MECH 3742 - Kinematics of Machines

Fall 2026 Syllabus, Section 02, CRN 41346,

Credit hours: 3

Instructor

Hazel Marie

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Public Instructor Information

Instructor Title: Hazel Marie, Ph.D., P.E.
Instructor Professional Qualifications:

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Ph.D., Mechanical Engineering, University of Akron
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Course Description

3742. Kinematics of Machines. Position, velocity, and acceleration analysis of mechanisms. Design of link and cam mechanisms to perform desired machine functions. Graphical, analytical, and commercial software applications. Prereq.: MECH 2641, ENGR 1560 and MECH 1560. 3 s.h.

Course Readings

Group	Title	Author	ISBN
Optional	"Theory of Machines and Mechanisms" 6th ed.	Uicker, Pennock, and Shigley	9781009303675

The course readings are subject to change in the event of extenuating circumstances, research developments, current events, and/or to ensure better learning.

Tentative Schedule of Topics and Assignments

Week of	Proposed Topic	Due/To Prepare for Class
8/24	Introduction to Mechanisms	Homework 1
8/31	Introduction to Mechanisms	Homework 2
9/7	Introduction to Mechanisms	Homework 3
9/14	Mechanism Position Analysis	Homework 4
9/21	Mechanism Position Analysis	Homework 5
9/28	Mechanism Position Analysis	Homework 6
10/5	Mechanism Position Analysis	Quick Return Mechanism Design
10/12	Mechanism Position Analysis	Homework 7
10/19	Mechanism Position Analysis	Homework 8
10/26	Mechanism Velocity and Acceleration	Breaking Bad Analysis
11/2	Mechanism Velocity and Acceleration	Homework 9
11/9	Mechanism Velocity and Acceleration	Homework 10
11/16	Cams	Landing Gear Design
11/23	Cams	Homework 11

11/30	Gears and Gear Trains	Cam Design
12/7		Final Exam

The course schedule, policies, procedures, and assignments in this course are subject to change in the event of extenuating circumstances, by mutual agreement, and/or to ensure better learning.