



**Purpose:** It is the intention of this Administrative-Master Syllabus to provide a general description of the course, outline the required elements of the course and to lay the foundation for course assessment for the improvement of student learning, as specified by the faculty of Wharton County Junior College, regardless of who teaches the course, the timeframe by which it is instructed, or the instructional method by which the course is delivered. It is not intended to restrict the manner by which an individual faculty member teaches the course but to be an administrative tool to aid in the improvement of instruction.

**Course Title** – Hydraulics, Fabrication, & Repair

**Course Prefix and Number** – HYDR 1450

**Department** – Manufacturing Technology

**Division** – Vocational Science

**Course Type:** (check one)

- Academic General Education Course (from ACGM – but not in WCJC Core)
- Academic WCJC Core Course
- WECM course (This course is a Special Topics or Unique Needs Course: Y  or N )

**Semester Credit Hours # : Lecture Hours # : Lab/Other Hours #** 4:3:3

**Equated Pay hours for course** – 4.5

**Course Catalog Description** – Fabricate power units, to provide fluid power for an industrial or mobile operation. Includes techniques and methods of constructing conduits and fittings. The course will also include a study of hydraulic fundamentals accessories, pumps, motors, actuators, and pneumatics.

**Prerequisites/Co-requisites** - TSI requirements met.

List Lab/ Other Hours
Lab Hours 3
Clinical Hours
Practicum Hours
Other (list)

**Prepared by** Rudolph Henry

**Date** 10/31/2014

**Reviewed by Department Head** Rudolph Henry

**Date** 10/31/2014

**Accuracy Verified by Division Chair** Tim Guin

**Date** 10/31/2014

**Approved by Dean or Vice President of Instruction**

**Date** 12/03/2014

L.A. Collins, VPI



**I. Topical Outline** – Each offering of this course must include the following topics (be sure to include information regarding lab, practicum, clinical or other non-lecture instruction):

**Topical Outline -> Dedicated Instructional Time**

- IMTHP004-GCU -> Hydraulics Fundamentals -> 16 Hrs.
- IMTHP002-GCU -> Hydraulic accessories and actuators -> 12 Hrs.
- IMTHP009-GCU -> Air, water and gas valves -> 12 Hrs.
- IMTHP006-GCU -> Directional valves -> 12 Hs
- IMTHP008-GCU -> Hydraulic Pumps and Motors -> 16 Hrs.
- IMTHP005-GCU -> Oleodynamic control valves -> 20 Hrs.
- IMTHP007-GCU -> Pneumatic -> 8 Hrs.

**Lab:**

This course will feature hands-on lab to enhance the lectures.

**II. Course Learning Outcomes**

<b>Learning Outcomes</b>	<b>Methods of Assessment</b>
<p><b>Upon successful completion of this course, students will be able to:</b></p> <ol style="list-style-type: none"> <li>1. Apply technical skills in the following topics:               <ol style="list-style-type: none"> <li>A. Hydraulics Fundamentals</li> <li>B. Hydraulic accessories and actuators</li> <li>C. Air, water and gas valves</li> <li>D. Directional valves</li> <li>E. Hydraulic Pumps and Motors</li> <li>F. Oleodynamic control valves</li> <li>G. Pneumatics</li> </ol> </li> <li>2. Demonstrate fabrication/assembly of power units.</li> <li>3. Interpret blueprints and specifications.</li> <li>4. Demonstrate disassembly, repair, and reassembly of hydraulic components.</li> <li>5. Analyze failed components.</li> </ol>	<p>Periodic written quizzes and exams.</p> <p>Hands-on laboratory assessments.</p> <p>Exam / hands-on performance analysis will be performed to identify weaknesses in the program.</p>

**III. Required Text(s), Optional Text(s) and/or Materials to be Supplied by Student.**

Industry hand-outs and selected text.

**IV. Suggested Course Maximum - 20**

**V. List any specific spatial or physical requirements beyond a typical classroom required to teach the course.**

Associated lab requirements.

**VI. Course Requirements/Grading System – Describe any course specific requirements such as research papers or reading assignments and the generalized grading format for the course**

1. Quizzes, homework, assignments, and class participation – 25%
2. Lab, and cross disciplinary skills (work ethic, safety, teamwork, housekeeping, attitude). – 25%
3. Mid-term exam – 25%
4. Final Exam – 25%

**Grading.**

A – 100-90.

B – 89-80

C – 79-70

**VII. Curriculum Checklist**

- **Academic General Education Course** (from ACGM – but not in WCJC Core)

No additional documentation needed

- **Academic WCJC Core Course**

Attach the Core Curriculum Review Forms

- Critical Thinking
- Communication
- Empirical & Quantitative Skills
- Teamwork
- Social Responsibility
- Personal Responsibility

- **WECM Courses**

If needed, revise the Program SCANS Matrix & Competencies Checklist.