

Instructive Cultivation Plan for the Program of Product Design

(Grade 2019)

Program code: 130504

1. Orientation

In contrast to the strategic positioning of “Design Capital” of Shanghai, the product design program is guided by “modern consumer product design” and characterized by the realization of innovative design applications. Taking digital technology as a means and facing the needs of the development of the society in the new era, this program will cultivate compound and application-oriented product design talents, and actively promote the development of collaborative innovation and interdisciplinary integration of industry, university and research, thus reflecting its leading role.

2. Cultivation Objective

1. General Objective

This program takes the "industry-university linkage work system" teaching mode as the core, features the "innovative design industrialization" of modern consumer goods for local market needs, and deeply implements the teaching philosophy of "art and engineering integration, creativity and technology integration, curriculum and industry integration". This program will cultivate compound and application-oriented product design talents who meet the needs of social development in the new era, have advanced design concepts, have strong market insight, creativity, and aesthetic capabilities, are proficient in theoretical knowledge and practical skills in all aspects of product design, and are comprehensively developed in morality, intelligence, physical, beauty, and labor.

2. Cultivation Value

Based on the professional characteristics of product design, this program take "continuously satisfying the people's ever-growing needs for a better life" as the mission, and promote the design concepts of "truth", "goodness" and "beauty". This program adheres to the socialist core values as the guidance for professional education; guides students to study diligently, cultivate morality, discernment, innovation, and pragmatism; cultivates socialist builders and successors with broad international perspective, deep family and country feelings, a high degree of national humanism, strong social responsibility, strong professionalism, and comprehensive development of skills, ethics, intelligence, physical art and labor; and strives to promote the transformation of "Made in China" to "Created in China", "China's speed" to China's quality, and "manufacturing country" to "manufacturing power."

3. Requirement for Graduation

1. Ideological, political and moral education requirements

Relying on morality, learning by virtue, and teaching through virtue, this program will realize the comprehensive integration of professional ideological and political system and professional teaching system, and will promote the overall improvement of students' ideological level, political awareness, moral quality, and cultural literacy, including:

(1) Cultural self-confidence education: rooted in traditional aesthetics and traditional culture; guided by the spirit of the 19th National Congress of the Communist Party of China and in contrast to the goals of Shanghai's "five centers" and "four brands", cultivate students to form

basic cultural self-confidence and construction awareness.

(2) Education of patriotic sentiment: cultivate students' sense of mission and responsibility, and make a contribution to the transformation of "Made in China" to "Created in China", "China's speed" to China's quality, and "manufacturing country".

(3) Moral quality education: Aim at the first-line designers of the new era; through professional ethics education and social ethics education, cultivate students' necessary craftsmanship spirit, teamwork and professionalism, and comprehensively enhance personal cultivation and humanistic feelings.

(4) Safety education: popularize legal safety and ecological safety education, and strengthen students' awareness of public safety, environmental protection and intellectual property protection.

(5) Innovation and entrepreneurship education: In accordance with the needs of social development in the new era, from "creation" to "innovation" and then to "entrepreneurship", students will be provided with basic innovation and entrepreneurship literacy.

(6) Core values education: Combine professional practice, guide students to understand the basic requirements of socialist core values, and master the basic methods of promoting socialist core values by means of design.

2. Knowledge and ability requirements

Through the combination of classroom teaching and industrial practice, students will systematically learn and master the theoretical basic knowledge in the professional field of product design, and obtain the design thinking ability, design performance ability, visual communication design ability, modeling design ability, three-dimensional technical capabilities, engineering structure design capabilities, as well as the ability to carry out comprehensive industrialized creative design applications, including:

(1) Master correct design concepts, systematic design procedures, and standardized design methods;

(2) Master the basic theoretical knowledge in the professional field of product design, and have a certain creative thinking ability;

(3) Master the rapid expression method of product design and possess certain creative expression ability;

(4) Master the method of product design and modeling, and possess a certain aesthetic ability;

(5) Master the 3D modeling and rendering technology of product design, and have certain 3D dynamic performance capabilities;

(6) Have certain design research and product planning capabilities;

(7) Have a certain visual communication design ability;

(8) Possess certain engineering structure design capabilities;

(9) Possess a certain comprehensive industrialization application capability of product design;

(10) Have certain cross-professional and cross-field collaboration and cooperation capabilities.

