



# CHIPOLA COLLEGE

## COURSE SYLLABUS

Chipola's website: [www.chipola.edu](http://www.chipola.edu)

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**COURSE TITLE:**

Hydraulics & Pneumatics

**COURSE NUMBER:**

ETM 2315C

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**COURSE DESCRIPTION (with prerequisites):**

This course treats principles of fluid and airflow, the basic components of hydraulic and pneumatic systems and how they are combined and function in instrumentation. Experience will include demonstration and setting up various hydraulic and pneumatic circuits and how they respond to pressure, heat, flow and restriction. This course is one of four courses that lead to a Pneumatics, Hydraulics and Motors state certification. 3 semester credit hours. 6 contact hours.

**NAME(S) OF INSTRUCTORS:**

TBA

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**EFFECTIVE ACADEMIC YEAR:**

2023-2024

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**REQUIRED TEXTBOOKS AND INSTRUCTIONAL MATERIALS:**

Fluid Power Hydraulics and Pneumatics by James R. Daines, 1<sup>st</sup> edition, ISBN: 9781605250816.

Amatrol eBook, 5085-1C Advanced Manufacturing Program Summary, Volume 1, Copyright 2013 Amatrol, Inc.

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**GRADING POLICY:**

The standing of a student in each course is expressed by one of the following letters and corresponding grading system:

**A – 90 – 100**

**B – 80 – 89**

**C – 70 – 79**

**D – 60 – 69**

**F – 59 or less**

The Chipola Catalog provides policies and procedures regarding the grading system. A student's Grade Point Average is derived from the grading system/quality point scale.

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**ATTENDANCE AND WITHDRAWAL POLICIES:**

Chipola College expects regular attendance of all students and for all instructors to record attendance daily. Students who are absent from classes for any reason other than official college activities must satisfy the instructor concerned that the absence was due to illness

or other clearly unavoidable reasons. Otherwise, the student may suffer grade loss at the discretion of the instructor. Chipola policy allows each instructor to specify in the Instructor First Day Handout whether or not an absence is excusable and what effect the absence or tardy may have on the grade.

A student is allowed to repeat a course a maximum of three (3) times. **On the third attempt a student (1) must bear the full cost of instruction (unless waived by Student Services), (2) cannot withdraw, and (3) must receive a grade.**

#### **MAKE-UP POLICY:**

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Chipola allows each instructor to specify in the Instructor First Day Handout the makeup policy.

#### **ACADEMIC HONOR CODE POLICY:**

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Students are expected to uphold the Academic Honor Code, which is based on the premise that each student has the responsibility to (1) uphold the highest standards of academic honesty in his/her own work; (2) refuse to tolerate academic dishonesty in the college community; and (3) foster a high sense of honor and social responsibility on the part of students. Further information regarding the Academic Honor Code may be found in the Chipola Catalog, Student Governance section.

#### **STUDENTS WITH DISABILITIES POLICY:**

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Chipola College is committed to making all programs and facilities accessible to anyone with a disability. Chipola's goal is for students to obtain maximum benefit from their educational experience and to effectively transition into the college environment. Students with disabilities are requested to voluntarily contact the Office of Students with Disabilities to complete the intake process and determine their eligibility for reasonable accommodations.

#### **NOTICE OF EQUAL ACCESS/EQUAL OPPORTUNITY AND NONDISCRIMINATION:**

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Chipola College does not discriminate against any persons, employees, students, applicants or others affiliated with the college in regards to race, color, religion, ethnicity, national origin, age, veteran's status, disability, gender, genetic information, marital status, pregnancy or any other protected class under applicable federal and state laws, in any college program, activity or employment.

Wendy Phippen, Associate Vice President of Human Resources, Equity Officer and Title IX Coordinator, 3094 Indian Circle, Marianna, FL 32446, Building A, Room 183C, 850-718-2269, phippenw@chipola.edu.

#### **LIBRARY AND ON-LINE REFERENCE MATERIALS:**

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The library is a comprehensive learning resource center providing information in print, electronic, and multimedia format to support the educational objectives of the College. On-line catalogs, e-books, and electronic databases can be accessed through the Library Resources link within your course in Canvas or by using the *Search* icon on the Chipola Library website at [www.chipola.edu/library](http://www.chipola.edu/library). If you have questions about database usage, consult the "How to Use the Chipola Databases" on the Library website or call the Library at 850/718-2274 during regular hours. Library hours are

posted each semester at the building entrance and on the Library website. See your Instructor First Day Handout for individual instructor recommendations and resources.

### **TECHNOLOGY RESOURCES:**

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The college's learning management system is **Canvas**. Classes become available on Canvas on the first day of the semester. It is the student's responsibility to log onto the Canvas system the first day of class to establish the first day of attendance and to check announcements. All official class communication must be through Canvas. For further information, contact your instructor or the Director of Learning Resources. The Canvas support hotline is available online in live chat and on the phone, toll-free, at 855-308-2812 for any issues utilizing Canvas. The **Technology Center**, located in the library, is equipped with computer workstations. Lab hours are posted each semester at the building entrance and on the Library website.

