课程大纲
COURSE SYLLABUS

1.	**课程代码/名称** **Course Code/Title**	MAE8003 高等连续介质力学 B Advanced Continuum Mechanics B
2.	**课程性质** **Compulsory/Elective**	专业必修课 Major Core Courses
3.	**课程学分/学时** **Course Credit/Hours**	3/48
4.	**授课语言** **Teaching Language**	英文 English
5.	**授课教师** **Instructor(s)**	谭唤书 助理教授 TAN Huanshu
6.	**是否面向本科生开放** **Open to undergraduates or not**	否
7.	**先修要求** **Pre-requisites**	（如面向本科生开放，请注明区分内容。 If the course is open to undergraduates, please indicate the difference.）

8. **教学目标**
Course Objectives

- 学习使用张量数学工具来严格地简洁地建立和推导力学问题的数学模型。
- 运用守恒定理来求解固体和流体力学中的一些代表性问题。
- 学习固体材料和结构，流体介质等的力学行为的一些基本原理。

- Learn to formulate mechanics problems rigorously and concisely using tensor notations.
- Apply balance laws to solve representative problems in solids and fluids mechanics.
- Understanding fundamental principles governing the behaviour of continuum solids and fluids.

9. **教学方法**
Teaching Methods

讲授 lecture

10. **教学内容**
Course Contents

Section 1	Tensor (6 hours)
Section 2	Kinematics of a Continuum (6 hours)
Section 3	Stress and Integral Formulations of General Principles (6 hours)
Section 4	The Elastic Solid (10 hours)
Section 5	Newtonian Viscous Fluid (8 hours)
Section 6	The Reynolds Transport Theorem and Applications (6 hours)
Section 7	Non-Newtonian Fluids (6 hours)

11. **课程考核**
Course Assessment

	①exam； ②分数构成 Attendance：10%，Assignments: 20%, Mid-Term Test：30%，Final exam: 40%
12.	**教材及其它参考资料** **Textbook and Supplementary Readings**
	Textbook: Lai, W.M., Rubin, D., and Krempl, E., Introduction to Continuum Mechanics, Elsevier, 2010 Other references: Applied Mechanics of Solids, Allan Bower, http://solidmechanics.org/index.html