

DS303 课程大纲

- 1、2023 春季学期 (2-6 页码)
- 2、2024 春季学期起 (7-11 页码)

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	制造系统 Manufacturing Systems
2. 授课院系 Originating Department	创新创意设计学院 School of Design
3. 课程编号 Course Code	DS303
4. 课程学分 Credit Value	3
5. 课程类别 Course Type	专业核心课程 Major Core Course
6. 授课学期 Semester	Spring
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)	Christiane Herr Professor, School of Design cmherr@sustech.edu.cn

9.	实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact	无 NA				
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		64
12.	先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	无 N/A				
13.	后续课程、其它学习规划 Courses for which this course is a pre-requisite	无 N/A				
14.	其它要求修读本课程的学系 Cross-listing Dept.	无 N/A				

教学大纲及教学日历 SYLLABUS

15. 教学目标 Course Objectives

This course offers students an introduction to contemporary and future manufacturing systems with a view to the implications of manufacturing processes on design processes. As part of the course, students learn to assess and work with the interrelationships between materials, methods, processes and outcomes

Students will develop a design brief for an object with a particular focus on materials and related production processes and develop a design approach addressing manufacturing constraints and opportunities. As part of realizing a design project, students critically reflect on how design can navigate and potentially extend existing manufacturing systems.

Skills: basic manufacturing planning

本课程有安排实地考察和与外部公司合作的可能性。届时课程内容和活动安排将会调整。

This course will include field trips and collaborations with external companies depending on availability. Lecture and activity schedules are indicative and may be adjusted.

16. 预达学习成果 Learning Outcomes

Upon completing this course, students will be able to:

1. Describe and analyze a variety of industrial manufacturing systems
2. Accommodate manufacturing constraints and opportunities in a design brief
3. Critically reflect on constraints and opportunities inherent in manufacturing technology
4. Creatively address materials and production processes as part of a design process

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.)

<u>Week</u>	<u>Content</u>
1	AM [4 hours] Introduction to the course, past, current and future manufacturing systems, brief development PM [4 hours] Brainstorming and design concept development
	AM [4 hours] Manufacturing and materials, materials choice PM [4 hours] Material investigation and design concept with materials
2	AM [4 hours] Shenzhen as manufacturing base, local production capabilities and practices PM [4 hours] Revision of design concepts in view of materials and manufacturing requirements
	AM [4 hours] Design proposal review in the context of material manufacturing requirements PM [4 hours] Interim review with invited guests
3	AM [4 hours] Design production: prototyping PM [4 hours] Design production: prototyping

	AM [4 hours] Design tutorials
	PM [4 hours] Final presentation preparation, tutorials
4	AM [4 hours] Final presentation preparation, tutorials
	PM [4 hours] Final presentation preparation, tutorials
	AM [4 hours] Final presentation preparation, tutorials
	PM [4 hours] Final presentation with invited guest critics

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

Thompson, Rob (2007), Manufacturing Processes for Design Professionals. New York: Thames & Hudson.

Thompson, Rob and Thompson, Martin (2017), The materials sourcebook for design professionals, New York: Thames & Hudson.

Lefteri, Chris (2019) 3rd ed., Making it : manufacturing techniques for product design. London: Laurence King Publishing Ltd.

课程评估 **ASSESSMENT**

19. 评估形式 Type Assessment	评估时间 of 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				
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 Final Presentation		90%		
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

Professor Tom Kvan
Dean, School of Design

课程详述

COURSE SPECIFICATION

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9.	实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact	无 NA				
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14.	其它要求修读本课程的学系 Cross-listing Dept.	无 N/A				

教学大纲及教学日历 SYLLABUS

15. 教学目标 Course Objectives

This studio course offers students an introduction to contemporary and future manufacturing systems with a view to interplay of manufacturing processes, materials and design processes. As part of the course, students learn to assess and work with the interrelationships between materials, technologies, processes and outcomes

Students will work on a design brief for an object with a particular focus on materials, technologies and related production processes and develop a design approach addressing constraints and opportunities generated from requirements of materials, technologies and manufacturing. As part of realizing a design project, students critically reflect on how design can navigate and potentially extend manufacturing systems when developing innovative design.

Skills: consideration of material, technology and manufacturing interactions, basic manufacturing planning

本课程有安排实地考察和与外部公司合作的可能性。届时课程内容和活动安排将会调整。

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16. 预达学习成果 Learning Outcomes

Upon completing this course, students will be able to:

1. Describe and analyze industrial manufacturing systems
2. Accommodate materials and manufacturing constraints and opportunities in a design process
3. Critically reflect on constraints and opportunities inherent in manufacturing technology
4. Creatively address materials and production processes as part of a design process

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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	Content
1	Introduction to the course Design brief Introduction to manufacturing systems
2	Materials and manufacturing: constraints and opportunities
3	Shenzhen as manufacturing base, local production capabilities and practices
4	Design proposal review in the context of material manufacturing requirements External collaborator feedback (depending on availability)
5	Design tutorials
6	Design tutorials
7	Interim Presentation: Concept design presentation and feedback
8	Advanced materials and manufacturing

9	Embedding advanced technologies into designed objects
10	Future trends in materials and manufacturing
11	Design development
12	Design development
13	Final Review Preparation / Design tutorials
14	Final Review Preparation / Design tutorials
15	Final Review with invited guests
16	Final Exam Preparation Final Report Submission

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出勤 Attendance		10%		

课堂表现 Class Performance				
小测验 Quiz				
课程项目 Projects				
平时作业 Assignments		70%		
期中考试 Mid-Term Test				
期末考试 Final Exam		20%		
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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