Prerequisites: CE205 (Analytical Mechanics I, Statics)
Action and reaction; free body diagrams; resultant and equilibrium of general coplanar force system; resultant and equilibrium of the general three dimensional force system; centroids and moments of inertia of composite areas.

Objectives and Contents:
Newton's Laws and the principles of work and energy and impulse and momentum applied to the study of particle and rigid body motion. Engineering application with emphasis on plane motion application, and introduction to mechanical vibration.

Textbook: Vector Mechanics for Engineer Dynamics, F.P. Beer, E.R. Johnston, D.F. Mazurek, P. Cornwell, McGraw-Hill,

Instructor: Dr. Chang H. Kim   Email: Chang.Kim@csulb.edu
Office Hours: VEC219, M:4:45~5:45, T 4~5, Friday by appt.

Goals: To give engineering students the knowledge and ability to apply the fundamental principles to the design and analysis of complex particle(s) and rigid body dynamics.

Week	Chapter	Topic
1-5	11	Kinematics of particles
	12	Kinetics of particles: Newton's second law
	13	Kinetics of particles: Energy and momentum methods
	Test 1 (20%)	
6-10	14	Systems of particles
	15	Kinematics of rigid bodies
	16	Plane motion of rigid bodies: Force and accelerations
	Test 2 (20%)	
11-15	17	Plane motion of rigid bodies: Energy and momentum methods
	18	Kinetics of rigid bodies in three dimensions
	19	Mechanical vibrations
	Test 3 (20%)	
16	Final Exam (20%)	

Note: "Zero Tolerance" for Cheating/Plagiarism.
Grading: Three midterm (60%)
One final (20%)
Homework/Quiz/Notebook/Attendance (20%)

ABET Student Outcomes:

The course satisfies following [ABET](#) student outcomes:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Course Objectives

See above

Course Structure and Delivery Mode

This course is conducted entirely online(or in the hybrid format) . You will access the course material and activities on [BeachBoard](#) and are required to participate in synchronous class meetings via [Zoom](#).
If you need technical assistance at any time during the course or need to report a problem with BeachBoard, please contact the Technology Help Desk using their [online form](#), by phone at (562) 985-4959.

Course Communication

We will use BeachBoard to **make announcements,** communicate information, post assignments and corresponding due dates, and discuss course-related topics. **Please note, it is your responsibility to check** BeachBoard's dashboard **regularly, as** it will contain **important information about upcoming class assignments, activities, or concerns.**
Add additional info as needed.

Tentative Course Schedule

▪ See above

Course Policies

Grading Policy
GRADING SCALE (Optional)

See above

Evaluation Components and their Percentages

See above

Evaluation Components

Generally, timed and non-timed all submission will be collected in the BeachBoard unless otherwise stated.

How to Contact the Instructor:
Email and/or beachboard communication preferred.

Virtual Office Hours

See above

Plagiarism/Academic Integrity Policy

*There is **zero tolerance** for cheating, plagiarism, or any other act of violation of Academic Integrity policy. Work that you submit is assumed to be original unless your source material is documented appropriately, using proper citation. Using the ideas or words of another person, even a peer, or a web site, as if it were your own, is plagiarism. Any individual or group caught cheating on homework, lab assignments, or any exam/quiz will be subjected to full extent of academic actions allowed under University regulations. At a minimum, any student caught violating Academic Integrity Policy will receive no credit for the work concerned and one grade lower letter grade. To learn more about the University policy on Cheating and Plagiarism, visit:*

[Academic Information and Regulations-Cheating and Plagiarism](#)

University Withdrawal Policy
Class withdrawals during the final 3 weeks of instruction are not permitted except for a very serious and compelling reason such as accident or serious injury that is clearly beyond the student's control and the assignment of an Incomplete grade is inappropriate (see [Grades](#)). Application for withdrawal from CSULB or from a class must be filed by the student [online](#) whether the student has ever attended the class or not; otherwise, the student will receive a grade of "WU" (unauthorized withdrawal) in the course. More information regarding the University guidelines on Dropping and Withdrawing at:
[Dropping and Withdrawal](#)

Attendance and Participation Policy

Attendance (joining the online class) and Participation (being alert and available if inquired by the instructor in contrast to being just online but unresponsive) are essential to your success in this class. In distance education courses you are required to attend and participate just as if you were in a face-to-face course. Therefore, attendance will be taken every session and the participation will be checked randomly during class, lab or both or more unexcused absences during the class will cause -5% of the total grade.

Student Grievance Policy

Please check CSULB grievance policy and procedure at:

Student Grievance Procedures

Special Needs Accommodations

Online courses are required to meet ADA accessibility guidelines. Students with a disability or medical restriction who are requesting a classroom accommodation should contact the Bob Murphy Access Center (BMAC) and also notify the instructor. BMAC personnel will work with the student to identify a reasonable accommodation in partnership with appropriate academic offices and medical providers. Only approved BMAC petitions will be accommodated.

