

THE SURFACE AS FORM-FORMATION FACTOR (PROJECT „LAMP“)

ПОВЪРХНИНАТА КАТО ФОРМООБРАЗУВАЩ ФАКТОР (ПРОЕКТ „ОСВЕТИТЕЛНО ТЯЛО“)

Asst. Prof. Ochkova-Dimitrova E.

Department of Engineering Design - Technical University of Sofia
edochkova@abv.bg / ochkova@tu-sofia.bg

Abstract:

In the training process of "Engineering Design" in the course "The forms categories" are developed on the basis of assignments of "origami" and "kirigami". The surface is analyzed in the logic of folding and cutting. The process of form-formation through paper, helps in examining the key concepts of composition and rhythm, statics, dynamics, light, shadow and more. The creative application of this approach allows knowledge and develops the skills of students to interpret abstract shapes in specific projects. In the report are presented paper lamps made by students.

Keywords: SURFACE, ORIGAMI, KIRIGAMI, FORM-FORMATION

1. Introduction



"The story is not so much in form as in space, varying dynamically in time"

Eugene Rozenblyum

Against the backdrop of a dynamic environment, the product requirements of the design are transformed from many aspects. Today, design is not just a function or structure or any formulation of social or cultural destination. "Story" - the theme of the design is concentrated in solving problems. And they, personal or global, set the context of tasks whose understanding and solving becomes a provocation to the modern form.

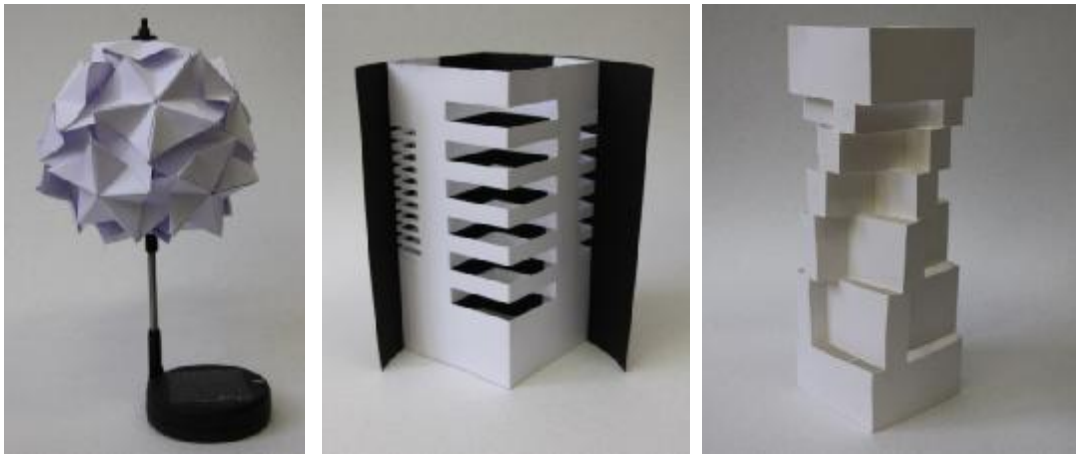
The current Internet is a new community space provoking ideas, images, themes, forms, which go directly to an anonymous audience. It does not look for customers, but for associates. The design offers an endless variety of solutions that can detect individual response to the dislocation in the subject image.

However, the tendency to maintain the integrity of your existing environment of the object keeps the emergence of new forms as a protective reflex that occurs in an attempt to mislead the new to the old, the known and the habitual.

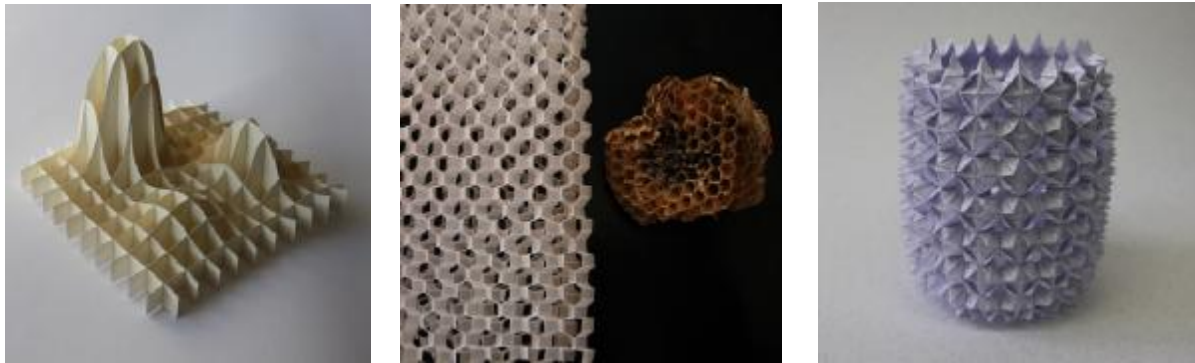
In this project "lamp" presents practical experiences of students as expressed in an art form. There are situated space and connection with people. Reference of the learning process enables young designers at an early stage of learning to feel and interpret basic form categories snapping them free through the prism of their views.

