## Art installation DECODING -

## connection between mathematics and arts

Milena Ristić School for design, Belgrade, Serbia E-mail : msvilena@gmail.com

## Abstracts

This paper is about workshop based on mathematics in arts, presented in the form of ornaments, Celtic knots and geometric forms. Basic idea for realization of the workshop was that the students, through creative practical work, should apply well-known mathematical principles and understand the possibilities of different artistic approaches and expressions, representing mathematics in the arts using Ornaments, Celtic knots and geometric forms.

Key words: interdisciplinary, ornaments, Celtic knots, design

MSC: 97U30, 97U60, 97M80

After the Summer School for Visual Mathematics and Education in Eger, Hungary in July 2013, organized within the Tempus project "Visuality and Mathematics", I wanted to inspire my students to do the artwork which will use their knowledge of mathematics. Actually, my goal was to motivate them for the interdisciplinary approach and learning experience. Basic idea for realization of the workshop was that the students, through creative practical work, should apply well-known mathematical principles and understand the possibilities of different artistic approaches and expressions, representing mathematics in the arts using Ornaments, Celtic knots and geometric forms



Figure 1: Introductory lecture: Art installation DECODING

With introductory lecture Art installation DECODING I wanted students to get some fundamental information about the main topics and to become familiar with necessary notions. Also, I indicate them to a wide spectrum of researches. In creative terms, this means working on inspiration. Some of the topics which I presented to students were: art installation, assemblage, digital age,

code, decoding, Celtic knots, Tamil drawings, TCHOKWE drawing, ornaments through the history etc.

After the lecture, the students were divaded into small teams and started with practical exercise *Mirror curves /Celtic knots*. It was significantly for them to understand principles of making knots. The rules of mirror curves have been important for the logical thinking of students when they worked on their own design knots.



Figure 2: Practical exercise Mirror curves /Celtic knots



Figure 3: Individual work on inspiration for design 3D forms of installation

At the same time, they had a debate about way of creating *Decoding - installation* which consisted of several parts in the form of Zubun chemise.



Figure 4: Zubun chemise (the ethnic dress in the Western and Eastern Balkan regions), inspiration for possible forme of installation

Looking for inspiration some students explored the embroidery (motifs and their compositions) on traditional *Zubun chemise* or motifs and their compositions on the *Serbian medieval ornaments*.



Figure 5: Searching for inspiration

As a common conclusion of their researches was - *the symmetry* as one of the mathematical principles which they used in a proces of creating of this installation. Also, knowledge from math they used in the work on proportions of 3D model (length, width, height, size).



Figure 5: Mathematics in practice: teamwork on proportions of 3D model

Besides that, the specificity of that installation gave students possibilities to translate traditional technique of embroidery by using "keys" from an old computer keyboard. Design motifs which they created where the results of teamwork and their assignments research (the Ornament, Celtic knots, geometric forms ...)



Figure 6: Art installation DECODING – working process

Generally, Installation art describes an artistic genre of three-dimensional works that are of sitespecific and designed to transform the perception of a space. In this sense, installation DECODING was exhibit on Exhibition as a part of yearly event May, Month of Mathematics, under slogan Life Form – organized by the Science Promotion Center in Belgrade, 2014.

Teaching through this kind of work was a great opportunity for all participants to improve their practical knowledge and skills and give them an impulse for their further individual research in a different field of art. Also, students got new perspective for using the abstract forms as well as using logical conclusion in creative process.



Figure 7: On the spot- preparation of the exhibition on event May, Month of Mathematics 2014.



Figure 8 : Exhibition as a part of yearly event May, Month of Mathematics, under slogan *Life Form* - organized by the Science Promotion Center, Belgrade 2014.

Concept of Art installation *Decoding* and moderator of workshop: • Teacher: Milena Ristić

The organization workshop and exhibition:

• Teachers: Milena Ristić, Miroslava Lazarević Petrović, Marina Skrinjik Ćorić and Zorica Pejčić

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