

COLLEGE OF ENGINEERING, UIC
ME 308 Mechanical Vibrations, CRN 29574, 3 Credit Hours, Fall 2024

I. Instructor & Course Details

Instructor: Yeow Siow

Email address: yeowskiow@uic.edu

Drop-In Office Hours: F 1pm-1:50pm

Drop-In Hours location: 3033 ERF (or online as requested)

TA: Rawinder Singh Wahi

Email address: rwahi3@uic.edu

Course Site [LINK](#)

Students are expected to visit the course site, Gradescope, Discord and Piazza regularly to learn about any developments related to the course, upload assignments, and communicate with classmates.

Course Modality and Schedule

This course is taught **ON CAMPUS**.

- MWF 12pm - 12:50pm

- 309 Burnham Hall (BH)

II. Course Information

Catalog Course Description and Prerequisite/corequisite Statement

Free and forced vibrations of damped linear single and multiple degree of freedom systems. Approximate methods, instrumentation, and applications. Course Information: Same as CME 359. Prerequisite(s): CS 109; and ME 210; and MATH 220.

Growth Mindset:

Course materials and assignments can be complex and challenging, but they are crucial to your intellectual and personal growth and development. There are times you may need extra help. Students who attend class consistently, complete all assignments, thoughtfully engage with feedback on work, develop good study strategies, visit the tutoring center, and contact faculty when they are struggling can develop a thorough understanding of the course material and ultimately succeed in the course!

Course Goals and Learning Outcomes

This course introduces students to basic concepts in mechanical vibrations and associated mathematics, and theoretical and computational analysis tools. The following fundamental concepts and techniques are also a part of this required course: linear algebra, matrix algebra, numerical and analytical calculations for the equation of motion, solutions to ordinary differential equations.

ABET Student Outcomes:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

Type of Course: Required for ME and IE majors

Major Topics:

1. Overview of applications & course introduction
2. Solution of the vibration equations
3. Free vibration of single degree of freedom systems
4. Forced vibration of single degree of freedom systems
5. Discrete systems with more than one degree of freedom

Required and Recommended Course Materials

Recommended Course Material: A. A. Shabana, Theory of Vibration: An Introduction (2nd Edition), 1996, Springer-Verlag, New York.

Required Technology: Access to a computing device, internet, video recording

Respect for Copyright

Please protect the copyright integrity of all course materials and content. Please do not upload course materials not created by you onto third-party websites or share content with anyone not enrolled in our course.

III. COURSE POLICIES & CLASSROOM EXPECTATIONS

Grading Policy and Point Breakdown

Based on the “learning-first” philosophy, a “fluency system” has been adopted for this course:

Fluency Points “FP” Earned UIC Grade

≥ 87	A
80	B
73	C
66	D
≤ 65	F

Each fluency point, FP, carries a specific meaning: Acquiring an FP means that the student has put in authentic effort and successfully demonstrated fluency in the subject matter through completion of various tasks. Simply add all the FPs the student has acquired (after any late adjustments) – no percentages, no weighting scale.

The task categories:

- Video Lecture Reflection (**VLR**) = 1 FP each (33 FP max)
- In-Class Practice (**ICP**) = 1 FP each (33 FP max)
- Project Pre-Planning (**PPP**) = 1 FP each (4 projects planned; 4 FP max)
- **Projects** = 6 FPs each (4 projects planned; 24 FP max)
- Additional bonus tasks

All tasks except bonuses will be released, submitted (uploaded by the student), and graded on [Gradescope](#) using a rubric to be shared along with the task description.

Policy for Missed or Late Work

To help motivate students to keep up with the course pace, but also recognizing that life sometimes just doesn't go the way as intended, all tasks have two due dates: *On-time* and *late*.

An on-time submission will be fully rewarded according to how much it satisfies the rubric expectation. And if the student misses a due date without accommodation, they can submit it late still be able to earn partial FP.

Unless accommodated, all work submitted past the on-time due date will be subject to a reduction in FP based on the half-life formula:

$$FP_A = FP_O \cdot \left(\frac{1}{2}\right)^t$$

where FP_A is the actual FP awarded, FP_O the original (or raw) FP, and t the elapsed time past the due date cutoff, measured in days. Any lateness, down to the seconds, will be rounded *up* to the next number of days (e.g., 3 hours late = 1 day; 29 hours late = 2 days; etc.).

An accommodation can be given if prior notification is approved (e.g., DRC accommodation, UIC religious observation, student org competition travel, student athlete away game, etc.), or if it's due to an emergency – simply provide relevant documentation afterwards.

Attendance / Participation Policy

Learning is a process, and it calls for consistent engagement and participation in class activities.

Academic Integrity

As a student and member of the UIC community, you are expected to adhere to the Community Standards of [academic integrity](#), accountability, and respect. Please review the [UIC Student Disciplinary Policy](#) for additional information.

Email Expectations

Students are responsible for all information instructors send to your UIC email account. Faculty messages should be regularly monitored and read in a timely fashion.

