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**	**复合材料科学与应用 Composite materials: science and applications**
2.	**授课院系 Originating Department**	化学系 Department of Chemistry
3.	**课程编号 Course Code**	CH331
4.	**课程学分 Credit Value**	3
5.	**课程类别 Course Type**	专业选修课 Major Elective Courses
6.	**授课学期 Semester**	秋季 Fall
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）**	徐强，讲席教授，xuq@sustech.edu.cn Qiang Xu, Chair Professor, xuq@sustech.edu.cn
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				48
12.	先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	无				
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.	材料科学与工程系，电子系，机械能源系亦可选修				

教学大纲及教学日历 SYLLABUS

15. 教学目标 Course Objectives

该课程是针对化学，材料，电子，机械能源等专业本科生开设的专业选修课。本课程是学生为扩宽专业知识和材料设计思路，以及增强学生对材料化学/材料科学的兴趣。它包括基本概念和理论，不同复合材料及制备合成方法学，复合材料的物理和化学性能及它们的应用等内容。通过课堂教学，课程项目或论文等方式使学生能够掌握复合材料的基本概念和理论，系统地了解各类复合材料的制备，性能和应用，以达到可以针对不同应用来选择或初步设计所需的复合材料。同时，使学生能够通过自身的理解来把握复合材料在未来相关领域中的角色和发展趋势。

The course is a major elective course for the undergraduates of chemistry, materials, electronics, mechanical and energy engineering who want to extend knowledge on materials chemistry and materials science. The main contents include: fundamental theories, preparation methods/processes, physical and chemical properties, and applications of the composites. The objectives are to make the students systematically master fundamentals of composites, train students to be able to select or design composite materials for specific applications.

16. 预达学习成果 Learning Outcomes

学生通过对该课程的学习对复合材料的概念，分类，制备及合成有系统的清晰的认识和了解；能够针对不同需要选择或设计复合材料；对复合材料在未来化学/科学与工程领域的角色和发展趋势形成学生们自己独到的见解。

Students completing the course will systematically master the fundamentals of the composites and typical preparation processes, be able to select or design the composite materials for specific applications, and finally achieve insight to the role and direction of the composites in the future.

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.)

Lecture 1 Introduction (2 Credit Hours)

Lecture 2 Design and synthesis (14)

Lecture 3 Properties (14 Credit Hours)

Lecture 4 Applications (14 Credit Hours)

Lecture 5 Project Discussions (4 Credit Hours)

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

1. 复合材料，第一版，吴人洁，天津大学出版社，ISBN: 7561813899；
2. 纳米 MOF 及其复合物和衍生物，徐强，庞欢，邹如强，朱起龙，科学出版社，ISBN:978-7-03-070230-2。
3. Composite Materials-Science and Engineering，Third Edition, Krishan K. Chawla, ISBN: 9780387743646;

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		20		
课堂表现 Class Performance		20		
小测验 Quiz				
课程项目 Projects				
平时作业 Assignments		30		
期中考试 Mid-Term Test				
期末考试 Final Exam				
期末报告		30		

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)				

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

化学系教学指导委员会
Teaching committee of the chemistry department