

课程大纲

COURSE SYLLABUS

1.	课程代码/名称 Course Code/Title	软体机器人 Soft Robotics
2.	课程性质 Compulsory/Elective	专业课 Major 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)	王峥 教授, 机械与能源工程系, wangz@sustech.edu.cn Prof Wang Zheng, Dept. Mechanical and Energy Engineering, wangz@sustech.edu.cn
6.	是否面向本科生开放 Open to undergraduates or not	是 Yes
7.	先修要求 Pre-requisites	研究生: 无 本科生: ME303 机械设计基础或者 SDM232 机械设计与制造综合 I ME303 Fundamentals of Mechanical Design/SDM232 Mechanical Design and Manufacturing
8.	教学目标 Course Objectives	<p>本课程通过系统性的介绍软体机器人的原理, 材料, 设计, 建模, 和控制等多方面基础知识, 帮助学生建立有关软体机器人的知识结构; 通过前沿性成果的介绍, 帮助学生认知和掌握机器人领域最前沿的新进展; 通过实际设计、制作、和应用软体机器人系统, 帮助学生获得第一手的实操经验, 体会软体机器人的独特特性, 并将所学知识进行直接应用。本课程由三个部分相结合构成, 第一部分着重于软体机器人的系统性知识介绍, 第二部分着重于软体机器人前沿进展的展示, 第三部分着重于软体机器人的实际设计和应用。</p> <p>This course systematically introduces the principles, materials, design, modeling, and control of soft robotics, helping students establish structured knowledge on soft robotics. By introducing cutting edge progresses, students will appreciate the frontier results in robotics. By actually design, fabricate, and implement real world soft robot systems, students will obtain first hand experiences on the unique characteristics of soft robots, and apply learned knowledge into reality. This course will consist of three components: the first focusing on the systematic introduction of soft robotic knowledge; the second focusing on showcasing the frontier progresses; the third focusing on the design and implementation of soft robots.</p>
9.	教学方法 Teaching Methods	<p>课堂教学 Classroom lectures</p> <p>前沿讲座 Frontier seminars</p> <p>动手分组项目和机器人竞赛 Hands-on group projects and robot competitions</p>
10.	教学内容 Course Contents	

	Section 1	Introduction to Soft Robotics
	Section 2	Principles of Soft Robots
	Section 3	Design of Soft Robots
	Section 4	Frontiers of Soft Robots
	Section 5	Materials and Fabrication of Soft Robots
	Section 6	Control of Soft Robots
	Section 7	Group Project Competition
11.	课程考核 Course Assessment	
	考查 其中：平时作业 40%，课程项目 60%。	
12.	教材及其它参考资料 Textbook and Supplementary Readings	
	www.softroboticstoolkit.com	