Industrial Design

(Grade 2024)

Course code: 080205

I. Cultivation Objectives

1. General cultivation objective

Based on engineering, this program emphasizes project training in design thinking, design methods and design applications. It aims to cultivate high-quality applied design talents who can meet the development needs of the manufacturing and creative industries. These talents will systematically master the theoretical knowledge and application methods of industrial design, grasp manufacturing processes and engineering knowledge, and proficiently use industrial design expression tools. They will also possess an international professional perspective, innovative spirit, modern aesthetic awareness, and the ability to analyze user and market information as well as implement design applications. Graduates can engage in planning, design, management and other related work of industrial design in design institutions, enterprise design and R&D departments.

2. Objective of value guidance

Guided by core socialist values and Chinese-style modernization, this program adheres to fostering virtue through education and realizes all-round ideological and political education. In general education and basic courses, it cultivates students' personality and establishes their correct values. In professional teaching, it emphasizes the learning and visual translation of fine traditional Chinese culture, takes constructing a visual environment of Chinese culture as its mission, and integrates the craftsman spirit into professional practice. Through regular academic lectures and exchanges, it expands students' understanding of cutting-edge knowledge, enhances their international perspective and develops their judgment ability. Ultimately, it aims to cultivate students into all-round developed socialist builders and successors with moral integrity, intellectual competence, physical fitness, aesthetic taste and work ethics.

3. Five years after graduation, students in this program should achieve the following objectives:

To become interdisciplinary and innovative talents with market awareness, aesthetic awareness, innovation awareness and team spirit, who possess comprehensive industrial application capabilities in industrial design, practical design operation skills and design innovation capabilities. Graduates will grow into core design or management personnel in their respective organizations, develop a lifelong learning mindset, and achieve better development in future society.

II. Graduation requirements

No.	Graduation Requirements	Decomposed Indicators
1	Graduation Requirement 1: Moral, Physical and Mental Literacy & Professional Norms	1-1 Establish cultural confidence and learn about fine traditional Chinese culture.
		1-2 Possess humanistic and social science literacy as well as social responsibility.
		1-3 Have a sound psychological quality and healthy physique to fulfill the duties of an industrial designer. Maintain mental health, love life, work actively, study diligently, and possess strong will, stable emotions and sound personality.
		1-4 Cultivate professional ethics and social awareness, and pay attention to and understand current social issues.
		1-5 Understand and abide by professional ethics and norms in engineering practice, fulfill responsibilities, take on obligations, contribute to the country and serve

No.	Graduation Requirements	Decomposed Indicators
		society.
2	Graduation Requirement 2: Professional/Engineering Knowledge	2-1 Master the basic theories and knowledge of industrial design, materials and processes of industrial design, as well as relevant professional capabilities.。
		2-2 Grasp systematic design procedures and standardized design methods of industrial design.
		2-3 Understand the characteristics and design methods of industrial design materials and processes through technical courses, and comprehend the instrumental and practical nature of industrial design.
3	Graduation Requirement 3: Problem Analysis	3-1 Master the basic principles and methods of identifying and analyzing problems.
		3-2 Grasp industrial design methods, and be able to use basic principles and methods to analyze problems from multiple perspectives and demonstrate the rationality of solutions.
4	Graduation Requirement 4: Design/Solutions	4-1 Master the basic theories and practical operation methods of industrial design.
		4-2 Comprehensively apply the mastered theoretical knowledge to possess design capabilities covering the entire industrial design process, including design research, analytical research, product realization and product planning.
		4-3 Have the ability to comprehensively apply industrial design theories and methods, as well as proactive design innovation capabilities.
5	Graduation Requirement 5: Design Research	5-1 Master discipline-specific knowledge centered on industrial design, including basic design, introduction, principles and engineering application-related knowledge.
		5-2 Be familiar with knowledge related to the history, society, economy, policies and culture of industrial design.
		5-3 Grasp the development trends and cutting-edge knowledge of the industrial design discipline at home and abroad.
		5-4 Be capable of analyzing and evaluating industrial design-related topics and proposing certain solutions.
6	Graduation Requirement 6: Design and Society	6-1 Be able to comprehensively apply the learned basic theories, professional knowledge and basic skills to the profession through internships and practical training.
		6-2 Cultivate the ability to independently engage in industrial design and design management through internships and practical training, and enhance understanding and capabilities in practical projects.
		6-3 Be able to adapt to industrial design work, possess the ability to cooperate with others, and understand the responsibilities of the work undertaken.
7	Graduation Requirement 7: Design and Tool Application	7-1 Be able to express industrial design intentions and achievements through written, verbal, model, image, media or other information methods and means.
		7-2 Master necessary professional design and graphic software knowledge and skills, and use these professional software for industrial design analysis, design, display, etc.
		7-3 Learn to conduct industrial design and related research through modern computer software tools.
8	Graduation Requirement 8: Industrial Design and Sustainable Development	8-1 Fully recognize the impact of the industrial design discipline and profession on natural ecology, humanistic history, environment and social sustainable development.
		8-2 Be able to evaluate various systems and engineering practices in the professional field and judge their adverse impacts on the ecological environment.
		8-3 From the perspective of relevant professional knowledge in the discipline, be

