



**ФАН ВА ТЕХНОЛОГИЯЛАР
ТАРАҚҚИЁТИ**
**РАЗВИТИЕ НАУКИ И
ТЕХНОЛОГИЙ**

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РАЗВИТИЕ НАУКИ И ТЕХНОЛОГИЙ

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Ушбу журналда чоп этилган материаллар таҳририятнинг ёзма рухсатисиз тўлиқ ёки қисман чоп этилиши мумкин эмас. Таҳририятнинг фикри муаллифлар фикри билан ҳар доим ҳам мос тушмаслиги мумкин. Журналда ёритилган материалларнинг ҳаққонийлиги учун мақолаларнинг муаллифлари ва реклама берувчилар масъулдирлар.

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SELECTION OF AN EFFECTIVE PROCESSING TECHNOLOGY IN THE MANUFACTURING OF TRANSFORMABLE CLOTHING

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Abstract. This article describes in detail the choice of materials for transformable clothing, sketches, colors, and the correct use of technological seams in clothing processing. It also describes the use of effective technologies in the manufacture of transformable clothing.

Keywords: clothing details, experiment, sewing machines, design, sketch, object, transformation, adjustment seam, lining seam, stitching seam, effective, color combination, gold embroidery

ВЫБОР ЭФФЕКТИВНОЙ ТЕХНОЛОГИИ ОБРАБОТКИ ПРИ ПРОИЗВОДСТВЕ ТРАНСФОРМИРУЕМОЙ ОДЕЖДЫ

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Аннотации. В этой статье подробно рассказывается о выборе материалов для трансформируемой одежды, об эскизах, цветовой гамме и правильном использовании технологических швов при обработке одежды. Также описано использование эффективных технологий при изготовлении трансформируемой одежды.

Ключевые слова: детали одежды, эксперимент, швейные машины, конструкция, эскиз, объект, трансформация, настрочной шов, обтачной шов, стачной шов, эффективный, сочетание цветов, золотошвейная вышивка

TRANSFORMATSIYALANUVCHI KIYIM ISHLAB CHIQARISHDA SAMARALI ISHLOV BERISH TEXNOLOGIYASINI TANLASH

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Annotatsiya. Ushbu maqolada transformatsiyalanuvchi kiyim uchun gazlamalar tanlash, eskiz chizish, ranglar gammasi va kiyimga ishlov berishda choklardan to'g'ri foydalanish haqida batafsil yoritilgan. Shuningdek, transformatsiyalanuvchi kiyim tayyorlashda samarali texnologiyalardan foydalanish bayon etilgan.

Kalit so'zlar: kiyim detallari, eksperimental, tikuv mashinalari, konstruksiya, eskiz, ob'ekt, transformatsiya, bostirma chok, ag'darma chok, biriktirma chok, samarali, ranglar birikmasi, zardo'zlik.

Today, the modernization of production, technical and technological renewal, bringing domestically produced goods to international markets, implementing innovative projects, strengthening international cooperation, and attracting foreign partners are among the key tasks of the "Uzbekyengilsanoat" joint-stock company. All these efforts enable the textile industry of our country to reach a qualitatively new level.

To further develop this sector, reforms aimed at ensuring qualitative changes are being carried out. In particular, the privileges and preferences granted to enterprises operating in this industry are helping them establish a strong foothold in foreign markets. Attracting foreign investments, creating new joint ventures, and expanding existing production capacities are contributing to the growth of the textile industry in our country [1].

In the context of rapidly developing modern technologies, the growth of production and consumption, as well as the continuous transformation of human functional processes, one of the main challenges is creating clothing that can fully meet the needs of consumers.

The objective of this study is to explore the selection of effective processing technologies in the manufacturing of transformable clothing and to analyze the choice of modern sewing machines used for assembling their components.

Modern Sewing Machines for Attaching Transformable Clothing Components When designing and improving sewing machines, several factors are taken into account, including the physical and mechanical properties and structure of the fabric, as well as factors affecting the technological process. Parameters such as the coefficient of friction, elasticity, density, and melting temperature of the material influence the construction of the sewing machine, the interlacing of

threads in stitch formation, the geometry of the needles used, and the speed characteristics of the machine [2].

Based on the nature of thread interlacing during stitch formation, sewing machines are classified into two main groups:

- **Lockstitch sewing machines**
- **Chainstitch sewing machines**

Classification of Sewing Machines by Function. Sewing machines are also categorized according to their function:

- **Straight lockstitch machines** that produce straight stitches.
- **Single-thread chainstitch machines** that create straight chainstitches.
- **Multi-thread chainstitch machines** that generate straight chainstitches.
- **Lockstitch machines** with zigzag stitch capabilities.
- **Overlock machines** used for edging fabric.
- **Blind stitch sewing machines** for invisible stitching.
- **Button sewing and other fastening machines** for attaching buttons and accessories.
- **Reinforcement and bar-tacking machines** for securing stitches.
- **Semi-automatic machines** for specific garment details that do not require looping.

