

UDC 687.016

**DEVELOPMENT OF INFORMATIONAL SUPPORT
OF THREE-DIMENSIONAL MODELING
OF CLOTHES**

*K. Pashkevich, associate professor of the Department of
Ergonomics and Fashion Designing*

*O. Kolosnichenko, associate professor of the Department of
Ergonomics and Fashion Designing*

T. Vets, student

Kyiv National University of Technologies and Design, Ukraine

Key words: 3D-CAD, three-dimensional modeling of clothes, electronic mannequin.

Abstract. There were presented the results of the researches, aimed at the development of the initial data to create the programs of three-dimensional modeling of the clothes. In order to implement the mechanism of modification of work out to the last details clothing basic design of high quality in three-dimensional space the relations between the points of the mannequin and the surface of the clothes were identified on the electronic mannequin, as an example, the locations of the optimal decompositions were determined on the shoulder women's clothing, the recommendations on the use of modeling techniques according to the properties of the fabrics were given. The automatization of operations of constructive modeling of the clothes is a relevant task, which can be solved by studying the transformation mechanism of clothing constructions of different complexity, by determining the optimal values of transformations, as well as by establishing the special macro commands.

At the current stage of development of the garment industry new industrial paradigm of designing and manufacturing of clothing has been formed – the transition from two-dimensional to three-dimensional designing of clothing. Virtual designing of clothing, based on 3D software, is becoming a global alternative to the traditional approach of estimation of projected products quality and designing of models in 2D conditions.

Nowadays three-dimensional designing of clothing is a generation according to the individual sizes or a choice from an existing database of three-dimensional images of the given shapes (virtual mannequin), creation of drawings of parts of design of the products, formation of three-dimensional image of the product on the dressed virtual mannequin by connecting flat product drawings details into the dimensional surface, simulation of fabric behavior etc. Such principle is implemented, for example, in JULIVI CLO3D program [1]. This program allows with a sufficiently high degree of reality to see how the clothing model will be looked in its finished form, taking into consideration mechanical and physical properties of the fabric, the nature of fabric interaction with the surface of the mannequin.

Further development of such programs aimed at the modeling of three-dimensional image of the clothing model on the electronic mannequin with further modification of templates. For example, application of the model lines on the product and transfer them to the templates, change of the model silhouette by modifying the «mannequin-clothing» section system, decoration of modeling edges of details etc. The principle of work of these programs is the connection of the product templates and its three-dimensional image on the electronic mannequin, during which the mechanism of modification of the bug-free basic design of the clothes of the high quality is implemented.

The analysis of techniques and methods of constructive modeling of the clothes made it possible to classify the existing methods into two groups: regular and irregular modification [2]. Under the regular modification the values of clothing details transformations are limited by the quantities of initial elements of the clothing basic design, as well as by the size of the details. The regular modification is easily implemented into the programs of two-dimensional clothing design and is promising for use in programs of three-dimensional clothing design. Under the irregular modification of the clothing basic design, transformation parameters are set arbitrarily. The irregular modification is an engineering task of a high complexity, where there is no single solution of the task and the end result needs to be verified in the material, so, that`s why this kind of modification is not used in programs of three-dimensional clothing design almost at all today.

For modeling clothes on the virtual electronic mannequin it is necessary to develop the informational and methodological support of the process of three-dimensional modeling of clothes of different types and purposes, namely development of databases of dimensions of modifications of the details of the clothes, design of geometric methods of transformation of the clothing basic surfaces according to the sketch of the model, the desired three-dimensional shape of clothing and so on.

In order to create a three-dimensional clothing modeling program, we made the following steps:

- defined the position of auxiliary lines on the electronic mannequin of the human`s figure and pointed out the main structural points;
- determined the relationships between the points on the surface of the electronic mannequin and the points on the surface of the basic clothing construction;
- defined the optimal locations of the points and directions of the lines of modeling clothing constructions on the three-dimensional mannequin;
- developed the databases of methods of transformation of details of the basic clothing construction of different types, considering the material properties;
- studied the sequence and experimentally determined the optimal parameters of construction of decomposition of the shoulder male and female clothing etc.

The abovementioned developed elements of informational support of the process of three-dimensional clothing modeling can be used in the development of 3D CAD software for designing of the clothes.

References

1. САПР JULIVI [Электронный ресурс]. – Режим доступа: <http://julivi.com> (дата обращения 5.01.2016).
2. Пашкевич К. Л. Проектування тектонічних форм одягу з урахуванням властивостей тканин: Монографія. – К.: ПП «НВЦ «Профі», 2015. – 364 с.

UDC 7.05:745

DESIGN OF A COLLECTION OF MODELS OF CLOTHES FROM DESIGNER'S KNITTED CLOTHS

N. Samutsina, associate professor of the Department of Design

A. Bryndikova, student

Vitebsk State Technological University, Belarus

Key words: designer's knitted cloths, collection of models of clothes.

Abstract. The creative source for design of knitted cloths and a collection of models on their basis is found in this paper. At the same time the history of creation of elements of a collection is studied and color scale is defined.

At present work on creation of a new assortment of materials is urgent for production of a women's knitted clothing. Due to specified, two objectives are set: development of designer's knitted cloths and creation of sets of female models of casual clothes for young women. The main concept of a collection will be at the same time creation of functional and practical clothes. In a research the following tasks are set:

- to find a creative source for designing of knitted cloths and a collection of models on their basis;
- to study history of creation of elements of a collection;
- to develop designer's knitted cloths for collection models;
- to create a model range of a collection;
- to determine color scale of the sets constituting a collection.

In case of implementation of the first research problem work with analogues collections of brands of the famous designers of seasons of 2014 - 2016 was carried out. The main features were determined during creation of a collection of clothes for young women with use of knitted cloths. It is revealed that now urgent to constitute sets from the dresses and vests made of knitted cloths with various impressive surface. Creative sources such as pop art style, a font graphics and visual illusions are