

Mechanics of Materials

161005 (21006)

Instructor : Keun Park (Tel: 970-6358, Email: kpark@seoultech.ac.kr)

Course website : <http://cae.seoultech.ac.kr/lecture.htm>

Lecture hour : Mon 13:00 ~ 13:50 (406 Frontier B/D), Wed 09:00 ~ 10:50 (406 Frontier B/D)

Office hour : Wed 16:00 ~ 18:00 (908 Frontier B/D)

Prerequisite : Statics

Objective : Main topics are the analysis and design of structural members subjected to tension, compression, torsion and bending. Other topics of general interest are the transformations of stress and strain, combined loadings, stress concentrations, deflections of beams, and stability of columns. Fundamental concepts such as stresses and strains, displacements and deformations, elasticity and inelasticity, strain energy, and load-carrying capacity are provided.

Textbooks : F.P. Beer et al., Mechanics of Materials, 6/E, McGraw Hill (2012)

References : 1. Mechanics of Materials, 7th Edition, J.M. Gere, Cengage Learning
2. <http://cae.seoultech.ac.kr/lecture.htm> - Lecture notes

Course schedule :

Week	Topic	Text 1
1	Introduction, Review for Statistics	Chap. 1
2	Concept of stress, Normal/shear stress	Chap. 1
3	Stress and strain (1) – Axial loading	Chap. 2
4	Stress and strain (2) – Material behavior	Chap. 2
5	Stress and strain (3) – Generalized Hooke's law	Chap. 2
6	Torsion and shear stress (1) - Basic	Chap. 3
7	Torsion and shear stress (2) - Advanced	Chap. 3
8	Mid-term examination	–
9	Pure bending (1) - Basic	Chap. 4
10	Pure bending (2) - Advanced	Chap. 4
11	Pure bending (3) – Asymmetric & Eccentric	Chap. 4
12	Mohr's circle & Principal stress	Chap. 7
13	Yield criterion / Pressure vessel	Chap. 7
14	Strain analysis	Chap. 7
15	Final examination	–

Assessment: Attendance 10%, Assignment/Quiz 20%, Mid-term exam 35%, Final exam 35%