These machines are widely utilized in the industry for efficient and high-quality garment production [3].

One of the modern sewing machines on offer is the Elna brand loop stitch automatic machine. This machine stitches buttonholes in one go, sewing multiple parallel lines at once. To sew the buttonhole, the button must be placed in the machine. The machine automatically sets the required buttonhole size. The fabric is placed at the start of the loop, and the machine stitches it in the desired pattern. This machine offers the possibility to stitch in 20 different styles of loop stitching. It has a dual needle system and a vertical oscillating hook.

Technical specifications of the Elna brand loop stitch automatic machine:

- Maximum loop length – 4 mm
- Maximum loop width – 5 mm
- Power – 85 W

The technological process is carried out in the following sequence:

1. Stage 1 – Tacking
2. Stage 2 – Sewing one side of the loop
3. Stage 3 – Reinforcing
4. Stage 4 – Sewing the other side of the loop

The Protex TY-600 model single-thread hidden loop stitch machine. This machine is designed for folding and sewing hidden loop stitches on the edges of women's clothing.

Technical specifications of the Protex TY-600 model single-thread hidden loop stitch machine:

- Loop length – 7 mm
- Lift height – 8 mm
- Maximum stitching speed – 2500 rpm

The Juki MEB-3200SSMM model buttonhole processing machine. This sewing machine is designed to process 10 different types of buttonholes, and it can load up to 90 different buttonhole processing programs. It is an accurate, high-speed machine with an automated lubrication system.

Effective use of color compositions in garment design: Different colors affect a person in different ways. For example, green calms a person, red excites, and yellow disturbs the mood. Colors are divided into warm colors (sun, fire, light, etc.) and cool colors (ice, water, sky, twilight, etc.). Each of the 24 shades in the color wheel system corresponds to a degree of saturation. The third ring of the wheel contains the most saturated and primary colors, while the fourth and fifth

rings contain the same hues, but with decreasing saturation. Thus, each of the 24 shades has five levels of saturation or lightness [5].

Light gray looks lighter on a black background, while less saturated colors appear even duller. Light colors make objects look larger, while dark colors make them appear smaller. Bright and saturated colors on fabric create the illusion of a larger figure, bringing attention to the area and making it stand out. Black enhances the outlines of the figure clearly.

Colors can also alter the perceived shape of the body. Warm colors (yellowish-red and yellowish-green) tend to make the body appear closer and larger, while cool colors (bluish-red and bluish-green) make the body seem distant and smaller. White maximizes the effect of bringing the body closer and enlarging it.

The primary chromatic colors are four: yellow, blue (navy), red, and green. These are unique because they appear as very "pure" to the human eye. In other words, the hues of neighboring colors in the wheel seem to not contain yellow, blue, red, or green. Other colors result from the mixing of these four primary colors and are called intermediate colors.

In clothing design, two or three colors are generally used (rarely four) because using more colors disrupts harmony and unity. The unity of colors is defined by the variety of hues, brightness, and saturation. The harmonic ratio of three colors is expressed by four variations of basic colors' combinations in terms of brightness: bright colors, medium colors, and dark colors mixed in equal amounts; bright colors with more emphasis, medium colors leaning toward brighter hues, and dark colors with less emphasis; dark colors more emphasized, medium colors leaning toward darker hues, and bright colors with less emphasis; medium colors emphasized, with bright and dark colors receiving less focus.

Considering that colors can alter the perceived shape and size of a person, it is recommended for fuller and curvier individuals to wear colors and shades that create an illusion of smaller shapes. For fuller and taller women, cool retreating colors such as blue (navy), green, turquoise, emerald, violet, gray, and blue are recommended. Black, on one hand, creates the illusion of a slimmer and more fitting body, but on the other hand, it can accentuate broader shoulders and a thick waist. For slim, tall women, warm colors like light brown, tobacco, ivory, light chocolate, honey, terracotta, dark red, and banana are suggested. Shorter, slender women should avoid using complex color harmonies, as they can break the unity of their delicate figure. Simple two-color harmonies work best for these figures [7].

When creating new designs, we selected two of the four primary chromatic colors: yellow and green. Effective processing technology for joining garment details: To join and sew garment details, methods such as sewing, gluing, and welding are used. The sewing method allows sewing materials with thicknesses ranging from 0.1 to 10 mm, applying loop lengths from 1 to 10 mm, and adjusting the linear speed of fabric movement (from 2-3 to 20-25 m/min). All of these features contribute to the versatility of the sewing method.

For industrial sample creation, we utilized the sewing method for effective joining of garment details. The quality of joining with thread depends on factors such as strength, durability, and the type of stitching machine used.

