

## 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.	<b>课程名称 Course Title</b>	科学与伦理 Science and Ethics
2.	<b>授课院系 Originating Department</b>	机械与能源工程系 Department of Mechanical and Energy Engineering
3.	<b>课程编号 Course Code</b>	ME374
4.	<b>课程学分 Credit Value</b>	2
5.	<b>课程类别 Course Type</b>	专业核心课 Major Core Courses
6.	<b>授课学期 Semester</b>	秋季 Fall
7.	<b>授课语言 Teaching Language</b>	中文 Chinese
8.	<b>授课教师、所属学系、联系方式 (For team teaching, please list all instructors)</b>	魏磊, 副教授, 机械与能源工程系 Email: weil@sustech.edu.cn Lei Wei, Associate Professor, Department of Mechanical and Energy Engineering, Email: weil@sustech.edu.cn  曾林, 副教授, 机械与能源工程系 Email: zengl3@sustech.edu.cn Lin Zeng, Associate Professor, Department of Mechanical and Energy Engineering, Email: zengl3@sustech.edu.cn
9.	<b>实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact</b>	待公布 To be announced
10.	<b>选课人数限额(可不填) Maximum Enrolment</b>	30

(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	无 None				
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

1.	<p>掌握工程、工程社会学、工程伦理基本概念；了解工程与社会的关系，学会处理工程与社会之间的矛盾；客观评价科学技术、工程与社会的发展带来的健康、安全、法律等方面的影响，以及工程伦理带来的法律及文化影响，并理解应承担的责任；</p> <p>Master the basic concepts of engineering, engineering sociology, and engineering ethics; understand the relationship between engineering and society, learn to deal with conflicts between engineering and society; objectively evaluate the impact of scientific and technological development, engineering, and society on health, safety, law, and other aspects, as well as the legal and cultural impact brought by engineering ethics, and understand the responsibilities to be undertaken.</p>
2.	<p>掌握工程问题的工程实践对环境、社会可持续发展的影响，能够正确评价工程对环境、社会可持续发展的影响；</p> <p>Master the impact of engineering practices on environmental and social sustainable development issues, and be able to correctly evaluate the impact of engineering on environmental and social sustainable development.</p>
3.	<p>培养人文科学素养，深入理解工程伦理相关概念和基本规范，培养工程伦理意识，理解职业道德和规范；</p> <p>Cultivate humanistic literacy, deeply understand the relevant concepts and basic norms of engineering ethics, cultivate engineering ethics awareness, and understand professional ethics and norms.</p>
4.	<p>提高工程交流及写作能力，培养有效沟通及交流表达能力，包括撰写报告、陈述发言、清晰表达或回应指令；</p> <p>Improve engineering communication and writing skills, cultivate effective communication and expression abilities, including report writing, presentation speaking, clear expression, or responding to instructions.</p>
5.	<p>在工程实践中，遵守工程师的职业道德和规范，提高工程伦理决策能力，履行社会责任。</p> <p>In engineering practice, adhere to the professional ethics and norms of engineers, improve the ability to make engineering ethical decisions, and fulfill social responsibilities.</p>

#### 16. 预达学习成果 Learning Outcomes

<p>该门课程讲授工程、工程社会学、工程伦理基本概念；了解个人、工程与社会的关系，学会处理工程与社会之间的矛盾，正确理解和评价工程对社会环境和可持续发展的影响；理解应承担的责任，树立正确的价值观、培养爱国情怀；理解并遵守工程师的职业道德和规范，提高工程伦理决策能力，履行社会责任；提高团队协作能力，培养有效沟通及交流能力，提高工程交流及写作等综合能力。</p> <p>This course covers the basic concepts of engineering, engineering sociology, and engineering ethics. Students will understand the relationship between individuals, engineering, and society, learn how to handle conflicts between engineering and society, and correctly evaluate the impact of engineering on social environment and sustainable development. They will also understand the responsibilities to be undertaken, establish correct values, and cultivate</p>
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patriotic sentiments. Students will understand and comply with the professional ethics and norms of engineers, improve their ability to make engineering ethical decisions, and fulfill social responsibilities. Additionally, students will improve their team collaboration skills, cultivate effective communication abilities, and enhance their comprehensive abilities in engineering communication and writing.

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.)**

Week 1 绪论: 科学、工程与伦理的基本概念，现代工业化发展对人才能力需求的变化

Week 1 Introduction: the basic concepts of science, engineering and ethics, and the evolution of talent ability demand in the development of modern industrialization.

Week 2 工程伦理的必要性、工程实施与安全管理，科学技术的影响因素

Week 2 The necessity of engineering ethics, engineering implementation and safety management, and the influencing factors of science and technology.

Week 3 工程伦理教育的国内外发展现状，案例教学

Week 3 Engineering ethics education, development status, case teaching.

Week 4 工程伦理的共性问题、工程风险与伦理责任、利益分配与公正原则

Week 4 The common problems of engineering ethics, engineering risk and ethical responsibility, benefit distribution and justice principle.

Week 5 工程风险与伦理决策，利益处理与伦理决策，工程伦理问题分析

Week 5 Engineering risk and ethical decision-making, benefit treatment and ethical decision-making, analysis of Engineering ethical problems.

Week 6-8 工程伦理案例分组讨论分析以及期中展示

Week 6-8 Group discussion, analysis and mid-term display of engineering ethics cases.

Week 9 工程架构、分析工具以及典型工程案例分析

Week 9 Engineering architecture, analysis tools and typical engineering case analysis.

Week 10 报联商重要性，沟通技巧以及汇报沟通能力培养

Week 10 Importance of reporting and liaison, communication skills and training of reporting and communication skills.

Week 11 论文写作规范与伦理、论文写作需要避免的问题、论文写作与表达

Week 11 Thesis writing norms and ethics, problems to be avoided in thesis writing, thesis writing and expression.

Week 12 国际化视野、人才育成体系以及综合能力培养

Week 12 International vision, talent cultivation system and comprehensive ability training.

Week 13 知识产权概念，以及知识产权分配、利用

Week 13 Intellectual property, the allocation and utilization of intellectual property

Week 14 工程项目管理与社会可持续发展

Week 14 Engineering project management and social sustainable development

Week 15 新形势下的数据隐私、人工智能领域的前沿伦理问题

Week 15 Frontier ethical issues in the fields of data privacy and artificial intelligence in the new era

Week 16 课程报告

Week 16 Course project report.

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

1. 衡孝庆, 工程、伦理与社会, 浙江大学出版社, ISBN: 9787308213608
2. 王玉岚, 工程伦理与案例分析, 知识产权出版社, ISBN: 9787513073479
3. 徐海涛, 工程伦理: 概念与案例, 电子工业出版社, ISBN: 9787121414411
4. Ethics and Engineering: An Introduction, Behnam Taebi, Cambridge University Press, 2021, ISBN: 978-1107177536.

**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	Every Lecture	20		
课堂表现 Class Performance	Every Lecture	10		
小测验 Quiz				
课程项目 Projects				
平时作业 Assignments				
期中考试 Mid-Term Test				
期末考试 Final Exam				
期末报告	16 <sup>th</sup> Week	40		

**Final Presentation**

其它（可根据需要  
改写以上评估方  
式）

**Others (The  
above may be  
modified as  
necessary)**

课堂报告 Class Presentation	30		

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**

