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	材料化学 Materials Chemistry
2.	授课院系 Originating Department	材料科学与工程系 Department of Materials Science and Engineering
3.	课程编号 Course Code	MSE301
4.	课程学分 Credit Value	3
5.	课程类别 Course Type	专业基础课 Major Foundational Courses
6.	授课学期 Semester	秋季 Fall
7.	授课语言 Teaching Language	英文 English
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）	田雷蕾，副教授，材料科学与工程系 Dr. Leilei Tian, Associate Professor, Dept. Mater. Sci. Eng., SUSTC tianll@sustc.edu.cn 0755-8801-8524
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	48	12			60

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12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	MSE001 材料科学与工程基础 Fundamentals of Materials Science and Engineering
13. 后续课程、其它学习规划 Courses for which this course is a pre-requisite	本课程为材料科学与工程专业基础课，是材料化学方向的必修课程；非材料专业学生也可选修本课程，学习材料化学的相关知识。 This fundamental course should be taken by the students of Materials Science and Engineering; and it is highly recommended to the students who are interested in material-related research.
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**

The course covers the basic principles, structures, synthesis, characterization, properties, and applications in materials science. Emphasizing a solid grasp of fundamentals in chemistry, we shall focus on the use of learned chemical knowledge to synthesize various materials (such as inorganic organic, polymeric, metallic, biological and nanomaterials) and manipulate their properties. Students who take this course are expected to have comprehensive understanding of materials chemistry and master relevant basic skills, and learn the fundamentals from this course which shall be immediately valuable to their future studies and research.

16. **预达学习成果 Learning Outcomes**

Students who take this class are anticipated to appreciate the materials covered by this course and master foundation knowledge and relevant basic skills in materials chemistry, capable of using the basic chemistry knowledge learned to design new materials with excellent properties and to improve the properties of existing materials. Upon the learning, the students should be confident that they are more prepared for future studies and research.

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.)

Chapter 1 (2 Credit hours): Introduction to materials chemistry

Chapter 2 (12 Credit hours): Solid-State Chemistry

Chapter 3 (10 Credit hours): Metals

Chapter 4 (8 Credit hours): Semiconducting Materials

Middle Exam

Chapter 5 (10 Credit hours): Polymer Materials

Chapter 6 (4 Credit hours): Nanomaterials

Review and Tutorial: (2 Credit hours)

Final Exam

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

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指定教材:
(1). 彭正合主编，材料化学，（科学出版社）
(2). Materials Chemistry,2nd Ed., Bradley D. Fahlman, Springer, Netherland,

推荐参考资料:
[1] Supplied whenever necessary.

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		10		
课堂表现 Class Performance		5		
小测验 Quiz				
课程项目 Projects				
平时作业 Assignments		20		
期中考试 Mid-Term Test		25		
期末考试 Final Exam		40		
期末报告 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)				

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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