

课程详述

COURSE SPECIFICATION

以下课程信息可能根据实际授课需要或在课程检讨之后产生变动。如对课程有任何疑问，请联系授课教师。

The course information as follows may be subject to change, either during the session because of unforeseen circumstances, or following review of the course at the end of the session. Queries about the course should be directed to the course instructor.

1.	课程名称 Course Title	机器人导论 Prolegomena to Robotics				
2.	授课院系 Originating Department	机械与能源工程系 Department of Mechanical and Energy Engineering				
3.	课程编号 Course Code	ME231				
4.	课程学分 Credit Value	2				
5.	课程类别 Course Type	专业选修课 Major Elective Courses				
6.	授课学期 Semester	春季学期 Spring				
7.	授课语言 Teaching Language	中英双语 English & Chinese				
8.	授课教师、所属学系、联系方式（如属团队授课，请列明其他授课教师） Instructor(s), Affiliation & Contact (For team teaching, please list all instructors)	王峥 机械与能源工程系 wangz@sustech.edu.cn Zheng Wang Department of Mechanical and Energy Engineering				
9.	实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact	待公布 To be announced				
10.	选课人数限额(可不填) Maximum Enrolment (Optional)					
11.	授课方式 Delivery Method	讲授 Lectures	习题/辅导/讨论 Tutorials	实验/实习 Lab/Practical	其它(请具体注明) Other (Please specify)	总学时 Total
	学时数 Credit Hours	32				32

12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	
13. 后续课程、其它学习规划 Courses for which this course is a pre-requisite	
14. 其它要求修读本课程的学系 Cross-listing Dept.	

教学大纲及教学日历 SYLLABUS

15. 教学目标 Course Objectives

本课程通过探讨机器人领域的一系列基础本源的核心话题，藉由技术与人文相结合的视角，来探讨机器人和人工智能的涵义，与人和生物的区别与联系，以及对社会，经济，文化等多方面的影响。通过提供具体的环境和场景，使学生设身处地的思考机器人技术的发展和可能带来的一系列衍生问题。本课程由三个部分相结合构成，第一部分着重于机器人的历史与本源特征，第二部分着重于机器人的前沿与技术核心，第三部分着重于机器人的伦理与影响。

This course discusses a series of fundamental and core subjects of robotics. The topics range from the definition of robots and artificial intelligence, their analogy and distinctions with flesh beings, to the wide societal, economic, and cultural implications and impacts. With concrete circumstances and scenarios, students could project their thoughts onto the series of implications triggered by the development and application of robotic technologies. The course comprises of three pillars, 1) history and original characteristics of robots; 2) frontiers and core technologies of robotics; 3) Robotic ethics and impacts.

16. 预达学习成果 Learning Outcomes

1. 阅读和了解经典文学作品中对于机器人的描述，并认识其进步性与局限性. Comprehend the progressiveness and limitations of robots by reading legacy literature depicting robots.
2. 理解和掌握机器人与人工智能的涵义，分类，特点，并能够有针对性的进行讨论. Understand and obtain knowledge of the definition, classification, and characteristics of robots and artificial intelligence, and be able to raise arguments in specific areas.
3. 深入理解机器人发展带来的影响，并能够形成独立的观点. Understand the potential impacts of robot developments, and form original opinions.

针对机器人发展和应用相关的具体问题，能够使用课程所学进行活学活用，完成调查研究并进行汇报. Apply knowledge learned in class to investigate and research on specific topics related to the development and application of robotic technology, and consolidate reports.

17. 课程内容及教学日历（如授课语言以英文为主，则课程内容介绍可以用英文；如团队教学或模块教学，教学日历须注明主讲人）

Course Contents (in Parts/Chapters/Sections/Weeks. Please notify name of instructor for course section(s), if this is a team teaching or module course.)

Topic	Hours	Contents
1. 机器人简介 Introduction to Robotics	4	<ul style="list-style-type: none"> ➤ 机器人的简介和定义，探讨机器人的含义和涵盖范围，建立初步的总体印象。 ➤ Introduction and definition of robots. Discuss the defining factors and range of coverage, to form a general impression.
2. 机器人的经典形象 Portrayal of Robots	6	<ul style="list-style-type: none"> ➤ 机器人的经典形象，机器人与人和动物的相似与异同，和介绍机器人技术的前沿。 ➤ Robot portraits, similarity and distinctions between robots and human/animals, frontiers of robotics
3. 机器人的历史 History of Robots	6	<ul style="list-style-type: none"> ➤ 机器人在文学作品，影视作品中的形象及其演变，机器人发展史。讲述机器人从满足人类需求出发，一路变迁的梗概。 ➤ Robots in literature, robots in films, robots chronicle. The development route of robots from their origin of fulfilling human needs and desires.
4. 智能 Intelligence	6	<ul style="list-style-type: none"> ➤ 人工智能的简介，强智能与弱智能的概念，以及技术的发展和应用。 ➤ Artificial intelligence introduction, strong vs weak AI, technology and applications.
5. 机器人的影响 Impacts of robots	6	<ul style="list-style-type: none"> ➤ 机器人和人工智能技术的发展和应用对社会，经济，伦理等多方面带来的影响，以及技术发展与就业的关系。 ➤ Social, ethical, economic impacts of robotics and artificial intelligence. Relation of technology and labor.
6. 小组答辩 Group presentations	4	<ul style="list-style-type: none"> ➤ 小组答辩. Group presentations.

18. 教材及其它参考资料 Textbook and Supplementary Readings

Isaac Asimov “I. Robot”

课程评估 ASSESSMENT

19. 评估形式 Type of Assessment	评估时间 Time	占考试总成绩百分比 % of final score	违纪处罚 Penalty	备注 Notes
出勤 Attendance				
课堂表现 Class Performance				
小测验 Quiz				
课程项目 Projects		40		
平时作业 Assignments		20		
期中考试 Mid-Term Test				
期末考试 Final Exam				
期末报告 Final Presentation		40		
其它（可根据需要 改写以上评估方 式） Others (The above may be modified as necessary)				

20. 记分方式 GRADING SYSTEM

- A. 十三级等级制 Letter Grading
 B. 二级记分制（通过/不通过） Pass/Fail Grading

课程审批 REVIEW AND APPROVAL

21. 本课程设置已经过以下责任人/委员会审议通过
 This Course has been approved by the following person or committee of authority

机械与能源工程系教学委员会