

Teaching Exploration and Practice of the Course "Product Basic Form Design"

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Abstract

Product basic form design is a transition course from basic course to professional course, it is a basic course with the main goal of developing students' creative thinking, creative design ability and perception of form, space and color, moreover it is also an art form to study the structural laws of natural objects through observation and analysis of the laws of natural creation, and reconstruct new structural relationships in a visual sense. The observation method and thinking mode training run through the teaching of this course, and the training of creativity, sensory ability and expressive ability are weighted. Make students realize the aesthetic contents and features of visual forms, master the formation laws and methods of visual aesthetic forms, also make them realize the role of visual forms on functional forms, make students develop the ability to discover beauty, extract beauty, express beauty and create beauty in the process of form shaping, so as to improve their design and aesthetic ability, and lay a good foundation for professional knowledge learning and professional design in the future.

Keywords

Product basic form design; Teaching form; Teaching objective; Product material; Product function; Product structure.

1. Course Feature of Product Form Basic Design

Product Basic Form Design (Professional Foundation II) is a compulsory course for freshmen in art colleges and universities, which is also a new course added to the 2019 training plan of our school's product design major, it is offered in the second semester of freshman year, and the product basic form design course has been offered in many design colleges and universities in our country, the relevant teachers and researchers also approached the syllabus, teaching system and teaching methods of the course, but did not make any more requirements for the innovation of the course, the content taught by the relevant course knowledge of all design majors is basically the same, still inherit and follow the old thinking training modes, stay on the basis of abstract component points, lines, planes and bodies, and rarely explore the similarities and differences between this course and the previous three-dimensional composition course, and how to connect with the subsequent specialties and how to apply the knowledge content in the product basic form design course into specific design practice, there are still a lot of shortcomings in the teaching system conforming to the features of product design major and the knowledge structure and background of product design major students, there are no different teaching plans for different majors. Therefore, it is necessary to study and reform the teaching contents and teaching methods of this course in product design major.

2. Basic Teaching Form of Product Basic Form Design Course

(1) Course Feature

The course is a transitional link from basic course to professional course, which is a basic course targeting the development of students' creative thinking ability, creative design ability and

perception ability of form, space and color. It is an artistic way to study the structural laws of natural objects and images by observing and analyzing the mode and laws of natural creation, and reconstruct new structural relations in the visual sense. The training of observation methods and thinking ways run through the teaching of this course, and the training of creativity, feeling ability and performance ability is weighted. Make students realize the aesthetic contents and the features of visual form, master the form law and method of visual aesthetics, realize the role of the visual form to function form, make students develop the ability to discover, extract, express and create beauty in the process of form shaping, so as to improve their design and aesthetic ability, lay a good foundation for professional knowledge learning and professional design in the future.

(2) Course Objective

By introducing the contents of form research in product design, students can master the basic classification of form, understand the components of basic form, and master the creation method of form formal beauty. There are many forms in nature, hundreds of thousands of plants, even millions of animals, and many non-biological forms. Among the various forms in nature, some have beautiful forms, some have delicate structures, and some use scientific and reasonable materials, people need to draw inspiration and summarize methods for the formation of various forms in nature while changing the world and creating a better life. In the process of product three-dimensional form creation, there are generally rules to follow, and the law of creation is similar to the law of composition in nature, no matter what kind of form, all follow the two ways of "segmentation" and "accumulation". "Segmentation" is a visual, massing reduction; "Accumulation" is a visual, massing addition. "Segmentation" is the reduction of vision and volume; "Accumulation" is an increase in vision and volume.

Let students understand the relationship between form and function, form and material, form and mechanism, and master the processing technology of various materials, and develop students' understanding and grasp of abstract form. Master the relationship between form and material, function, process, environment, and the treatment of each other.

The three-dimensional form of a product is integrated by its function, material, structure and other basic elements, but these elements must be attached to a specific shape in order to have significance. Form is the appearance of the existence of things, which can be grasped, perceived and understood, it is meaningless to simply talk about a certain function, material or structure, because it does not have form, only materials and institutions with a certain form have a specific meaning. Therefore, before creating or designing aesthetically ideal product forms, students need to understand the universal laws and basic features of natural forms.

Han Feizi, a representative of Legalists during the Spring and Autumn Period and the Warring States Period, once said, "A jade cup without a base is not as good as a tile", that is to say, a valuable jade cup without a base is worse than a cheap tile, ancient wise men have long recognized the importance of the use functions of the objects. In modern product design, how to balance the use function, aesthetic function, cultural connotation and other factors, is the problem which product major students need to solve, but also need to master the professional ability.

