



North Central State College
MASTER SYLLABUS
2019-2020

- A. Academic Division: Business, Industry and Technology
- B. Discipline: Mechanical Engineering Technology
- C. Course Number and Title: MECT 3010 Applied Dynamics
- D. Course Coordinator: Daniel Wagner
Assistant Dean: Toni Johnson, PhD

Instructor Information:

- Name: [Click here to enter text.](#)
- Office Location: [Click here to enter text.](#)
- Office Hours: [Click here to enter text.](#)
- Phone Number: [Click here to enter text.](#)
- E-Mail Address [Click here to enter text.](#)

- E. Credit Hours: 3
- F. Prerequisites: MATH 1151, MECT 2330
- G. Syllabus Effective Date: Fall, 2019
- H. Textbook(s) Title:

Engineering Mechanics: Dynamics

- Authors: Hibbeler
- Copyright Year: 2016
- Edition: 14th Edition
- ISBN: 0134116992

- I. Workbook(s) and/or Lab Manual:
- J. Course Description: In this course, students will study static force and moment analysis using vector method, applications of dry friction and analysis of structures and machines. Dynamic analysis using force and acceleration, energy and momentum methods will also be discussed.
- C
- 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. Compute vector analysis in three dimensions.	Problem based quizzes and exams
2. Evaluate curvilinear motion of particles using rectangular, normal and tangential, and cylindrical components.	Problem based quizzes and exams
3. Analyze particle and rigid body motion through the use of force and acceleration.	Problem based quizzes and exams
4. Discuss energy and study its use in analyzing particle and rigid body motion.	Problem based quizzes and exams
5. Define impulses and discuss momentum methods to analyze particle and rigid body motion.	Problem based quizzes and exams

ABET Outcomes:

- *Outcome b.* Use of computer aided drafting and design software;
- *Outcome d.* Elements of differential and integral calculus;
- *Outcome h.* Mechanical system design.

M. Topical Timeline (Subject to Change):

- Vector analysis methodology
- Curvilinear motion of particles using rectangular, normal and tangential, and cylindrical components
- Newton’s Law of Motion for particles
- The principle of work and energy and its application to particles
- The principle of linear impulse and momentum applied to particles
- Curvilinear motion of rigid bodies using rectangular, normal and tangential, and cylindrical components
- Newton’s Law of motion for translation and rotation of rigid bodies and mechanisms
- Work and energy methods applied to rigid bodies and mechanisms
- Linear and rotational impulse and momentum methods for analyzing the motion rigid bodies and mechanisms.

N. Course Assignments:

- Quizzes
- Exams

O. 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

P. Grading and Testing Guidelines:

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Q. Examination Policy:

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R. Class Attendance and Homework Make-Up Policy:

Click here to enter text.

S. Classroom Expectations:

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T. College Procedures/Policies:

Important information regarding College Procedures and Policies can be found on the [syllabus supplement](https://sharept.ncstatecollege.edu/committees/1/curriculum/SiteAssets/SitePages/Home/SYLLABUS%20SUPPLEMENT.pdf) located at <https://sharept.ncstatecollege.edu/committees/1/curriculum/SiteAssets/SitePages/Home/SYLLABUS%20SUPPLEMENT.pdf>