Any student who is facing academic or personal challenges due to difficulty in affording groceries/food and/or lacking a safe and stable living environment is urged to contact the CSULB Student Emergency Intervention & Wellness Program. Additional resources are available via Basic Needs Program. The students can also email supportingstudents@csulb.edu, call (562)985-2038, or if comfortable, reach out to the instructors as they may be able to identify additional resources. For mental health assistance please check out CSULB Counseling and Psychological Services (CAPS).

http://web.csulb.edu/divisions/students/caps/

Emergency Preparedness (add only if the class is hybrid)

Students are strongly encouraged to familiarize themselves with the Personal Preparedness Instructions and other resources under "Emergency Preparedness" link on CSULB University Police web site.

Disclaimer

In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.

Additional Information

BeachBoard Access

To access this course on BeachBoard you will need access to the Internet and a supported web browser (Please note: The preferred web browser to use when accessing information in this course is Google Chrome. Google Chrome minimizes technical issues and responds well to the technology used in this course.).

You may access BeachBoard directly at https://bbcsulb.desire2learn.com/d2l/login and log in with your

CSULB campus ID and password. You may also access it via Single-Sign-On page at https://csulb.okta.com/. Once logged in, you will see the course listed under "My Courses". Click on the title to access the course page.

Technology Requirements
- **Access**: (**Here provide information to access to a computer in case a student doesn't have one**)
- **Software and tools**: You will need to have an up-to-date browser, operating system and some additional software (list any needed for your course) on your computer to take this class. Some of the documents in this course will be available to you in PDF form. If you do not have Adobe Acrobat Reader software on your computer, you can download it by going to Adobe Acrobat Reader
- **Virtual Lab:** Please see the Virtual Lab chiclet available in your MyCSULB login page.

Please contact the department if you need support with access to the Internet, electronic devices, or any other issues related to remotely accessing your course.

Question FORUM (Optional)
N/A

Online café/Slack/Discord (Optional)
N/A

Netiquette (Optional)
You are training to be a professional. Consequently, we expect you to behave like a professional. A professional engineer is polite, considerate, and respectful of others. When posting on the discussion boards and chat rooms it is important to understand how to interact with one another online, *netiquette.* Please read more about the rules of netiquette.

Tutoring

Take advantage of free peer tutoring (virtual) provided by Engineering Student Success Center (ESSC): Engineering Tutoring

Additional Resources
There are many services on campus to help you achieve success in your courses. Links to the following services are also available in BeachBoard course homepage under "CSULB Student Resources":
- Counseling and Phychological (CAPS)
- Disabled Student Services
- Enrollment Services
- Financial Aid
- Learning Assistance Center

- [Student Health Services](#)
- [Tutoring at CSULB](#)
- [University Library](#)
- [Writers Resource Lab](#)

Student Feedback about the Course (Optional up to the instructor)

*Student Feedback is highly encouraged. Please feel free to contact the instructor to share any concern or opinion about the course throughout the semester and participate in the **anonymous survey** (via BeachBoard). Early Feedback will provide the instructor the opportunity to address your concern and implement required modifications in a timely manner.*

Personal Assistance

The following *statement* has been provided by the Dean of Students for use in your syllabi:

Any student who is facing academic or personal challenges due to difficulty in affording groceries/food and/or lacking a safe and stable living environment is urged to contact the [CSULB Student Emergency Intervention & Wellness Program](#). Additional resources are available via [Basic Needs Program](#). The students can also email [supportingstudents@csulb.edu](#), call (562)985-2038, or if comfortable, reach out to the instructors as they may be able to identify additional resources

Sexual Assault, Rape, Dating/Domestic Violence, & Stalking

Title IX prohibits gender discrimination, including sexual harassment and sexual misconduct. If you have experienced sexual harassment, sexual assault, rape, dating/domestic violence, or stalking, the campus confidential Victim's Advocate is available to help. Jaqueline Urtez (e: [advocate@csulb.edu](#), p: (562) 985-2668) can
provide **free** and **confidential** support, accommodations, and referrals for victims without having to report the assault to campus authorities. While students are welcome to discuss assaults with faculty, both faculty and teaching assistants are mandatory reporters who are required to report all incidents of sexual harassment/misconduct to the Title IX office for follow-up and possible investigation. Students who <u>do</u> wish to report the assault for possible investigation may contact the confidential victim's advocate, who can help them through the reporting process, or they can report the assault directly to the Title IX Office by completing an online reporting form at https://www.csulb.edu/equity-diversity/title-ix or contacting the Office of Equity & Diversity at [OED@csulb.edu](#).

Basic Needs

If you are having trouble affording enough food to eat, don't have a safe and reliable place to sleep, and/or experiencing an emergency or crisis we are here to help. We are the Basic Needs Program and we have emergency services and resources to assist you. To learn more about our programs and services you can visit our website at csulb.edu/basicneeds. To apply for our emergency services such as the meal assistance program, emergency grant, or emergency housing you can fill out our application at this link: https://cm.maxient.com/reportingform.php?CSULongBeach&layout_id=2 We know that not having your basic needs met can affect your performance in the classroom and we want to be here to support you and help ensure you get to your graduation day. We look forward to being of service to you.