"Engineering Design" – Project the "lamp"

Current practice in the teaching of design is routed to the emotional aspect in the interpretation of already known techniques. Designer from the outset confronted with the duality of what gives us material for reflection on the combination: on the one hand it is a living kinetic thinking, which are habits, abilities and feelings of the author, and constantly evolving in his vision of the world, on the other hand, this is now complete samples of work, in which thinking is accomplished in a static form, and the two disparate entities are the result and process.



2. *Surface and Form*



Task to discipline "Uniform categories"

The process of speciation is one of the stages of design project - one which defines the characteristics of the physical form of the object. [1] Discussing the basic properties of the form of first-year students of the Department "Engineering Design" at Technical University - Sofia, they explore behavior of the plane with interference, that actually is, folding, bending, cutting, cutting, etc. The course "form categories", hosted by Associate professor designer Emilia Chaushova, has seen the transformation of the plane in the context of research associated with light and shadow.

On one hand that creates a structure of the surface layer, while the other is looking for spatial positioning of the three dimensional plastic form.

Origami is the ancient Japanese art, literally meaning folded paper. It is characterized by the use of a sheet that is folded and folded to produce the shapes without the use of glue or

scissors. Only after World War II origami leaves the territory of the Far East. Spread through Europe and America, it was quickly adopted and promoted. In its historical occurrence origami used for religious rites, but in contemporary society that art reveals a culture of communication "story" theme that naturally integrates the problems of design.

In the late '60s, a number of universities for architecture and design were about to introduce into their teaching methodologies the structuring tasks and transformation plane. Through them, students develop their own skills to track and analyze the form, starting from the plate in relief (as structure) and heading to the dynamics of three-dimensional form.

"Engineering Design- project "lamp"



In the examples shown below clearly shows how students interpret the classical tradition of origami to solve the task associated with the "Lamp". Transformation of the plane and its transformation into an object of design solution, provoking attitude to the objective shaping factors (function, material, design and technology implementation). At this early stage of training plane appears as the base for quick and easy transition to spatial forms.

Another aspect of origami art is the creation of components of paper (transformed planes), whose geometrical structure

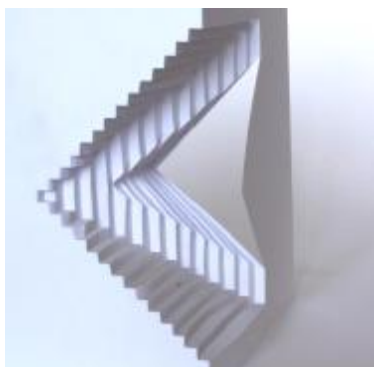
allows to build simple elements in complex systems. In nature there is a high repetition of forms. It involves the energetic resources by saving time and materials in the construction of the mold. Filling the plane with simple geometric shapes is part of the structural design in combinatorics. Using this obvious connection between origami and combinatorics, students easily learn the basic knowledge to build harmonious compositions.



Task to discipline "uniform categories" - the leading designer Associate Professor E. Chaushova [4]

Plane as the forming agent makes it possible to experiment in the direction of the examination of the basic properties of the formulation. This includes geometric type, size in relation to the relationship between man and the elements of a form, position in space, the property table, texture, color and shadow. [1] This approach has been well integrated by students to their task. And despite the "seemingly" close set the terms of reference, namely the transformation and the transformation of

plane is given a number of varied and exciting solutions. Lamps has become an expression of the kind of reading of the basic material taught in that place emphasis on the utilization of existing resources in the process of creative activity. The next technique has become an art and widely penetrated in modern design concepts is kirigami, which is a variation of origami and literally cut paper. This topic has been the leading light and shadow. Tracing the change of the plane in the area is monitored and its modification in terms of shading. It outlines various patterns and links related to the psychological impact of the shape.



