

Fall 2019

ME 339-001: Fundamentals of Mechanical Design

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COURSE NUMBER	ME 339
COURSE TITLE	Fundamentals of Mechanical Design
COURSE STRUCTURE	(3-0-3) (lecture hr/wk - lab hr/wk – course credits)
COURSE COORDINATOR	Z. Ji
COURSE DESCRIPTION	For industrial engineering majors. Topics include kinematics of mechanisms, machine components, and a brief introduction to mechanical vibrations. Students gain the ability to deal with design problems from the viewpoint of a non-specialist.
PREREQUISITE(S)	Mech 234 – Engineering Mechanics
COREQUISITE(S)	None
REQUIRED, ELECTIVE OR SELECTED ELECTIVE	Required for non-ME
REQUIRED MATERIALS	David H. Myszka, Machines and Mechanisms: Applied Kinematic Analysis, 4th Ed., Prentice Hall, 2012, ISBN-13: 978-0132157803, ISBN-10: 0132157802
Other supplemental materials (not Required)	None
COMPUTER USAGE	

COURSE LEARNING OUTCOMES/ EXPECTED PERFORMANCE CRITERIA:	Course Learning Outcomes	SOs*	Expected Performance Criteria
	1. formulate and perform kinematics analysis of linkages.	1	Exam Question (80% of the students will earn a grade of 70% or better on this question)
	2. formulate and perform kinematics analysis of cam and gear mechanisms	1	Exam Question (80% of the students will earn a grade of 70% or better on this question)
	3. perform basic calculation related to the use of common machine components: fasteners, springs, and clutches	1, 2	Exam Question (80% of the students will earn a grade of 70% or better on this question)
	4. perform basic calculation related to the use of bearings and lubrication	1, 2	Exam Question (80% of the students will earn a grade of 70% or better on this question)
	5. perform basic calculation related to mechanical vibrations.	1, 2	Exam Question (80% of the students will earn a grade of 70% or better on this question)

CLASS TOPICS	<ol style="list-style-type: none"> 1. Linkages: position analysis 2. Linkages: velocity and acceleration 3. Cams 4. Fasteners 5. Springs 6. Clutches 7. Gears and gear trains 8. Bearings and lubrication 9. Vibrations 						
STUDENT OUTCOMES (SCALE: 1-3)	1	2	3	4	5	6	7
	3	2					
3 – Strongly supported 2 – Supported 1 – Minimally supported							

* Student Outcomes