



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	产品设计视觉表达技巧 Product Design Visualization				
2.	授课院系 Originating Department	系统设计与智能制造学院 School of System Design and Intelligent Manufacturing (SDIM)				
3.	课程编号 Course Code	SDM114				
4.	课程学分 Credit Value	3				
5.	课程类别 Course Type	专业选修课 Major Elective Course				
6.	授课学期 Semester	秋季 Autumn				
7.	授课语言 Teaching Language	英语 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)	Fred HAN 系统设计与智能制造学院 (设计智造学院) School of System Design and Intelligent Manufacturing (SDIM) fred@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	32		32		64



Credit Hours

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12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	无 NIL
13. 后续课程、其它学习规划 Courses for which this course is a pre-requisite	无 NIL
14. 其它要求修读本课程的学系 Cross-listing Dept.	无 NIL

教学大纲及教学日历 SYLLABUS

15. **教学目标 Course Objectives**

This subject aims to introduce engineering students the fundamental, but multiple facets of Design and its process. It is composed of two sub-courses that include practice-based hands-on skill training workshop and design seminar led by design experts from industry. Students will be brought to:

- 1) Visual Communication Skill for engineers

Communication is a critical competency in creative process. Visualizing and expressing ideas/concepts are vital primary form of communicating tool - a picture is worth of thousand words. 2D visualization is essential process for both designers and engineers, enabling them to explore and develop concepts in efficient hand sketch form. It introduces them the possibilities and constraints evolving in diverse area of creativity, idea generation and visual communication as a thinking tool; Students will develop sketching skills and techniques by using visual language professionally. It will emphasize the importance of understanding 3D form, perspective and proportion which is placed on the ability to efficiently communicate ideas in 2D sketches by various medias.

- 2) Design Seminar

Design plays an important role to understand human needs which is critical in the compelling product/ service development. This seminar is to develop students' understanding of human-centred design approach; Industry experts/entrepreneurs will be invited and introduce not only the design methods and theory that are applied to real-world products, but also the case studies of collaboration between design, engineering and marketing in the industry will be drawn. Students will practice the teaching contents throughout a sub-design workshop, where the steps of the design process are taught and implemented in the project.

16. **预达学习成果 Learning Outcomes**

Upon completing the subject, students will be able to:

- 1) Visual Communication Skill
 - ✓ Gain fundamental principles of visualizing 3D objects
 - ✓ Create geometrical shapes in perspective drawings
 - ✓ Construct perspective field on 2D drawings for visual fluency
 - ✓ Apply the principle of variable line weight in freehand sketch
 - ✓ Develop sensible craftsmanship



<p>- The sub-course introduces students:</p> <ul style="list-style-type: none"> • Sketching – Perspective, Line weight, Contour drawing, Light, Value and Shadow, Material and Finishing indication, • Precision – Accurate perspective, Ellipse and shading indication • Media – ball point & felt-tip pen, markers, • Form – form synthesis, geometrical shapes to organic forms • Proportion – Visual hierarchies, dividing visual 3D volume • Material and finishing indication • Composition – Page Layout <p>2) Design Seminar</p> <ul style="list-style-type: none"> ✓ Gain the fundamental knowledge of design thinking ✓ Understand the role of design in product development process ✓ Understand of human-centred design approach ✓ Define the function of product for target user group
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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.)

Course Schedule					
Week	Hour	In-class		Out of class	Hours
		Lecture Title	Language	Tutorial and Lab	
1	2	-Sketch Fundamentals I : Perspective Drawings : Line & Circles -Geometric Shape I: Cube	• English	Practice of line, circle and cube drawings	2
2	2	-Sketch Fundamentals I : Ellipse -Geometric Shape II : Cylinder, Cone -Design Project I brief	• English	Practice of Composition - Composition of geometric shapes - Design wheels and sketch with ellipse	2
3	2	- Design Project I : Assignments review & individual tutorial	• English	Design Practice I : Visualize the design/product concepts with leant sketch techniques : Making prototypes	2
4	2	- Design Project I Presentation -Value indication : light source, shading and shadow	• English	Practice of value indication and shading on combined geometric shapes	2
5	2	-Material and finishing indication -Design Seminar I -Design Project II brief	• English/ Chinese	-Practice of material and finishing indication on combined geometric shapes - Design Practice II : Visualize the design/product concepts with leant sketch techniques	2
6	2	- Design Project II : Assignments review & individual tutorial	• English	Design Practice II : Visualize the design/product concepts with leant sketch techniques : Making prototypes	2



7	2	- Design Project II Presentation - Design Seminar II - Design Project III (Mid-term project) brief	• English/ Chinese	Design Practice III : Visualize the design/product concepts with leant sketch techniques	2
8	2	- Design Project III : Assignments review & individual tutorial	• English	Design Practice III : Visualize the design/product concepts with leant sketch techniques : Making prototypes	2
9	2	- Design Project III : Assignments review & individual tutorial	• English/	Design Practice III : Visualize the design/product concepts with leant sketch techniques : Making prototypes	2
10	2	- Design Project III (Mid-term) Presentation - Design Project IV (Final project) brief	• English	Design Practice IV	2
11	2	- Design Project IV : Assignments review & individual tutorial	• English	Design Practice IV	2
12	2	- Design Project IV : Assignments review & individual tutorial - Design Seminar III	• English	Design Practice IV	2
13	2	- Design Project IV : Assignments review & individual tutorial	• English	Design Practice IV	2
14	2	- Design Project IV : Assignments review & individual tutorial	• English	Design Practice IV	2
15	2	- Design Project IV : Assignments review & individual tutorial	• English	Design Practice IV	2
16	2	Design Project IV (Final)Presentation	• English / Chinese	Final Project Report & Design Seminar Logbook	2

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

Supplementary readings:

Kelly, Tom. Creative Confidence. 2013

Dreyfuss, Henry. Designing for People. Allworth, 2003

Lidwell, William. Universal Principles of Design. Rockport, 2010

Madsen, David A., and David P. Madsen. *Engineering drawing and design*. Nelson Education, 2016.

Norling, Ernest, *Perspective Made Easy* (Dover Art Instruction). BN Publishing, 2007

课程评估 ASSESSMENT

19.

Type of Assessment	Assessment Time	% of final score	Penalty	Notes
Visualization Skill (Weekly assignment)	Every week	60	NIL	: To assess students' improved sketching skills. Three areas will be evaluated – 1) Perspective accuracy, 2) Creativity / Composition and 3) Craftsmanship : Assessment Rubrics will be provided in the beginning of semester



Mid-term Presentation	End of the 10 th week	15	NIL	: To assess students' achievement in the design process and prototype quality : Assessment rubrics will be provided in the beginning of semester
Final Presentation	End of the 16 th week	15	NIL	: To assess students' achievement in the design process and prototype quality : Assessment rubrics will be provided in the beginning of semester
Attendance and Participation	End of the 16 th week	10	NIL	To assess a student's work ethics

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