No.	Graduation Requirements	Decomposed Indicators
		able to understand and evaluate the ecological environment impacts of professional engineering practices for complex engineering problems, and consciously comprehensively apply them in design practice.
9	Graduation Requirement 9: Individual and Teamwork	9-1 Be able to assume the roles of individual, team member and leader in teams with different disciplinary or interdisciplinary backgrounds.
		9-2 Possess team spirit or awareness.
		9-3 Have an international perspective and be full of innovative spirit.
		9-4 Possess a strong sense of responsibility, team cooperation and communication skills, as well as interdisciplinary awareness and capabilities in overall coordination and deployment.
10	Graduation Requirement 10: Lifelong Learning	10-1 Possess independent learning ability and lifelong learning awareness.
		10-2 Have the ability to continuously learn and adapt to new developments in design within the professional field.

III. Schooling System

Four years.

IV. Length of Study

Flexible study period, generally four years, the minimum length of flexibility is not less than three years, the longest not more than six years.

V. Requirements for Graduation and Degree Conferring

In order to graduate, students must complete the minimum number of credits required by the Instructive Cultivation Plan for each course category and all the content required by the Extracurricular Class, with a total of 167 credits, and will be awarded a Bachelor of Engineering degree if they meet the requirements for the award of a Bachelor's degree.

VI. Discipline

Design Studies, Mechanical Engineering.

VII. Core Courses

Introduction to Industrial Design, Design Sketching, Modern Engineering Graphics, Basic 3D Design, Design Thinking and Expression, Digital Design and Manufacturing, Principles and Methods of Design, Ergonomics, Design Semantics and Communication, Materials and Processes of Industrial Design, Product Innovation Design, Product Improvement Design, Product System Design.

VIII. Course Structure and Course Hours (excluding Extracurricular Class)

Category	Total Credit	%	Total Course Hours	Theory Learning	Practical Training
Public Fundamental Course	41.5	25	800	742	58
General Education	10	6	160	160	0

Professional Fundamental Course	56.5	34	904	360	544
Professional Course	43.5	26	696	298	398
Professional Practice	14.5	9	496	16	480
Total	166	100	3056	1576	1480
Theory:Practical (%)	52:48				

