



MASTER COURSE OUTLINE

A. IMMR 1760 Hydraulics I

B. COURSE DESCRIPTION:

This course covers basic hydraulic system principles including symbols, pumps, control valves, cylinders, and the reading and drawing of schematics. Disassembly and assembly of hydraulic components are also included. This course is recognized as an Interstate Renewable Energy Council (IREC) ISPQ Accredited Training Program for curriculum covering the Job Task Analyses for Small Wind Installer (NABCEP).

(3 Cr – 1 lect, 2 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:

- Pascal's Law
- Hydraulic principles
- Hydraulic symbols
- Hydraulic system operations
- Schematic reading
- Directional control valve types
- Pump functions
- Cylinder identification

F. GOAL TYPE, OBJECTIVES AND OUTCOMES:

| <u>GOAL TYPE</u> | <u>OBJECTIVES</u> Students will be able to | <u>OUTCOMES</u> The student will successfully |
|---------------------------|--|--|
| <u>*Critical Thinking</u> | 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. | 1. demonstrate an understanding of hydraulic circuits and how they function. |
| <u>CS</u> | identify a hydraulic circuit. | 1. design hydraulic circuits. |
| <u>CS</u> | identify components in a hydraulic circuit. | 1. disassemble and assemble hydraulic circuits. |
| <u>CS</u> | identify hydraulic symbols. | 1. apply symbols designing hydraulic circuits. |

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: 10/25/12; 04/02/24

AASC Approval date: 11/20/12; 04/16/24

*These five MnTC Goals have been identified as Riverland Community College Core Themes. Every course in the Riverland Community College curriculum shall meet outcomes from one of these themes.

**These five MnTC Goals have been identified as Riverland Community College Disciplines. Riverland's MnTC courses also shall meet outcomes from a Discipline Area.

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 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 |

| **Riverland Community College Discipline Areas | 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