3. Service Orientation

In order to meet the needs of social development in the new era and to face the construction objectives of Shanghai's "five centers" and "four brands", the professional positions for graduates of this program include:

- (1) Engaged in the development and design of new products in the new product development centers of group-type and small and medium-sized enterprises.
- (2) Engaged in product planning, development and design in an industrial design company.
- (3) Be able to conduct independent or joint ventures and become freelance designers.

4. Schooling System

Four-year undergraduate education

5. Length of Study

Generally four years. The length of schooling can be flexible from no less than three years to no longer than six years.

6. Requirements for Graduation and Degree Conferring

Students of this program must complete the minimum credits required for each category of courses and complete all the content specified in extracurricular class according to the requirements of the instructional training plan, and the total credits must reach 151 credits for graduation; those who meet the requirements for bachelor's degree can be conferred bachelor degree in arts.

7. Discipline

Design Science (Design Art), Philosophy (Aesthetics), Psychology (Applied Psychology), Mechanical Engineering (Mechatronic Engineering)

8. Core Courses

1. Foundation of Design Presentation

This course is guided by the socialist core values to improve students' cultural accomplishment and aesthetic appeal. In the professional aspect, students will be trained in visual communication and modeling techniques in terms of scale, perspective law, three-dimensional space, and the analysis of the internal structure of the body, and trained in the expression ability of product design creative schemes.

2. Constitution of Design A, Constitution of Design B

This course revolves around the "Created in China" strategy and initially establishes the designer's "awareness of goal" and "awareness of responsibility". This course will cultivate and improve students' ability to observe and express form, color, texture, composition (including structure and constitution), aesthetics, etc., so that students can use the principles and methods of composition, open up ideas, strive for innovation, and cultivate a sense of space and intuitive judgment.

Constitution of Design A is oriented to plane composition and color composition, and Constitution of Design B is oriented to three-dimensional composition.

3. Presentation Techniques

This course introduces traditional Chinese aesthetic concepts to improve students' cultural heritage

and aesthetic ability. In terms of program, students can master the drawing methods of product design creative plan sketches, practice various modeling characteristics, and express design intent better.

4. Computer Aided Product Design (Rhino + KeyShot)

This course emphasizes building cultural self-confidence, strengthening students' moral quality education and professional ethics education, and promoting craftsmanship. As an important part of design technology in professional terms, this course mainly teaches computer-aided design software for three-dimensional modeling, so that students can complete product modeling and rendering accurately and normatively.

5. Product modeling design and production A, product modeling design and production B

This course combines theoretical teaching and hands-on production to help students establish correct working attitudes and professional ethics in practice. This course will cultivate students' product modeling design ability in the professional aspect; enable students to be able to select and process model materials by hands-on practice, and express the designed modeling through three-dimensional entities.

Product modeling design and production A emphasizes the form and proportion elements in the modeling design, and product modeling design and production B emphasizes the color and material elements in the modeling design.

6. Product Design Engineering

This course emphasizes the importance of industrial rejuvenation to national development, and enables students to understand the positive effects of product structure optimization design on ecological safety and green environmental protection. In terms of program, students will understand and master the basic engineering knowledge required in the product design process, including various production and processing techniques, basic knowledge of molds, etc., and help them improve their design implementation capabilities.

7. Ergonomics

This course promotes humanistic care, helps students to improve morality and build a designer's sense of responsibility. In terms of program, students will understand and master the relative relationship and scale of people, environment and appliances that need to be solved in the product design process, and improve the ergonomics evaluation of people in the process of using products and operation.

8. Product design A, product design B, product design C

This course combines the strategy of five centers and four brand building of Shanghai to encourage students to establish correct career goals and initially establish a sense of "creative-innovation-entrepreneurship". In terms of program, students will master the basic knowledge and skills of product design, and cultivate students' ability to discover and solve problems. This course will train students' design performance, communication and comprehensive design capabilities, so that they can comprehensively improve their knowledge, feeling, creation, aesthetics and design skills.