IX. Teaching schedule (1)

Category	Type	Provided by	Course Code	Course Name	Assessment	Credit	Course Hours	Theory Learning	Practical Training	Recommended semester
Public Fundamental Course	required	School of Marxism	b1080001	Basic Principles of Marxism	test	3	48	42	6	Autumn 1
	required	School of Marxism	b1080009	Ethics and the Rule of Law	non-test	3	48	42	6	Autumn 1
	required	School of Marxism	b1080006	Outline of Modern Chinese History	non-test	3	48	42	6	Spring 1
	required	School of Marxism	b1080010	Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese Characteristics	test	3	48	42	6	Autumn 2
	required	School of Marxism	b1080011	Introduxtion to Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era	test	3	48	42	6	Spring 2
	required	School of Marxism	-----	Situation and Policy (Modules 1 to 4)	non-test	2	32	28	4	Autumn 1 to
	required	School of Marxism	b1080008	Labour Education A	non-test	0.5	16	16		Spring 1
	required	College of Arts and Sciences	b1020084	Advanced Mathematics C	test	4	64	64		Autumn 1
	required	School of Foreign Languages and	b1020018	Academic Chinese	non-test	2	32	32		Autumn 1
	required	College of Physical Education	-----	Physical Education I to VI	non-test	3	160	160		Autumn 1 to
	required	Others	b1110003	Military skills	non-test	0.5	2W			Autumn 1
	required	College of Arts and Sciences	b1110002	Military theory	non-test	0.5	32	32		Spring 1
	required	Others	b1110004	Mental Health Education for University Students	non-test	2	32	16	16	Spring 1
	required	School of Computer and	b1012001	Applications and Practice of Artificial Intelligence	non-test	1	16	8	8	Spring 1
	required	School of Resources and	b1013002	Low-carbon and Ecological Civilization	non-test	1	16	16		Autumn 1
	★ Academic English(Select 1 Module for 10 Credits)	Module A	b1020003	General English III	test	3	48	48		Autumn 1
			b1020004	General English IV	test	3	48	48		Spring 1
			b1020005	General Academic English A	test	2	32	32		Autumn 2
			---	English Knowledge Expansion	non-test	2	32	32		Spring 2
		Module B	b1020002	General English II	test	3	48	48		Autumn 1
			b1020003	General English III	test	3	48	48		Spring 1
			b1020006	General Academic English B	test	2	32	32		Autumn 2
			---	English Knowledge Expansion	non-test	2	32	32		Spring 2
		Module C	b1020001	General English I	test	4	64	64		Autumn 1
			b1020002	General English II	test	3	48	48		Spring 1
			b1020003	General English III	test	3	48	48		Autumn 2
	★ Academic German	School of Foreign Languages and	b1020040	Academic German I	test	3	48	48		Autumn 1
		School of Foreign Languages and	b1020041	Academic German II	test	3	48	48		Spring 1
		School of Foreign Languages and	b1020042	Academic German III	test	4	64	64		Autumn 2
	★ Academic Japanese	School of Foreign Languages and	b1020077	Academic Japanese I	test	3	48	48		Autumn 1
		School of Foreign Languages and	b1020078	Academic Japanese II	test	3	48	48		Spring 1
		School of Foreign Languages and	b1020079	Academic Japanese III	test	4	64	64		Autumn 2
Subtotal (Public Fundamental Course)						**41.5**	**800**	**742**	**58**	
General Education	selective	Art Education Center	b0-----	Aesthetic Education	non-test	2	32	32		Autumn, Spring
	selective	Each College	b0-----	Social Sciences and Humanistic Qualities	non-test	4	64	64		Autumn, Spring
				Natural Sciences and Technology Innovation	non-test	4	64	64		Autumn, Spring
Subtotal (General Education)						**10**	**160**	**160**		

(★Note: The first foreign language is 10 credits in total, including 3 languages: Academic English, Academic German and Academic Japanese, choose the appropriate language as required; when Academic English is chosen, please choose the appropriate module in Module A, B, C)

IX. Teaching schedule (2)

Category	Type	Provided by	Course Code	Module	Course Name	Assessment	Credit	Course Hours	Theory Learning	Practical Training	Recommended semester
Professional Fundamental Course	required	School of Applied Arts and Design	b2041285	Design Culture and Theory	Introduction to Industrial Design	test	2	32	20	12	Autumn 1
	required	School of Applied Arts and Design	b2041286		History of Industrial Design	test	2	32	24	8	Spring 1
	required	School of Applied Arts and Design	b2041260		Design Aesthetics	non-test	2	32	24	8	Autumn 2
	required	School of Applied Arts and Design	b2041261		Culture and Technology	non-test	2	32	24	8	Spring 2
	required	School of Applied Arts and Design	b2041262		Design Thinking and Critique	non-test	2	32	32	0	Autumn 3
	subtotal						**10**	**160**	**124**	**36**	
	required	School of Applied Arts and Design	b2041107	Design Communication and Application Capabilities	Design Sketching	test	4	64	12	52	Autumn 1
	required	School of Applied Arts and Design	b2041287		Fundamentals of Graphic Design	test	3	48	12	36	Autumn 1
	required	School of Applied Arts and Design	b2041288		Fundamentals of 3D Design	test	2.5	40	16	24	Spring 1
	required	School of Applied Arts and Design	b2041289		Rapid Expression of Industrial Products	test	3	48	8	40	Spring 1
	required	School of Applied Arts and Design	b2041290		Creative Photography of Industrial Products	non-test	2	32	8	24	Autumn 2
	subtotal						**14.5**	**232**	**56**	**176**	
	required	School of Applied Arts and Design	b2041291	Digitalization and Virtual Reality Capabilities	Visual Information Design	non-test	4	64	24	40	Spring 1
	required	School of Applied Arts and Design	b2041292		Digital Design and Manufacturing	test	5	80	32	48	Autumn 2
	required	School of Applied Arts and Design	b2041293		Parametric Design and Virtual Simulation	test	4.5	72	24	48	Spring 2
	selective 3 credits	School of Applied Arts and Design	b2041294		Narrative Design of Industrial Products	test	3	48	16	32	Autumn 3
		School of Applied Arts and Design	b2041151		Typography and Graphic Design	non-test	3	48	16	32	Autumn 3
	required	School of Applied Arts and Design	b2041295		Comprehensive Expression of Industrial Products	non-test	2	32	8	24	Autumn 4
	subtotal						**18.5**	**296**	**104**	**192**	
	required	School of Applied Arts and Design	b2041153	Creative Thinking and Design Capabilities	Design Thinking and Expression	test	4	64	20	44	Summer 1
	required	School of Applied Arts and Design	b2041296		Design Semantics and Communication	test	3	48	20	28	Autumn 2