IV. COURSE SCHEDULE

Weekly Schedule of Class Topics, Assignments, Assessments, Due Dates, and Deadlines

See [course website](#) for detailed breakdown of topics, activities, assignments, and due dates.

Disclaimer

This syllabus is intended to give the student guidance on what may be covered during the semester and will be followed as closely as possible. However, as the instructor, I reserve the right to modify, supplement, and make changes as course needs arise. I will communicate such changes in advance through in-class announcements.

V. ACCOMMODATIONS

Disability Accommodation Procedures

UIC is committed to full inclusion and participation of people with disabilities in all aspects of university life. If you face or anticipate disability-related barriers while at UIC, please connect with the Disability Resource Center (DRC) at drc.uic.edu, via email at drc@uic.edu, or call (312) 413-2183 to create a plan for reasonable accommodations. To receive accommodations, you will need to disclose the disability to the DRC, complete an interactive registration process with the DRC, and provide me with a Letter of Accommodation (LOA). Upon receipt of an LOA, I will gladly work with you and the DRC to implement approved accommodations.

Religious Accommodations

Following [campus policy](#), if you wish to observe religious holidays, you must notify me by the tenth day of the semester. If the religious holiday is observed on or before the tenth day of the semester, you must notify me at least five days before you will be absent. Please submit [this form](#) by email with the subject heading: “**YOUR NAME: Requesting Religious Accommodation.**”

VI. CLASSROOM ENVIRONMENT

Inclusive Community

UIC values diversity and inclusion. Regardless of age, disability, ethnicity, race, gender, gender identity, sexual orientation, socioeconomic status, geographic background, religion, political ideology, language, or culture, we expect all members of this class to contribute to a respectful, welcoming, and inclusive environment for every other member of our class. If aspects of this course result in barriers to your inclusion, engagement, accurate assessment, or achievement, please notify me as soon as possible.

Name and Pronoun Use

If your name does not match the name on my class roster, please let me know as soon as possible. My pronouns are he/him. I welcome your pronouns if you would like to share them with me. For more information about pronouns, see this page: <https://www.mypronouns.org/what-and-why>.

Community Agreement/Classroom Conduct Policy

- Be present removing yourself from distractions.
- Be respectful of the learning space and community.
- Feel free to use preferred names and gender pronouns.
- Assume goodwill in all interactions, even in disagreement.
- Facilitate dialogue and value the free and safe exchange of ideas.
- Try not to make assumptions (except for vibration analyses, in which case assumptions are always a must!), have an open mind, seek to understand, and not judge.
- Approach discussion, challenges, and different perspectives as an opportunity to “think out loud,” learn something new, and understand the concepts or experiences that guide other people’s thinking.
- Debate the concepts, not the person.

- Be gracious and open to change when your ideas, arguments, or positions do not work or are proven wrong.
- Be willing to work together and share helpful study strategies.
- Be mindful of one another's privacy, and do not invite outsiders into our classroom.

Content Notices and Trigger Warnings

Our classroom provides an open space for a critical and civil exchange of ideas, inclusive of a variety of perspectives and positions. Some readings and other content may expose you to ideas, subjects, or views that may challenge you, cause you discomfort, or recall past negative experiences or traumas. I intend to discuss all subjects with dignity and humanity, as well as with rigor and respect for scholarly inquiry. If you would like me to be aware of a specific topic of concern, please email or visit my office drop-in hours.

VII. RESOURCES: Academic Success, Wellness, and Safety

We all need the help and the support of our UIC community. Please visit my office **drop-in hours** for course consultation and other academic or research topics. For additional assistance, please contact your assigned college advisor and visit the support services available to all UIC students.

Academic Success

- [UIC Tutoring Resources](#)
- College of Engineering [tutoring program](#)
- [Equity and Inclusion in Engineering Program](#)
- [UIC Library](#) and [UIC Library Research Guides](#).
- [Offices](#) supporting the UIC Undergraduate Experience and Academic Programs.
- [Student Guide for Information Technology](#)
- [First-at-LAS](#) Academic Success Program, focusing on LAS first-generation students.

Wellness

- **Counseling Services:** You may seek free and confidential services from the Counseling Center at <https://counseling.uic.edu/>.
- Access [U&I Care Program](#) for assistance with personal hardships.
- **Campus Advocacy Network:** Under Title IX, you have the right to an education that is free from any form of gender-based violence or discrimination. To make a report, email TitleIX@uic.edu. For more information or confidential victim services and advocacy, visit UIC's Campus Advocacy Network at <http://can.uic.edu/>.

Safety

- [UIC Safe App](#)—PLEASE DOWNLOAD FOR YOUR SAFETY!
- [UIC Safety Tips and Resources](#)
- [Night Ride](#)

- [Emergency Communications](#): By dialing 5-5555 from a campus phone, you can summon the Police or Fire for any on-campus emergency. You may also set up the complete number, (312) 355-5555, on speed dial on your cell phone.