North Central State College

MASTER SYLLABUS	2025-2026

A. Academic Division: Engineering Technology, Business & Criminal Justice Division

B. Discipline: Industrial Technology, Industrial Maintenance

C. Course Number and Title: EMMT1050 – Fundamentals of Fluid Power Systems

D. Assistant Dean: Brooke Miller, M.B.A.

E. Credit Hours: 3
Lecture: 2 hours
Laboratory: 2 hours

F. Prerequisites: None

G. Last Course/Curriculum Revision Date: Fall 2025 Origin date: 02/09/2012

H. Textbook(s) Title: None

I. Workbook(s) and/or Lab Manual: None

J. Course Description: An introductory course in fluid power fundamentals, providing a study of system components including pumps, cylinders, valves, and various fluid circuits. Included is an introduction to hydraulic and pneumatic circuit analysis including symbols. Laboratory experience with components is also provided.

K. College-Wide Learning Outcomes

College-Wide Learning Outcome	Assessments - - How it is met & When it is met
Communication – Written	
Communication – Speech	
Intercultural Knowledge and Competence	
Critical Thinking	
Information Literacy	
Quantitative Literacy	

L. Course Outcomes and Assessment Methods:

Upon successful completion of this course, the student shall:

Outcomes	Assessments – How it is met & When it is met
1. Define force and energy in relation to the physical world of a machine.	Lab exercises, quizzes. throughout the semester, midterm and final exam.
2. Calculate hydraulic and pneumatic transmission of force and energy.	Lab exercises, quizzes. throughout the semester, midterm and final exam.
3. Calculate cylinder volume and piston rod speed.	Lab exercises, quizzes. throughout the semester, midterm and final exam.

Outcomes	Assessments – How it is met & When it is met
4. Determine the type and function of hydraulic and pneumatic components by their graphical symbols.	Lab exercises, quizzes. throughout the semester, midterm and final exam.
5. Install, test and troubleshoot hydraulic and pneumatic components using schematic diagrams.	Lab exercises, quizzes. throughout the semester, midterm and final exam.

M. Recommended Grading Scale:

NUMERIC	GRADE	POINTS	DEFINITION
93–100	A	4.00	Superior
90–92	A-	3.67	Superior
87–89	B+	3.33	Above Average
83–86	B	3.00	Above Average
80–82	B-	2.67	Above Average
77–79	C+	2.33	Average
73–76	C	2.00	Average
70-72	C-	1.67	Below Average
67–69	D+	1.33	Below Average
63-66	D	1.00	Below Average
60-62	D-	0.67	Poor
00-59	F	0.00	Failure

N. College Procedures/Policies:

North Central State College believes that every student is a valued and equal member of the community.* Every student brings different experiences to the College, and all are important in enriching academic life and developing greater understanding and appreciation of one another. Therefore, NC State College creates an inclusive culture in which students feel comfortable sharing their experiences. Discrimination and prejudice have no place on the campus, and the College takes any complaint in this regard seriously. Students encountering aspects of the instruction that result in barriers to their sense of being included and respected should contact the instructor, assistant dean, or dean without fear of reprisal.

* *Inclusive of race, color, religion, gender, gender identity or expression, national origin (ancestry), military status (past, present or future), disability, age (40 years or older), status as a parent during pregnancy and immediately after the birth of a child, status as a parent of a young child, status as a foster parent, genetic information, or sexual orientation*

Important information regarding College Procedures and Policies can be found on the syllabus supplement located at
https://ncstatecollege.edu/documents/President/PoliciesProcedures/PolicyManual/Final%20PDFs/14-081b.pdf

North Central State College

SYLLABUS ADDENDUM

Academic Division:	Engineering Technology, Business & Criminal Justice Division	**Discipline:**	Industrial Technology, Industrial Maintenance
Course Coordinator:			
Course Number:	EMMT1050	**Course Title:**	Fundamentals of Fluid Power
Semester / Session:	Summer 2026	**Start / End Date:**	05/26/2026 thru 07/17/2026

Instructor Information

Name:	Dave Wright	**Credentials:**	
Phone Number:	419-755-4555	**E-Mail Address:**	Dwright@ncstatecollege.edu
Office Location:	Kehoe Center – IST Lab	**Office Hours:**	Tuesday & Thursday 7am to 7 pm

I. Topical Timeline / Course Calendar (Subject to Change):

Weeks	Topics	Assignment	Due Date
1	Hydraulic Power Systems / Basic Hydraulic Circuits	Complete Amatrol Quiz, LAP, Skill Accomplishment	05/29/2026
2	Principles of Hydraulic Pressure and Flow	Complete Amatrol Quiz, LAP, Skill Accomplishment	06/05/2026
3	Hydraulic Speed Control / Pressure Control Circuits / Final Exam	Complete Amatrol Quiz, LAP, Skill Accomplishment, Take Final Exam	06/12/2026
4	Hydraulic DCV Applications / Hydraulic Cylinder Applications	Complete Amatrol Quiz, LAP, Skill Accomplishment	06/19/2026
5	Hydraulic Relief Valve Operation / Hydraulic Check Valve Applications	Complete Amatrol Quiz, LAP, Skill Accomplishment	06/26/2026
6	Accumulator Applications / Final Exam \ Pneumatic Power Systems	Complete Amatrol Quiz, LAP, Skill Accomplishment	07/03/2026
7	Basic Pneumatic Circuits / Principles of Pneumatic Pressure and Flow	Complete Amatrol Quiz, LAP, Skill Accomplishment	07/10/2026
8	Pneumatic Speed Control Circuits / Final Exam	Complete Amatrol Quiz, LAP, Skill Accomplishment, Final Exam	07/17/2026

II. Grading and Testing Guidelines:

Final Grade Calculation

Activity	Qty	Points	Percentage
Amatrol Quiz	14	100	20
LAP (learning activity pack)	14	100	50
Skill Accomplishment Test	14	100	10
Final Exam	1	100	20

There are 3 tasks that must be accomplished for each Topic:

1. Take the prequiz on the Amatrol LMS, Review the material, Take the quiz for that topic.

2. Complete the LAP (learning activity packet) on the trainer for your course. Have all exercises signed off by the instructor.
3. Complete the skill assessment for that topic.

III. Students are expected to work in a manner that is respectful of others. This includes avoiding loud or abusive language.