

DEPARTMENT OF MECHANICAL ENGINEERING
SUNY KOREA

MECHANICS OF SOLIDS

- Course Title:** MEC536 Mechanics of Solids, Fall 2017 (3 credits)
- Instructor:** Prof. Changwoon Han, email: changwoon.han@sunykorea.ac.kr
- Lecture:** W 19:00-21:50 in **TBD**
- Office:** B604, Phone (032)626-1817
- Office Hours:** MW 10:00-11:30 or other time by appointment
- Course Summary:** This course is designed to study the fundamentals of solids mechanics (e.g., stress, deformation) as well as to introduce various topics of the field (e.g., composites, plasticity, and fracture mechanics). In Elasticity course (MEC541), 2D and 3D linear elastic problems will be solved with stress functions, displacement potentials and Laplace transform. There are also Plasticity (MEC543) and other courses that cover the subjects more in-depth.
- Textbook:** G. T. Mase et al., "Continuum Mechanics for Engineers," 3rd ed., CRC Press, 2009 (ISBN: 978-1-4200-8538-9)
- R. J. Asaro & V. A. Lubarda, "Mechanics of Solids and Materials," Cambridge, 2006 (ISBN: 978-0-521-16611-9)
- L. E. Malvern, "Introduction to the Mechanics of a Continuous Medium," Prentice-Hall, 1969 (ISBN: 978-0-134-87603-0)
- Required Background:** Two undergraduate courses in solids mechanics (equivalent to MEC363 Mechanics of solids and MEC455 Applied Stress / 530 Applies Stress Analysis at Stony Brook) that cover the following subject.
- Basic understanding of stress and strain (e.g. formulations, Mohr's circle).
 - Linear stress-strain relation – Hook's law, Young's modulus, Poisson's ratio.
 - Simple beam theory – bending moment, shear force of beams.
 - Torsion of circular/ring cross-section.
 - Plane stress and plane strain conditions – various stress & strain components.
 - Strain energy and some energy based principles.
 - Stress function (Airy & Torsional).
- Make sure you have sufficient background to take the course.
- Grading:**
- | | |
|---------------|------|
| Homework | -30% |
| Mid-term Test | -30% |
| Final Exam | -40% |

Course Outline:

Week	Date	Class	Notes
1	30-Aug	Review of Stress and Strain	
2	6-Sep	Essential of Mathematics	
3	13-Sep	Deformation 1	
4	20-Sep	Deformation 2	
5	27-Sep	Analysis of Stress 1	
6	4-Oct	National Holiday	No class
7	11-Oct	Analysis of Stress 2, Constitutive Equation 1	
8	18-Oct	Constitutive Equation 2	
9	25-Oct	Constitutive Equation 3	
10	1-Nov	Mid-term Exam	Mid-term
11	8-Nov	Elastic Problems 1	
12	15-Nov	Elastic Problems 2	
13	22-Nov	Plasticity 1	
14	29-Nov	Plasticity 2	
15	6-Dec	Fracture Mechanics 1	
16	12-Dec	Fracture Mechanics 2	Correction Day
17	20-Dec	Final Exam	Final Exam

Blackboard

It is required that you use the Blackboard for this course (<https://blackboard.stonybrook.edu/>).

Blackboard is used for facilitation of communications between faculty and students, submission of assignments, posting of the course materials, important announcements, and grades.

Course Website

Supplementary materials will be posted on [the course website](#).

<https://sites.google.com/sunykorea.ac.kr/cwhan/mec-536?authuser=0>

SUNY Korea Attendance Policy

- (1) All SUNY Korea students are required to attend every class.
- (2) Unexcused absences will significantly affect seriously the student's final course grade.
- (3) Students who are absent without a valid excuse (see below) from more than 20% of scheduled class meetings will receive a grade of "F" for the course as follows:
 - i) For 150-minute classes meeting once a week, the 4th unexcused absence
 - ii) For 75-minute classes meeting twice a week, the 7th unexcused absence
 - iii) For 50-minute classes meeting three times a week, the 10th unexcused absence
 - iv) For Intensive English (IEC) Courses, students who miss more than 40 hours during a semester will receive a grade of "F" for the course.
- (4) Students should report the reason for absences to the instructor in advance, or immediately after the absence.
- (5) Absences may be classified as "excused" at the instructor's discretion.
- (6) For an absence to be "excused," the student must provide the instructor with acceptable documentation for the reason for the absence.
- (7) The course instructor may excuse the absence if the submitted documentation fulfills the conditions below:
 - i) Extreme emergencies (e.g., death in the family)
 - ii) Major medical reasons with doctor's note (not minor ailments)
 - iii) Very important events (e.g., national conferences, official school events)
- (8) At the end of semester, the course instructor will submit the class attendance record to the Academic Affairs Office.

Disability Support Services (DSS) Statement:

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact One-Stop Service Center, Academic Building A201, (82) 32-626-1117. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

In addition, this statement on emergency evacuation is often included, but not required: Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and One-Stop Service Center.

Academic Integrity Statement:

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. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the [academic judiciary website](#).

Critical Incident Management Statement:

The State University of New York, Korea 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.

Subject to Change Notice

All material, assignments, and deadlines are subject to change with prior notice. It is your responsibility to stay in touch with your instructor, review the course site regularly, or communicate with other students, to adjust as needed if assignments or due dates change.

Syllabus Disclaimer

The instructor views the course syllabus as an educational understanding between the instructor and students. Every effort will be made to avoid changing the course schedule but the possibility exists that unforeseen events will make syllabus changes necessary. The instructor reserves the right to make changes to the syllabus as deemed necessary. Students will be notified in a timely manner of any syllabus changes via email or in the course site Announcements. Please remember to check your email and the course site Announcements often.