

Instructive Cultivation Plan for the Program of Product Design

(Grade 2020)

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

2.1. 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.

2.2. 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

3.1. 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.

3.2. 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.

3.3. 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 152 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

8.1. 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.

8.2. 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.

8.3. 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.

8.4. 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.

8.5. 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.

8.6. 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.

8.7. 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.

8.8. 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.

8.9. 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 |
|----------------------|--------------|-----|--------------------|-----------------|--------------------|
| General Education | 34.5 | 23 | 688 | 624 | 64 |
| Basic Course | 37 | 25 | 592 | 216 | 376 |
| Professional Course | 69.5 | 46 | 1312 | 336 | 976 |
| General Course | 10 | 6 | 160 | 160 | 0 |
| Total | 151 | 100 | 2752 | 1336 | 1416 |
| 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 |
|-------------------|--|----------------------------------|----------------------------|--|------------|--------|-------------|-------------------|--------------------|-------------------------------------|
| General Education | 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 | School of Marxism | b1080008 | Labor Education A | Non-test | 0.5 | 16 | 16 | | Spring semester 1 |
| | 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 |
| | | | --- | English development | Non-test | 2 | 32 | 32 | | Spring semester 2 |
| Module B | | 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 | |
| | | --- | English development | Non-test | 2 | 32 | 32 | | Spring semester 2 | |
| Module C | b1020001 | General English I | Test | 4 | 64 | 64 | | Autumn semester 1 | | |
| | b1020002 | General English II | Test | 3 | 48 | 48 | | Spring semester 1 | | |

| Category | Type | Provided by | Course Code | Course Name | Assessment | Credit | Course Hour | Theory Learning | Practical Training | Semester |
|-----------------------------------|---------------|------------------------------|-------------|--|------------|-------------|-------------|-----------------|--------------------|-------------------|
| | | | b1020003 | General English III | Test | 3 | 48 | 48 | | Autumn semester 2 |
| | ★ German | College of Arts and Sciences | b1020040 | German I | Test | 3 | 48 | 48 | | Autumn semester 1 |
| | | College of Arts and Sciences | b1020041 | German II | Test | 3 | 48 | 48 | | Spring semester 1 |
| | | College of Arts and Sciences | b1020042 | German III | Test | 4 | 64 | 64 | | Autumn semester 2 |
| | | College of Arts and Sciences | b1020077 | Japanese I | Test | 3 | 48 | 48 | | Autumn semester 1 |
| | ★ Japanese | College of Arts and Sciences | b1020078 | Japanese II | Test | 3 | 48 | 48 | | Spring semester 1 |
| | | College of Arts and Sciences | b1020079 | Japanese III | Test | 4 | 64 | 64 | | Autumn semester 2 |
| | | | | | | | | | | |
| Sub-total (Public Course) | | | | | | 34.5 | 688 | 624 | 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 | b2041051 | | Sign Systems Design | Test | 4 | 64 | 24 | 40 | Spring | |

| Category | Type | Provided by | Course Code | Ability module | Course Name | Assessment | Credit | Course Hour | Theory Learning | Practical Training | Semester |
|---|------------------------|-------------------------------------|-------------|---|--|------------|-------------|-------------|-----------------|--------------------|------------------------------|
| | | Art and Design | | | | | | | | | 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 | b4040014 | | Labor Education B | Non-test | 0.5 | 16 | | 16 | Spring semester 3 |
| | 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 | | | | | | | 6.5 | 304 | 0 | 304 | |
| Sub-total (professional courses) | | | | | | | 69.5 | 1312 | 336 | 976 | |
| Extracurricular Class | Required | Others | b5110001 | | Extracurricular Class | Non-test | 1 | - | - | - | Autumn, Spring, Summer |
| Total | | | | | | | 152 | 2752 | 1336 | 1416 | |

12. 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 | Product design (A) | Computer Aided Product Design |
| | | Constitution of Design (B) | | | Design creative thinking |
| 4 | Product modeling design and production (B) | Product modeling design and production (A) | 12 | Product design (A) | Product visual communication |
| | | | | | Orchestration design |
| 5 | Product three-dimensional dynamic display | Computer Aided Product Design | 12 | Product design (A) | Product modeling design and production (B) |
| | | Interactive Design | | | 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) |
| 7 | Orchestration design | Presentation Techniques | 14 | Product design (C) | Ergonomics |
| | | Computer Aided Graphic Design | | | User research |
| 8 | Design Graphics and Product Mapping | Product photography | 15 | Design project practice (A) | Product design (B) |
| | | Constitution of Design (A) | | | Product three-dimensional dynamic display |
| 9 | Design comprehensive expression | Constitution of Design (B) | 16 | Design project practice (B) | Market research |
| | | Computer Aided Product Design | | | Product design (A) |
| 9 | Design comprehensive expression | Product Design Engineering | 17 | Design project practice (C) | Design creative thinking |
| | | Product design (C) | | | Design project practice (A) |
| | | Brand Design | | | Design project practice (B) |

13. 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.