The focus of product design A is design of creative thinking and the feasibility of design; the focus of product design B is practice of user-centered and goal-oriented design; the focus of product design C is practice of strategic product design with market value.

9. Design project practice A, Design project practice B, Design project practice C

This course integrates theoretical knowledge and practical skills in all aspects of product design, and comprehensively cultivates innovative, compound, and application-oriented product design talents with comprehensive development of morality, intelligence, physical, aesthetics, and labor. In the professional aspect, the actual design project is connected, and students are required to comprehensively use the design methods they have learned to solve realistic design problems.

9. Practical Training (Related courses)

Military training, professional curriculum practice (including professional curriculum practice links), internships, visits, research, exhibitions organization and participation, "industry-education linkage" design project practice, design (innovation and entrepreneurship) competitions, international exchange activities, graduation design

10. Course Structure and Course Hours (excluding extracurricular class)

Category	Total Credit	%	Total Course Hours	Theory Learning	Practical Training
Public Course	34	23	672	608	64
Basic Course	37	25	592	216	376
Professional Course	69	46	1296	336	960
General Course	10	6	160	160	0
Total	150	100	2720	1320	1400
Theory : Practice(%)	48 :52				

11. Teaching Schedule (1)

Category	Type	Provided by	Course Code	Course Name	Assessment	Credit	Course Hour	Theory Learning	Practical Training	Semester
Public Course	Required	School of Marxism	b1080001	Basic principles of Marxism	Test	3	48	42	6	Autumn semester 1
	Required	School of Marxism	b1080003	Ideological and moral cultivation and legal foundation	Non-test	3	48	42	6	Autumn semester 1
	Required	School of Marxism	b1080006	Outline of Chinese Modern History	Non-test	3	48	42	6	Spring semester 1
	Required	School of Marxism	b1080004	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics I	Test	3	48	42	6	Autumn semester 2
	Required	School of Marxism	b1080007	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics II	Test	2	32	28	4	Spring semester 2
	Required	School of Marxism	----	Situation and Policy (Module 1~4)	Non-test	2	32	28	4	Autumn semester 1~Spring semester 2
	Required	College of Arts and Sciences	b1020018	College Chinese	Non-test	2	32	32		Autumn semester 1
	Required	Department of Physical Education	----	Physical Education I~VI	Non-test	3	160	160		Autumn semester 1~Autumn semester 4
	Required	Others	b1110003	Military skills	Non-test	0.5	2W			Autumn semester 1
	Required	College of Arts and Sciences	b1110002	Military theory	Non-test	0.5	32	32		Spring semester 1
	Required	Engineering Training Center	b1090001	Basic engineering training	Non-test	2	32		32	Autumn semester 1
	★English (Selective, 1 Module, 10 credits)	Module A	b1020003	General English III	Test	3	48	48		Autumn semester 1
			b1020004	General English IV	Test	3	48	48		Spring semester 1
			b1020005	General Academic English A	Test	2	32	32		Autumn semester 2
		Module B	---	English development	Non-test	2	32	32		Spring semester 2
			b1020002	General English II	Test	3	48	48		Autumn semester 1
			b1020003	General English III	Test	3	48	48		Spring semester 1
			b1020006	General Academic English B	Test	2	32	32		Autumn semester 2
		Module C	---	English development	Non-test	2	32	32		Spring semester 2
			b1020001	General English I	Test	4	64	64		Autumn semester 1
b1020002			General English II	Test	3	48	48		Spring semester 1	
★German	College of Arts and Sciences	b1020003	General English III	Test	3	48	48		Autumn semester 2	
		b1020040	German I	Test	3	48	48		Autumn semester 1	
		b1020041	German II	Test	3	48	48		Spring semester 1	
★Japanese	College of Arts and Sciences	b1020042	German III	Test	4	64	64		Autumn semester 2	
		b1020077	Japanese I	Test	3	48	48		Autumn semester 1	
		b1020078	Japanese II	Test	3	48	48		Spring semester 1	
		b1020079	Japanese III	Test	4	64	64		Autumn semester 2	
Sub-total (Public Course)						34	672	608	64	
General Course	Selective	Others	b0----	Social Science and Humanities Literacy (4 credits) Natural Science and Technological Innovation (4 credits) Other optional (2 credits)	Non-test	10	160	160		Autumn, Spring
Sub-total (General Course)						10	160	160	0	

