

SPRING 2017
457.201 Mechanics of Materials and Lab.
TuTh 14:00-15:50, 317 Bldg. 35
Instructor: Junho Song

Prerequisites: Physics I or an equivalent course

Course Objectives:

The main objectives of this course are to introduce fundamental engineering concepts in mechanics of materials and help the students develop problem-solving capabilities. The students achieve these goals by studying fundamental theories, physical phenomena, and analysis methods, participating in lab tests, and solving various example problems. The course materials include not only fundamental concepts including stress, strain, elastic and inelastic behavior and strain energy but also analysis and design of structural members under axial force, torsion and bending. The students participate in lab tests regarding behavior of structural members and materials to enrich their understanding of mechanics of materials.

Course Website: <http://etl.snu.ac.kr>

Important Dates: (See 'Class Schedule' for more details)

- March 2: Classes begin
- Business trips (no class): March 9 (Taiwan), April 27 (CEE field trip)
- Holidays (no class): June 6 – for additional special holidays, make-up classes will be given
- Midterm exams I & II: TBA
- Final exam: TBA
- Lab tests: TBA

Topics:

- Ch.01 Tension, Compression, and Shear
- Ch.02 Axially Loaded Members: 2.1-2.7
- Ch.03 Torsion: 3.1-3.6, 3.8-3.10
- Ch.04 Shear Forces and Bending Moments
- Ch.05 Stresses in Beams: 5.1-5.8, 5.12, 5.9-5.12 (Concepts)
- Ch.06 Stresses in Beams (Concepts)
- Ch.07 Analysis of Stress and Strain
- Ch.08 Applications of Plane Stress
- Ch.09 Deflections of Beams: 9.1-9.4, 9.5 (Concepts)
- Ch.11 Columns: 11.1-11.5, 11.6-11.9 (Design Concepts)
- Ch.12 Review of Centroids and Moments of Inertia: 12.1-12.6

Credit: 3 hours

Required Textbook:

Gere, J.M., and B.J. Goodno (2012). *Mechanics of Materials*. 8th Edition, Cengage Learning, Stamford, CT.

– available for a free semester-long loan from the department office.

Homework:

Homework assignments will be given on a weekly basis. Turn them in during class in a week. (Rules on late homework submissions: 30% penalty if submitted on the same day, and NOT accepted afterwards.)

Grading:

Homework: 20 %, Midterm Exams: 40 %, Final Exam: 30%, Attendance 10%

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Office hours: Q&A after each class or by appointments

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