Materials have developed along with the development of human society, from stone and clay in the Paleolithic Age to metal, non-metal and composite materials, people's understanding of materials has changed from low to high, and the tools produced have also changed from rough to delicate. In order to survive and get more food, people in the primitive society used stones to make tools, to resist disease, cooked food, use clay to make all kinds of pottery, to resist the cold, use animal skins obtained from hunting to sew clothes, to resist the attack of wild animals, cut down trees to build houses. In the process of improving their own lives, human beings constantly understand and use materials, it can be seen that the development of materials is

tied to the history of human development. In the setting of course content, students should try their best to understand the features and processing methods of various materials, meanwhile, in the arrangement of course work, students should design and create programs in accordance with the features of certain materials.

Structure is the collocation and arrangement of various parts of the whole. In the teaching of this part, students need to understand the relationship between structure and nature, the basic connection method of the materials in the structure; innovation relationship between structure and product form, etc. Structure is general to the object in the nature, if an object wants to maintain its own shape, it must have a certain strength, stiffness and stability. Understanding and mastering the connection way of materials has a very direct relationship to the structural design and innovation of form. For industrial products, the exploitation of product functions needs to rely on the structure of the product itself, the rationality and scientific nature of the structure can reflect the contemporary scientific and technological achievements. In the design of product form, the novelty and uniqueness of product structure form will arouse people's desire to buy and give people a strong visual impact, reasonable use of the innovative relationship between structure and product form can help students design products to meet consumer expectations.

Master the reasonable use of visual properties of materials (such as color, texture, light and shadow, sense of volume, etc.), build three-dimensional form methods with specific functions and formal aesthetics, and lay a foundation for the subsequent comprehensive application in product design.

(3) Teaching Organization

The course of product basic form design has five weeks, with a total of 80 class hours, the distribution of class hours is as follows: the course knowledge content has is class hours; class discussion is 8 class hours; practice operation is 60 class hours.

There are 16 class hours in the first week in total: the specific arrangement is as follows: teaching the knowledge content of form design overview; 1, analysis of the form elements in product design; 2, content of form research in product design; 3, methods of form creation in product design. Through this week's study and practice, students can understand the basic classification of forms, the psychological features of forms, the aesthetic rules of forms and the formation features of three-dimensional forms.

There are 16 class hours in the second week in total, the specific arrangement is as follows: teaching the relationship between form and function; 1, functional value of form fit; 2, puzzle design, arrangement and combination design of forms, etc., through this week's learning, students can understand the relationship between forms and functions, and master the understanding and control ability of abstract forms. Moreover, 12 class hours are used for form and function practice (puzzle design), design requirements: design puzzle toys with appropriate functions. The puzzle toy needs to be assembled into several parts, each part of the shape requirements can express a specific content, can use ultra-light clay, gypsum or other easy to shape materials for model making.

There are 16 class hours in the third week in total, the specific arrangement is as follows: teaching the relationship between materials and forms; 1, the development, classification and processing technology of materials, 2, basic performance features of materials (physical performance features of materials, visual performance features of materials, basic visual features of materials), 3, relationship between materials and design (relationship between material development and product function development; relationship between material application and product form), master the relationship between form and material through the study of this chapter, moreover, understand the processing technology of various materials,

and choose appropriate materials and processing technology to carry out shape design according to the design theme.

There are 16 class hours in the fourth week in total, the specific arrangement is as follows: teaching the relationship between form and structure; 1, relationship between structure and strength; 2, relationship between structure and strength; 3, basic connection methods of materials in structure, students can understand the relationship between form and structure, and the relationship between form and organization through this week's study. According to the design topic, the form and structure design, as well as the form and mechanism design are carried out.

There are 16 class hours in the fifth week in total, and the specific arrangement is as follows: teaching the embodiment of visual elements in three-dimensional form shaping, use material color, texture, light and shadow, sense of volume and other visual elements, study and explore the the law of constructing three-dimensional form in combination with principle of formal beauty. Through the study of this chapter, a series of design methods and essentials of spatial form composition can be mastered, and the design intention can be converted into three-dimensional modeling. According to the given design theme, three-dimensional shape design works can be carried out.

3. Conclusion

The basic theoretical knowledge in the course of product basic form is of great benefit to the subsequent study of professional courses, it helps students tease out the relationships among form, function, and structure in the course, furthermore, the homework exercises in the course focus on practical training, in practical training, it helps students to link theoretical knowledge with practical content, so as to better serve for senior specialties.

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