(★Note: The first foreign language has a total of 10 credits, including College English, German, and Japanese. Choose the appropriate language according to your needs; among them, if you choose College English, please choose the appropriate module in module ABC)

11. Teaching Schedule (2)

Category	Type	Provided by	Course Code	Ability module	Course Name	Assessment	Credit	Course Hour	Theory Learning	Practical Training	Semester	
Basic Course	Required	School of Applied Art and Design	b2041098	Professional basic ability	Introduction to Design	Test	2	32	24	8	Autumn semester 1	
	Required	School of Applied Art and Design	b2041041		Product photography	Test	2	32	12	20	Autumn semester 1	
	Required	School of Applied Art and Design	b2041068		Computer Aided Graphic Design (PS+AI)	Test	3	48	18	30	Spring semester 1	
	Required	School of Applied Art and Design	b2041170		Computer Aided Product Design (Rhino+KeyShot)	Test	6	96	36	60	Autumn semester 2	
	Sub-total							13	208	90	118	
	Required	School of Applied Art and Design	b2041099	Modeling design ability	Constitution of Design (A)	Test	3	48	12	36	Spring semester 1	
	Required	School of Applied Art and Design	b2041101		Constitution of Design (B)	Test	2	32	8	24	Spring semester 1	
	Required	School of Applied Art and Design	b2041164		Product modeling design and production (A)	Test	4	64	24	40	Autumn semester 2	
	Required	School of Applied Art and Design	b2041165		Product modeling design and production (B)	Test	3	48	18	30	Spring semester 2	
	Sub-total							12	192	62	130	
	Required	School of Applied Art and Design	b2041161	Design presentation and communication ability	Foundation of Design Presentation	Test	3	48	10	38	Autumn semester 1	
	Required	School of Applied Art and Design	b2041025		Presentation Techniques	Test	4	64	24	40	Spring semester 1	
	Required	School of Applied Art and Design	b2041023		Orchestration design	Test	2	32	16	16	Autumn semester 2	
	Required	School of Applied Art and Design	b2041166		Product visual communication	Test	2	32	10	22	Autumn semester 2	
	Required	School of Applied Art and Design	b2041115		Design comprehensive expression	Test	1	16	4	12	Autumn semester 4	
	Sub-total							12	192	64	128	
	Sub-total (Basic Course)							37	592	216	376	

