Fall 2019

ME 339-001: Fundamentals of Mechanical Design

Stephen Tricamo

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	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