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: EMMT1020 – Fundamentals of Mechanical Systems

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

E. Credit Hours: 2
Lecture: 1 hour
Laboratory: 2 hours

F. Prerequisites: EMMT1540

G. Last Course/Curriculum Revision Date: Fall 2025 Origin date: 02/08/2011

H. Textbook(s) Title: None

I. Workbook(s) and/or Lab Manual: Amatrol eLearning Course

J. Course Description: Fundamentals of mechanical systems includes: introduction to mechanical fasteners, measuring instruments, motors, power transmissions systems. Other topics include: introduction to mechanical fasteners, sensors, and applications of sensors, and piping and piping installation. The laboratory experience consists of hands-on experiments designed to reinforce concepts presented. Contains demonstrations, lab projects and simulations.

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. Identify the primary functions of mechanical power transmission systems.	Lab exercises and quizzes throughout the semester, and final exam
2. Calculate mechanical power, efficiency, loads, torque and speed given various gear, chain drive and pulley ratios, horsepower ratings, and motor speeds.	Lab exercises and quizzes throughout the semester, and final exam
3. Differentiate between the function, type, and use of various shaft couplings.	Lab exercises and quizzes throughout the semester, and final exam
4. Construct, calibrate, align, tension and operate various motors, motor mounts, motor couplings, gear boxes, chain drive and pulley systems.	All lab exercises throughout the semester.
5. Choose the most appropriate coupling for a given application.	Lab exercises and quizzes throughout the semester, and final exam
6. Choose the most appropriate lubricant and lubrication schedule based on the application.	Lab exercises and quizzes throughout the semester, 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:	Dave Wright		
Course Number:	EMMT1020	**Course Title:**	Mechanical Systems
Semester / Session:	Spring 2026	**Start / End Date:**	01/12/2026 thru 05/08/2026

Instructor Information

Name:	Dave Wright	**Credentials:**	Master Electrician, BSBA
Phone Number:	419-755-4529	**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	Introduction to Mechanical Drive Systems / Key Fasteners	Complete Amatrol Quiz, LAP, Skill Accomplishment	01/23/2026
2	Power Transmission Systems	Complete Amatrol Quiz, LAP, Skill Accomplishment	02/06/2026
3	Couplings / Multiple Shaft Drives	Complete Amatrol Quiz, LAP, Skill Accomplishment	02/20/2026
4	Precision Shaft Alignment	Complete Amatrol Quiz, LAP, Skill Accomplishment	03/06/2026
5	Lubrication Concepts / Introduction to V-Belt Drives	Complete Amatrol Quiz, LAP, Skill Accomplishment	03/20/2026
6	V-Belt Selection and Maintenance / Synchronous Belt Drives	Complete Amatrol Quiz, LAP, Skill Accomplishment	04/03/2026
7	Heavy Duty V-Belt Drives / Introduction to Chain Drives	Complete Amatrol Quiz, LAP, Skill Accomplishment	04/17/2026
8	Heavy-Duty Chain Drives / Spur Gear Drives	Complete Amatrol Quiz, LAP, Skill Accomplishment	05/08/2026

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.