11. Teaching Schedule (3)

Category	Type	Provided by	Course Code	Ability module	Course Name	Assessment	Credit	Course Hour	Theory Learning	Practical Training	Semester	
Professional Course	Selective 4 credits	School of Applied Art and Design	b2041167	Design thinking and research ability	Design creative thinking	Test	4	64	32	32	Summer semester 1	
		School of Applied Art and Design	b2041168		Design trends and creative design	Test	4	64	32	32	Summer semester 1	
	Required	School of Applied Art and Design	b2041141		User research	Test	2	32	16	16	Autumn semester 3	
	Required	School of Applied Art and Design	b2041118		Market research	Test	2	32	16	16	Spring semester 3	
	Sub-total							8	128	64	64	
	Required	School of Applied Art and Design	b2041169	Engineering structure and 3D technical ability	Design Graphics and Product Mapping	Test	3	48	24	24	Spring semester 2	
	Required	School of Applied Art and Design	b2041171		Product Design Engineering	Test	3	48	24	24	Spring semester 2	
	Required	School of Applied Art and Design	b2041089		Ergonomics	Test	3	48	24	24	Autumn semester 3	
	Selective 3 credits	School of Applied Art and Design	b2041033		Product three-dimensional dynamic display	Test	3	48	16	32	Spring semester 3	
		School of Applied Art and Design	b2041032		Product 3D printing and reverse engineering	Test	3	48	16	32	Spring semester 3	
	Sub-total							12	192	88	104	
	Required	School of Applied Art and Design	b2041034	Comprehensive product design capabilities	Product design (A)	Test	6	96	32	64	Spring semester 2	
	Required	School of Applied Art and Design	b2041035		Product design (B)	Test	6	96	32	64	Autumn semester 3	
	Required	School of Applied Art and Design	b2041036		Product design (C)	Test	6	96	32	64	Spring semester 3	
	Sub-total							18	288	96	192	
	Selective 4 credits	School of Applied Art and Design	b2041077	Design derivative application capabilities	Interactive Design	Test	4	64	24	40	Autumn semester 3	
		School of Applied Art and Design	b2041140		User experience design	Test	4	64	24	40	Autumn semester 3	
	Selective 4 credits	School of Applied Art and Design	b2041084		Brand Design	Test	4	64	24	40	Spring semester 3	
		School of Applied Art and Design	b2041051		Sign Systems Design	Test	4	64	24	40	Spring semester 3	
	Selective 3 credits	School of Applied Art and Design	b2041030		Product packaging design	Test	3	48	16	32	Autumn semester 4	
		School of Applied Art and Design	b2041045		Product display design	Test	3	48	16	32	Autumn semester 4	
	Sub-total							11	176	64	112	
	Required	School of Applied Art and Design	b2041112	Industrial design and application capabilities	Design project practice (A)	Test	4	64	8	56	Summer semester 2	
	Required	School of Applied Art and Design	b2041113		Design project practice (B)	Test	4	64	8	56	Summer semester 3	
	Required	School of Applied Art and Design	b2041114		Design project practice (C)	Test	4	64	8	56	Autumn semester 4	
	Required	School of Applied Art and Design	b4000039		Product design professional innovation and entrepreneurship	Non-test	2	32	0	32	Autumn semester 4	
	Sub-total							14	224	24	200	
	Required	School of Applied Art and Design	b4040009	Product design program graduation practice and graduation design (thesis)			Non-test	6	288	0	288	Spring semester 4
	Sub-total							6	288	0	288	
	Sub-total (professional courses)							69	1296	336	960	
Extracurricular Class	Required	Others	b5110001	Extracurricular Class		Non-test	1	-	-	-	Autumn, Spring, Summer	
Total							151	2720	1320	1400		

12. Schedule for Semesters(Suggested)

Autumn semester 1:

Type	Course Name	Assessment	Credit	Course Hour
Required	Basic principles of Marxism	Test	3	48
Required	Ideological and moral cultivation and legal foundation	Non-test	3	48
Required	Basic engineering training	Non-test	2	32
Required	First Foreign Language	Test	3	48
Required	Situation and Policy	Non-test	0.5	8
Required	College Chinese	Non-test	2	32
Required	Physical Education I	Non-test	0.5	32
Required	Military skills	Non-test	0.5	2W
Required	Introduction to Design	Test	2	32
Required	Foundation of Design Presentation	Test	3	48
Required	Product photography	Test	2	32

Spring semester 1:

Type	Course Name	Assessment	Credit	Course Hour
Required	Outline of Chinese Modern History	Non-test	3	48
Required	First Foreign Language	Test	3	48
Required	Situation and Policy	Non-test	0.5	8
Required	Physical Education II	Non-test	0.5	32
Required	Military theory	Non-test	0.5	32
Selective	General Course	Non-test	2	32
Required	Computer Aided Graphic Design (PS+AI)	Test	3	48
Required	Presentation Techniques	Test	4	64
Required	Constitution of Design (A)	Test	3	48
Required	Constitution of Design (B)	Test	2	32

Summer semester 1:

Type	Course Name	Assessment	Credit	Course Hour
Selective 4 credits	Design creative thinking	Test	4	64
	Design trends and creative design	Test	4	64

Autumn semester 2:

Type	Course Name	Assessment	Credit	Course Hour
Required	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics I	Test	3	48
Required	First Foreign Language	Test	2	32
Required	Situation and Policy	Non-test	0.5	8
Required	Physical Education III	Non-test	0.5	32
Selective	General Course	Non-test	2	32
Required	Product visual communication	Test	2	32
Required	Product modeling design and production (A)	Test	4	64
Required	Computer Aided Product Design (Rhino+KeyShot)	Test	6	96
Required	Orchestration design	Test	2	32

