



## PME 235001 Mechanics of Materials

### 材料力學

Spring 2018

|                     |  |               |                      |
|---------------------|--|---------------|----------------------|
| Instructor:         | Prof. Jen-Yuan (James) Chang 張禎元 教授  | Credits:      | 3 credits.           |
| Class meetings:     | <b>T3T4R3 Engineering Building I – R101</b>  | Office hours: | Tuesdays 17:30-18:30 |
| Language:           | This course will be offered in English   |               |                      |
| Course description: | This course is a foundation to many advanced techniques that allow engineers to design structures, predict failures and understand the physical properties of materials. Mechanics of Materials gives students basic tools for stress, strain and strength analyses. The course is designed to introduce basic principles of statics for rigid and deformable bodies. The main objective of this course is to help the students develop engineering intuition for equilibrium, properly constrained systems, and deformation under external loadings. Methods for determining the stresses, strains and deflections produced by applied loads are learned through analyzing and designing structural members subjected to tension, compression, torsion and bending using fundamental concepts of stress, strain, and elastic behavior. It is also anticipated that theory and design approaches for the mechanics of deformable bodies will help prepare students for complex systems that will be encountered in advanced design courses such as mechanical designs, manufacturing, and micro-electro-mechanical systems (MEMS). |               |                      |
| Textbook:           | R. C. Hibbeler, Mechanics of Materials, 8th Edition, Taiwan Adapted Version, Pearson/Prentice Hall, Taiwan, 2010.  |               |                      |
| References:         | J.M. Gere, "Mechanics of Materials", 7th ed., Brooks/Cole-Thomson Learning, Belmont, CA, USA, 2009.<br>F. P. Beer, E. R. Johnston, Jr., J. T. DeWolf, and D. F. Mazurek, Mechanics of Materials, 6 <sup>th</sup> Global Edition in SI units, McGraw-Hill, New York, NY, USA, 2012.   |               |                      |
| Teaching Method:    | Classroom lectures will be offered in English with teaching materials posted in Moodle. In addition to lectures, in-class exercise sessions will be arranged and carried by teaching assistants.   |               |                      |
| Assessments:        | Class Work   | 20%           |                      |
|                     | Term project   | 10%           |                      |
|                     | Two Midterm Exams  | 40% (2 @ 20%) |                      |
|                     | Final Exam   | 30%           |                      |

A curve will NOT be used to establish grades in this course. The portion of the grade for class work will be established from short in-class quizzes and from homework problems collected occasionally for grades. Missed daily quizzes CANNOT be made up. Please note on your assignment sheet when hour quizzes are scheduled. Missed hour quizzes can be made up only under excepted circumstances or if arrangements are made in advance. Reasonably neat work is expected on all material submitted for grading. Always bring your textbook, calculator, paper and pencil to class.