pipe installation, glues, and related materials
- Portable water, drainage waste and vent piping
- Pipe hanging and fitting identifications
- Symbols and blueprint reading
- Cooling, air distribution systems, heating, sheet metal tools, sheet metal layout
- Installation of heating, cooling, and air distribution systems and understand indoor air quality, comfort, and psychometrics
- Operate, test, diagnose and repair heating, cooling, and air distribution systems
- Demonstrate knowledge in the installation of heating and air distribution systems

- Demonstrate knowledge of indoor air quality, comfort, and psychometrics

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.	The student will successfully think systematically and explore information thoroughly before accepting or formulating a position or conclusion.
<u>CS</u>	demonstrate work/lab safety.	<ol style="list-style-type: none"> 1. review lab safety. 2. demonstrate lab safety. 3. explain safety systems
<u>CS</u>	understand how systems work together	<ol style="list-style-type: none"> 1. explain how adjustments in one area of a completed system effects related parts. 2. demonstrate replacement of OEM (original equipment manufacturer) parts and effects.

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:

AASC Approval date: 12/13/22

*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