### **FREE TUTORING RESOURCES:**

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The Academic Center for Excellence (**ACE**) Lab, located in Building L, offers free tutoring from 8 a.m. to 5 p.m. and is equipped with computer workstations. ACE lab hours are posted each semester at the room entrance and on the website. Additionally, live online tutoring conferences and individual tutoring sessions are available for a variety of courses through ACE@Home. For a conference schedule or to schedule an individual appointment, visit "ACE Tutoring" in the left navigation from any course in Canvas.

### **ELECTRONIC DEVICE USAGE STATEMENT:**

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Classrooms should be free of all unnecessary distractions from the task of learning. Therefore, as a general rule, students should silence and avoid use of all electronic devices (laptops, phones, tablets, etc.) not being used for coursework. Consult first-day handouts for any specific policies related to the use of electronic devices in the classroom, as they may vary depending upon the nature of the course or the guidelines of the instructor. Faculty reserve the right to regulate the use of electronic devices and their accessories in class.

### **DISCIPLINE SPECIFIC COMPETENCIES / LEARNING OUTCOMES:**

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This course treats principles of fluid and airflow, the basic components of hydraulic and pneumatic systems and how they are combined and function in instrumentation. Experience will include demonstration and setting up various hydraulic and pneumatic circuits and how they respond to pressure, heat, flow and restriction. |

**Linking Course-level Student Learning Outcomes with Discipline-Specific Competencies, Assessment Methods, and Artifacts**

<b>COURSE-LEVEL STUDENT LEARNING OUTCOMES FOR [ETM 2315C]</b>	<b>DISCIPLINE-SPECIFIC GENERAL EDUCATION COMPETENCIES</b>	<b>ASSESSMENT METHODS FOR COURSE LEVEL STUDENT LEARNING OUTCOMES (see Notes below)</b>
<p>Upon the successful completion of this course students will be able to:</p> <ul style="list-style-type: none"> <li>• Understand industrial applications of fluid power</li> <li>• Identify advantages and disadvantages of hydraulic and pneumatic systems</li> <li>• Understand the functions of basic hydraulic system components</li> <li>• Understand and analyze advanced hydraulic circuits</li> <li>• Perform maintenance and troubleshooting techniques</li> <li>• Understand the unique nature of pneumatic systems</li> <li>• Perform basic pneumatic control and logic circuit design and operation</li> <li>• Understand electrical controls and electro-hydraulic systems</li> </ul>	<ol style="list-style-type: none"> <li>1. Demonstrate an understanding of industrial processes and material properties.</li> <li>2. Demonstrate ability to generate and interpret computer-aided drawings (CAD).</li> <li>3. Demonstrate a fundamental understanding of electronics and electricity.</li> <li>4. Demonstrate an understanding of industrial safety, health, and environmental requirements.</li> <li>5. Demonstrate proficiency in the use of quality assurance methods and quality control concepts.</li> <li>6. Demonstrate proficiency in using tools, instruments, and testing devices.</li> <li>7. Demonstrate math skills appropriate for employees in an engineering work environment.</li> <li>8. Demonstrate basic troubleshooting skills appropriate for employees in an engineering work environment.</li> </ol>	<p>Q, T, SD, SP, Sk. Check</p>

**Notes: Assessment Codes**

**BO** - Behavioral Observation  
**Cap Proj** - Capstone Course  
**CF** - Cumulative Final  
**Clin** - Clinicals  
**CP** - Case Plan  
**CS** - Case Study  
**DB** - Discussion Board  
**DE** - Documented Essays  
**E** - Essays

**EX** - Dept Exam  
**Exp** - Experiments  
**F** - Final Exam  
**H** - Homework  
**Intern** - Internship  
**J** - Jury  
**JP** - Judged Perf/Exh  
**Obs** - Teacher Observ  
**OT** - Objective Tests

**Port** - Portfolio  
**Prac** - Practicum  
**Pre/ Post** - Pre-/Post-Tests  
**Proj** - Projects  
**PS** - Problem Solving  
**Q** - Quizzes  
**R** - Recital  
**RP** - Research Papers  
**RPT** - Report/Presentation

**SD** - Skills Demonstration  
**SE** - Natl or State Standardized  
**Sk** - Ck Skills Check-Off  
**SP** - Skills Performance  
**T** - Tests  
**UT** - Unit Tests  
**W** - Writing Assignments

**MEANS OF ACCOMPLISHING STUDENT LEARNING OUTCOMES:**

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Assessments are determined by measuring the ability of each student to retain the learning outcomes and objectives of the course.

1. Learning modules for course theory delivered online.
2. Hands-on competency-based labs.
3. Assessments.

**ASSIGNMENT AND/OR COURSE OUTLINE**

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See your Instructor First Day Handout for individual instructor assignment schedule.