	required	School of Applied Arts and Design	b2041297		Principles and Methods of Design	test	3.5	56	20	36	Spring 2
	selective 3 credits	School of Applied Arts and Design	b2041278		Exhibition Design	non-test	3	48	16	32	Spring 3
		School of Applied Arts and Design	b2041279		Social Innovation Design	non-test	3	48	16	32	Autumn 3
		School of Applied Arts and Design	b2041280		Packaging Design	non-test	3	48	16	32	Summer 3
	Subtotal						**13.5**	**216**	**76**	**140**	
	Subtotal (Professional Fundamental Course)						**56.5**	**904**	**360**	**544**	

IX. Teaching schedule (3)

Category	Type	Provided by	Course Code		Course Name	Assessment	Credit	Course Hours	Theory Learning	Practical Training	Recommended semester
Professional Course	required	School of Applied Arts and Design	b2041298	Engineering Technology Application Capabilities	Modern Engineering Graphics	test	4	64	48	16	Spring 1
	required	School of Applied Arts and Design	b2041299		Materials and Processes of Industrial Design	test	2.5	40	14	26	Autumn 2
	required	School of Applied Arts and Design	b2041300		Mechanical Principles and Design	non-test	3	48	32	16	Spring 2
	subtotal						**9.5**	**152**	**94**	**58**	
	required	School of Applied Arts and Design	b2041110	Ergonomics and System Design Capabilities	Design Psychology	non-test	2	32	24	8	Autumn 2
	selective 2 credits	School of Applied Arts and Design	b2041102		Design Management	non-test	2	32	24	8	Spring 3
		School of Applied Arts and Design	b2041270		User Behavior and Marketing	non-test	2	32	20	12	Spring 3
	required	School of Applied Arts and Design	b2041273		Product Innovation Design	test	5	80	24	56	Spring 2
	required	School of Applied Arts and Design	b2041301		Ergonomics	test	2	32	16	16	Autumn 3
	required	School of Applied Arts and Design	b2041337		Intelligent Interaction Design	non-test	2	32	16	16	Autumn 3
	required	School of Applied Arts and Design	b2041274		Product Improvement Design	test	5	80	24	56	Spring 3
	required	School of Applied Arts and Design	b2041275		Product System Design	test	5	80	24	56	Autumn 4
	subtotal						**23**	**368**	**148**	**220**	
	required	School of Applied Arts and Design	b2041276	Integration of Industry-Education-Competition-Innovation	Special Topic Design A	test	3	48	18	30	Spring 2
	required	School of Applied Arts and Design	b2041277		Special Topic Design B	non-test	3	48	18	30	Autumn 3
	required	School of Applied Arts and Design	b2041302		Special Topic Design C	non-test	3	48	20	28	Spring 3
	required	School of Applied Arts and Design	b4000040		Innovation and Entrepreneurship in Industrial Design	non-test	2	32	0	32	Autumn 4
	subtotal						**11**	**176**	**56**	**120**	
		Subtotal (Professional Course)					**43.5**	**696**	**298**	**398**	
Professional Practice	required	Engineering Training	b4090004	Basic Engineering Training D		non-test	2	48		48	Summer 1
	required	School of Applied Arts and Design	b4040015	Design of Cultural and Innovative Products		non-test	2	48	8	40	Autumn 3
	required	School of Applied Arts and Design	b4040002	Industrial Design Model Making		non-test	2	48	8	40	Summer 2

	required	School of Applied Arts and Design	b4041017	Design Investigation and Research	non-test	2	48		48	Summer 2
	required	School of Applied Arts and Design	b4040014	Labour Education B	non-test	0.5	16		16	Summer 3
	required	School of Applied Arts and Design	b4040013	Industrial Design graduation internship and graduation design (thesis)	non-test	6	288		288	Spring 4
		Subtotal (Professional Practice)				**14.5**	**496**	**16**	**480**	
Extracurricular Class	required	Others	b5110001	Extracurricular Class	non-test	**1**	-	-	-	Autumn, Spring, Summer
Total						**167**	**3056**	**1576**	**1480**	

X. Credit of 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.