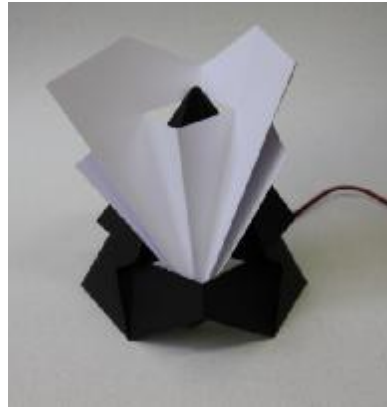
Task to discipline "uniform categories" [4]

This different aspect in order to examine changes of the light emerging from the position of the shape on the light source and the variation in the direction of the light rays to the constant position of the mold. The end state is the eclipse of the shape and the other is the full beam at right angles to the direction of the rays. You can track the evolution of shading depending on the intensity of the light source and the other relative absence of light. The maximum limit of brightness level, which is determined by the capabilities of the visual system (for further illumination form is not perceived) degree of

light and shade on the form is amended and under the influence of light that is reflected from the surfaces surrounding the form (reflex) depending on the degree of absorption of the light rays from the surfaces. [1]

All these observations were made in the course of practical work in the logic of "manual thinking" [4], thereby enabling students to experiment practically and permanently develop their sense of professional habits.

The result of this approach in the methodology was presented in the "LAMP" and managed to provoke constructive discussion about successful and unsuccessful decisions of young designers.

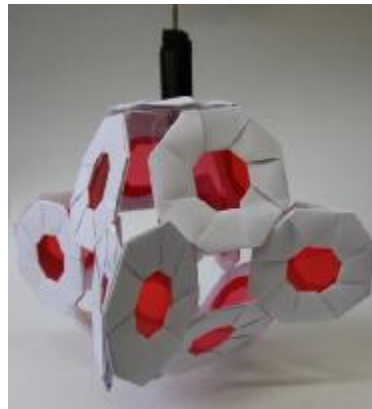
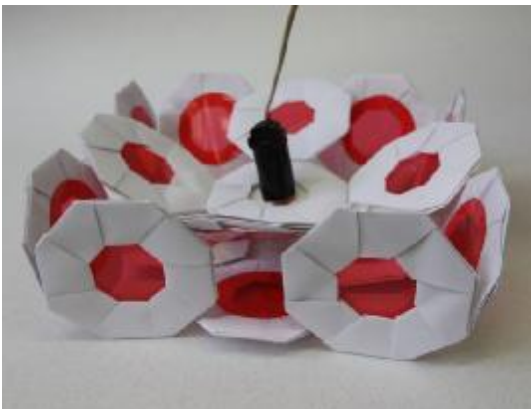


3. Conclusion

What at any stage stays in the past, at other times it appears to be a base for future. Starting from a point, line, surface, to reach out to its complex shape and dimensions in modern space design repeats and interprets well known samples.

"Now we have to inhabit the continents that exist. We must learn to live within the limits of the world". [3], Danto Plane as the forming element could perceive it as a border. But in inhabiting its dimensions, we find pleasure and joy of transformation in space. As well as human dimensions and objectives in deep creative process.

And everything said here would not make sense without the energy and emotion set in game principles. In the knowledge of traditional techniques (origami, kirigami) and their interpretation in the context of contemporary design (such as structural combinatorics or abstract logical language) is embedded deeply personal nature. It is a personal and emotional leading to the need to develop new tools for solving the "design themes"





4. REFERENCES

1. *TOPUZLIEV, D "Basics of design engineering", Sofia – 1978*
2. *Rozenblyum, E. "Artistic design", Sofia 1976*
3. *Danto, A "Near the end of art" - collection "Afterhistories art"-Foundation SFRAGIDA, 2001*
4. *Original program to discipline "Uniform categories", hosted by Associate Professor designer Emilia Chaushova-2012*
5. *Photos of student assignments and the "Hats" - Ch. Assistant Prof. Emilia Ochkova Dimitrova*