Spring semester 2:

Type	Course Name	Assessment	Credit	Course Hour
Required	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese	Test	2	32

	Characteristics II			
Required	First Foreign Language	Non-test	2	32
Required	Situation and Policy	Non-test	0.5	8
Required	Physical Education IV	Non-test	0.5	32
Selective	General Course	Non-test	2	32
Required	Product modeling design and production (B)	Test	3	48
Required	Design Graphics and Product Mapping	Test	3	48
Required	Product design (A)	Test	6	96
Required	Product Design Engineering	Test	3	48

Summer semester 2:

Type	Course Name	Assessment	Credit	Course Hour
Required	Design project practice (A)	Test	4	64

Autumn semester 3:

Type	Course Name	Assessment	Credit	Course Hour
Required	Physical Education V	Non-test	0.5	16
Selective	General Course	Non-test	2	32
Required	Ergonomics	Test	3	48
Required	User research	Test	2	32
Selective 4 credits	Interactive Design	Test	4	64
	User experience design	Test	4	64
Required	Product design (B)	Test	6	96

Spring semester 3:

Type	Course Name	Assessment	Credit	Course Hour
Selective	General Course	Non-test	2	32
Selective 3 credits	Product three-dimensional dynamic display	Test	3	48
	Product 3D printing and reverse engineering	Test	3	48
Required	Market research	Test	2	32
Selective 4 credits	Brand Design	Test	4	64
	Sign Systems Design	Test	4	64
Required	Product design (B)	Test	6	96

Summer semester 3:

Type	Course Name	Assessment	Credit	Course Hour
Required	Design project practice (B)	Test	4	64

Autumn semester 4:

Type	Course Name	Assessment	Credit	Course Hour
Required	Physical Education VI	Non-test	0.5	16
Required	Design comprehensive expression	Test	1	16
Required	Product design professional innovation and entrepreneurship	Non-test	2	32
Required	Design project practice (C)	Test	4	64
Selective 3 credits	Product packaging design	Test	3	48
	Product display design	Test	3	48

Spring semester 4:

Type	Course Name	Assessment	Credit	Course Hour
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Required	Product design program graduation practice and graduation design (thesis)	Non-test	6	288
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13. Prerequisite for Course Study

No.	Course Name	Prerequisite Course	No.	Course Name	Prerequisite Course
1	Presentation Techniques	Foundation of Design	10	Brand Design	Product visual communication
		Presentation			Orchestration design
2	Design creative thinking	Presentation Techniques	11	Interactive Design	Design creative thinking
		Introduction to Design			Product modeling design and production (B)
3	Product modeling design and production (A)	Constitution of Design (A)			12
4	Product modeling design and production (B)	Constitution of Design (B)	Design creative thinking		
		Product modeling design and production (A)	Product visual communication		
5	Product three-dimensional dynamic display	Computer Aided Product Design	Orchestration design		
		Interactive Design	Product modeling design and production (B)		
			Design Graphics and Product Mapping		
6	Product visual communication	Computer Aided Graphic Design	13	Product design (B)	Product Design Engineering
		Product photography			Product design (A)
		Presentation Techniques			Ergonomics
7	Orchestration design	Computer Aided Graphic Design	14	Product design (C)	User research
		Product photography			Product design (B)
		Constitution of Design (A)			Product three-dimensional dynamic display
		Constitution of Design (B)			Market research
8	Design Graphics and Product Mapping	Computer Aided Product Design	15	Design project practice (A)	Product design (A)
		Product Design Engineering			Design creative thinking
9	Design comprehensive expression	Product design (C)	16	Design project practice (B)	Design project practice (A)
		Brand Design	17	Design project practice (C)	Design project practice (B)

14. Extracurricular Class

Through taking extracurricular classes, students are encouraged to take part in academic lectures, social practice activities, campus cultural and sports activities, innovative and entrepreneurial activities, voluntary activities, etc. to improve their social adaptability and enhance the competitiveness in the job market. Details are specified in Students' Manual.