

**Course Administration**

- INSTRUCTORS:** Shikui Chen, 163 Light Engineering, (631) 632-2309  
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- COURSE DESCRIPTION:** The course will cover fundamental concepts on Newtonian and Lagrangian mechanics of rigid bodies; kinematics, inertia tensor, principle of momentum, principle of virtual work, potential and kinetic energy, equations of motion, extraction of information from the equations of motion, and application to engineering problems.
- COURSE OUTCOME:** Upon successful completion of this course, students will be able to handle engineering dynamic problems in a systematic way, using both Newton-Euler and Lagrangian approaches.  
To be specific: able to derive the equation of motion for complicated engineering problems, extract information from the equations of motion and rigorously solve those kinematics and kinetics problems either analytically or using MATLAB.
- LECTURE HOURS:** Wednesday (4:00-6:50pm), in FREY HALL 222
- OFFICE HOURS:** On-campus students: 1:00 pm to 2:30 pm on Monday
- REQUIRED TEXT:** *Advanced Dynamics* by Donald T. Greenwood, Cambridge Publications.  
*Engineering Dynamics: A Comprehensive Introduction* by N. Jeremy Kasdin and Derek A. Paley
- PREREQUISITE:** Undergraduate Level Dynamics
- HOMEWORK:** About one homework assignment per week, which is accessible through Blackboard under Assignments. Each homework is due one week after it is assigned.
  - Each homework must be turned in **at the beginning of the class** on the specified due date to be considered as on time.
  - Late homework will receive half credit before the solutions are posted and will **not** be accepted after that.
- EXAMS:** 1 in-person Midterm (6:05pm-9:00pm, Wednesday, October 19, 2022)  
1 in-person Final Exam (time TBD)
  - All exams will be held in person.
  - The dates and times can be found in the schedule at the end of this document.
  - No makeup exam unless arranged prior to the exam.
- GRADING:**
- |                       |     |
|-----------------------|-----|
| Homework              | 50% |
| 1 Midterm Exam        | 20% |
| Final (comprehensive) | 30% |
- Note: There will be no extra credit and no exam retakes.**

GRADING SCALE:

$90 \leq A < 100$	$70 \leq C+ < 74$
$86 \leq A- < 90$	$65 \leq C < 70$
$82 \leq B+ < 86$	$60 \leq C- < 65$
$78 \leq B < 82$	$55 \leq D+ < 60$
$74 \leq B- < 78$	$50 \leq D < 55$

BLACKBOARD:

All homework assignments will be posted on the Blackboard course account (<http://blackboard.sunysb.edu>). For problems logging in, go to the helpdesk in the Main Library SINC Site or the Union SINC Site, you can also call: 631-632-9602 or e-mail: [helpme@ic.sunysb.edu](mailto:helpme@ic.sunysb.edu)

I use email and blackboard exclusively to communicate with you off class. It is your responsibility to make sure that your email id is a current one on the blackboard system. I suggest that you use a university email id for this class; it is free and official. I am not responsible for the emails not delivered to your commercially available email accounts.

ACADEMIC HONESTY:

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Instructors are required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at <http://www.stonybrook.edu/uaa/academicjudiciary/>

SPECIAL NOTE ON ADA:

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, room128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation are confidential.

CRITICAL INCIDENT MANAGEMENT

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures.

COPYRIGHT

All federal and state copyright interests are reserved for all original material presented in this course through any medium, including lecture, electronic transmission or print. Individuals may not sell, be paid or receive anything of value for class notes made during this course from any person or entity without the express written permission of (author).

In addition to legal sanctions, violation of these copyright prohibitions may result in University disciplinary action.

## STUDENT ACCESSIBILITY SUPPORT

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact the Student Accessibility Support Center, ECC (Educational Communications Center) Building, Room 128, (631)632-6748.

They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.  
<https://www.stonybrook.edu/commcms/studentaffairs/sasc/facstaff/syllabus.php>

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Student Accessibility Support Center. For procedures and information go to the following website:  
<https://ehs.stonybrook.edu/programs/fire-safety/emergency-evacuation/evacuation-guide-people-physical-disabilities>

- To access mental health services, call Counseling and Psychological Services at 631-632-6720; Counselors are available to speak with 24/7.
- For updated information on the Academic Success and Tutoring Center please check [www.stonybrook.edu/tutoring](http://www.stonybrook.edu/tutoring) for the most up-to-date information.
- For IT Support: Students can visit the Keep Learning website at <https://sites.google.com/stonybrook.edu/keeplearning> for information on the tools you need for alternative and online learning.

Need help? Report technical issues at <https://it.stonybrook.edu/services/itsm> or call 631-632-2358.

For information on Library services and resources please visit the Continuity of Library Operations guide.

## ALLOWED CALCULATORS

Only the following calculators will be permitted to be used on all midterm and final exams in the Department of Mechanical Engineering. There will be no exceptions! This list of calculators is identical to that allowed for the National Council for Examiners for Engineering and Surveying (NCEES) Fundamentals of Engineering (FE) exam that many of you will take in your senior year, as well as Professional Engineering (PE exam) that you may take.

Casio: All fx-115 models. Any Casio calculator must contain fx-115 in its model name.

Hewlett Packard: The HP 33s and HP 35s models, but no others.

Texas Instruments: All TI-30X and TI-36X models. Any Texas Instruments calculator must contain either TI-30X or TI-36X in its model name.

For detailed information, follow <https://ncees.org/exams/calculator-policy/>

### **Student Accessibility Support Center Statement**

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact the Student Accessibility Support Center, 128 ECC Building, (631) 632-6748, or via e-mail at: [sasc@stonybrook.edu](mailto:sasc@stonybrook.edu). They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

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report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty please refer to the academic judiciary website at [http://www.stonybrook.edu/commcms/academic\\_integrity/index.html](http://www.stonybrook.edu/commcms/academic_integrity/index.html)

### **Critical Incident Management**

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