

DS202 课程大纲

- 1、2022 秋季学期 (2-7 页码)
- 2、2023 秋季学期起 (8-13 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	从二维到三维 3D from 2
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	DS202
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)	Christiane M. HERR Professor, School of Design candyherr@gmail.com

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	DS201 Visual Representation 视觉表现				
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

本课程培养在二维平面上构思和创建三维物体的技能。三维对象根据设计概要而创建, 概要规定了功能要求以及潜在用户。学生以概念图和工程图的形式具体说明、展示设计理念, 并将材料使用效率、组装的简易性和基本的人体工程学要素考虑在内。学生将在设计和组装的过程中学习材料特性、切割技术和不同元素之间的连接方式。

This course develops the skill to conceive and create a three-dimensional object from a two-dimensional plane. Three-dimensional objects are created in response to a design brief that specifies functional requirements as well as a prospective user. Students specify and present design ideas in the form of concept drawings and technical drawings, considering aspects of efficient material usage, simplicity in assembly and basic ergonomics. As part of the design and assembly process, students learn basics of material properties, cutting techniques and types of connections between

elements.

16. 预达学习成果 Learning Outcomes

通过学习， 学生将能够：

1. 对材料的特性、生产场景和对环境的影响进行识别、分析和报告
2. 有能力运用各种工程绘图和展示技术
3. 在三维物体设计和制造中应用材料知识
4. 批判性地评估设计方案，以考虑材料使用的效率、组装的简易性和基本的人体工程学要素

On successful completion of this module, students will be able to:

1. identify, analyze and report on materials, their properties, production contexts and environmental impact
2. demonstrate the ability to employ various technical drawing and presentation techniques
3. apply knowledge of materials in the design and fabrication of a three-dimensional shape
4. critically evaluate design proposals with a view to efficiency of material use, ease of assembly and basic ergonomics

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	Content
1	<p>Lecture (4 hours) Introduction to the course, outline of assignments. Relationship of form and use, basic ergonomics. Introduction to materials research, sustainable design. Case study research (teamwork).</p> <p>Practice (4 hours) Design concept development in individual work and group discussion</p>
	<p>Lecture (4 hours) Presentation of case study research. Technical drawing formats. Communicating through sketching and drawing. Introduction to diagrams.</p> <p>Practice (4 hours) 2D drawing: sketching and technical drawing. Continued design concept development.</p>
2	<p>Lecture (4 hours) Presentation and discussion of design concepts (teamwork). Cutting techniques. Connection systems in relation to material properties. Introduction to prototyping. User research: observations.</p> <p>Practice (4 hours) Material experiment: prototyping (scale models). Design concepts reconsidered in light of material properties and function / ergonomics.</p>
	<p>Lecture (4 hours) Digital drawing and modelling (2D and 3D), drawing to scale.</p> <p>Practice (4 hours) Digital drawing and modelling (2D and 3D), drawing to scale.</p>
3	<p>Lecture (4 hours) Interim Review: Developed design concept, technical drawings and sketches of prototype. Circular design: material efficiency, assembly/disassembly and recycling.</p> <p>Practice (4 hours) Fabrication of 1:1 scale prototypes. User feedback.</p>
	<p>Lecture (4 hours) Presentation drawing (hidden line drawing, rendering)</p> <p>Practice (4 hours) Presentation drawing (hidden line drawing, rendering) Continued fabrication of 1:1 scale prototypes.</p>
4	<p>Lecture (4 hours) Tutorials and preparation of final presentation.</p> <p>Practice (4 hours) Continued fabrication of 1:1 scale prototypes. Focus on detailing.</p>

	<p>Lecture (4 hours) Tutorials and preparation of final presentation.</p> <p>Practice (4 hours) Presentation of 1:1 prototype, technical drawings, function/use diagrams, design process sketches and simple renderings.</p>
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18. 教材及其它参考资料 Textbook and Supplementary Readings

Eissen, K. (2009). Sketching: drawing techniques for product designers. Laurence King Publishing; 13th edition

Lidwell, W., Holden, K., & Butler, J. (2003). Universal principles of design. Gloucester, Mass.: Rockport.

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

Thomas Kvan 关道文
Dean, School of Design 创新创意设计学院院长

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COURSE SPECIFICATION

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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)	Mirna ZORDAN Assistant Professor, School of Design mzordan@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)					
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6. 有能力运用各种工程绘图和展示技术
7. 在三维物体设计和制造中应用材料知识
8. 批判性地评估设计方案，以考虑材料使用的效率、组装的简易性和基本的人体工程学要素

On successful completion of this module, students will be able to:

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2	Lecture and discussion Introduction to materials research, sustainable design. Case study research (teamwork).
3	Practice Design concept development in individual work and group discussion
4	Lecture and Practice Presentation of case study research. Design concept development in individual work and group discussion
5	Lecture Technical drawing formats. Communicating through sketching and drawing. Introduction to diagrams.
6	Practice 2D drawing: sketching and technical drawing. Continued design concept development.
7	Lecture Presentation and discussion of design concepts (teamwork). Cutting techniques. Connection systems in relation to material properties. Introduction to prototyping. User research: observations.
8	Practice Material experiment: prototyping (scale models). Design concepts reconsidered in light of material properties and function / ergonomics.
9	Lecture and practice Digital drawing and modelling (2D and 3D), drawing to scale.
10	Interim Review: Developed design concept, technical drawings and sketches of prototype. Lecture and practice: Circular design: material efficiency, assembly/disassembly and recycling
11	Practice: Fabrication of 1:1 scale prototypes. User feedback.
12	Lecture Presentation drawing (hidden line drawing, rendering)
13	Practice Presentation drawing (hidden line drawing, rendering) Continued fabrication of 1:1 scale prototypes.
14	Lecture and Practice Continued fabrication of 1:1 scale prototypes. Focus on detailing.
15	Practice Tutorials and preparation of final presentation.
16	Practice Tutorials and preparation of final presentation. Final Review: Presentation of 1:1 prototype, technical drawings, function/use diagrams, design process sketches and simple renderings.

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课程评估 ASSESSMENT

19. 评估形式 评估时间 占考试总成绩百分比 违纪处罚 备注
Type of Time % of final score Penalty 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		30%		
期中考试 Mid-Term Test				
期末考试 Final Exam				
期末报告 Final Presentation		60%		
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

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Thomas Kvan 关道文 Dean, School of Design 创新创意设计学院院长
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