Garment parts are usually joined using various types of sewing machines, with either single-thread or double-thread loops. For our industrial sample study, we utilized a variety of stitching types, including basic, hidden, overlock, and decorative stitches.

In basic stitching, two pieces are sewn right sides together, with their edges aligned. The stitching width is 0.5-1.5 cm, and the seams are pressed afterward. In overlock stitching, the edges of the pieces are sewn with decorative stitches, with one piece sewn over the other, and the seams are pressed and finished with additional decorative stitching. The first stitch width is 0.5-0.7 cm, and the second stitch width is 0.6-1.0 cm.

Adjustment seam is a type of joining stitch where the edge of the fabric is turned outward, creating a frame or piping. It is used on edges of the collar, cut pockets, and hems, among others.

To create an ag'darma stitch, two fabric pieces are placed with the right sides facing each other, their edges aligned, and a stitch is made about 0.5-0.7 cm from the edge. Then, the excess stitch is trimmed, and the fabric is turned to the right side, forming a piping or frame of 0.1-0.3 cm or 0.4-0.6 cm. The edge is flattened and, in some cases, decorated with additional stitching. There are different types of ag'darma stitches: with piping, with a frame, and with inserted piping. It is used to stitch details like pocket flaps, collars, hems, and edges. In piping ag'darma stitch, one of the fabric pieces is folded over by 0.1-0.3 cm before stitching. After stitching, it is pressed, turned to the right side, and the piping is fixed. To hold the piping in place, the edge is sewn using a double stitch, or the fabric edges are stitched to one piece from the inside.

The frame ag'darma stitch is used to stitch pockets on jackets, buttoned areas on shirts, and other similar edges. This stitch is similar to the piping ag'darma stitch. To hold the frame, additional stitching is applied over the ag'darma stitch.

The inserted piping ag'darma stitch is used to decorate collars, shirt edges, and uniforms. When creating this stitch, a 2.5-3.0 cm fabric strip is folded twice and attached to one piece, with the edges aligned. The piping is fixed with additional stitching.

Fashion design and cutting technologies have developed based on the role clothing plays in a person's behavior and practical activities. Throughout history, costumes have served many functions, and these can be grouped as follows:

- Protecting a person from the negative impacts of the environment;
- Providing comfort for their activities and rest;
- Reflecting social stratification and status;
- Serving as part of religious and ceremonial rituals;
- Transmitting information from history to the future.

Transformation clothing industrial samples are essential today, as multi-functional, innovative, and modern garments are in high demand. Designers and constructors often lead the creation of multi-functional projects. The minimalist direction in modern clothing design focuses on creating wardrobes from minimal yet highly functional garments.

We propose a transformable women's dress that fits the body and can be adapted into different styles. The dress has detachable parts like sleeves, collar, yoke, and skirt, which are attached with zippers, making it possible to change their position or length. The internal parts can be turned to the outside, changing the color and creating new looks.

This dress can transform from a simple daily dress into an evening gown by flipping the inner parts to create a vibrant and festive look. A further transformation allows the dress to become a blouse by removing the sleeves and skirt sections. This versatility is ideal for busy women who want to save time and money by investing in a single garment that can meet multiple needs.

The color composition of the dress uses black and yellow. The black color represents a simple, everyday appearance, while the yellow inside gives a festive mood. This transformation allows the wearer to easily change their appearance from day to night. The knit fabric was chosen for the dress because of its durability and compatibility with zippers, making it a functional and long-lasting garment [6].

Through research into women's psychology, we found that women often seek variety in their appearances, boosting their confidence and bringing harmony into their lives. The proposed dress responds to these desires by offering a range of looks through its transformable design.

The main new research model is a transformable dress for middle-aged women, consisting of two parts: a dress and an overcoat-like, sleeveless top. The dress is semi-fitted, with decorative embroidery on the sleeves. The top is also semi-fitted and features decorative embroidery. The dress is designed with a belt and zippers for easy transformation. The four possible looks are achieved through simple adjustments like removing or adding buttons, adjusting the skirt length, or flipping

the inside to the outside for a new appearance. The design also allows for a handbag transformation through the belt zipper.

National embroidery patterns from Bukhara were used in the design to blend modernity with tradition, making the garment unique to the region. The embroidery work involves using gold thread to create floral designs, and symmetry and balance are essential in creating the composition.

The process of *zardo'zlik* (goldwork embroidery) is carried out in the following way: First, the main flowers are embroidered with gold thread, then the detailed parts of the flowers are stitched with fine gold or silver threads (*taftado'ziy* or *simdo'ziy*). These threads are often mixed with silk, artificial silk, or fine metallic wires. Jewelry embellishments such as natural and synthetic stones, glass beads, metal discs, and raised patterns are also incorporated into the design. Once all the flowers are completed, their edges are delicately finished using a twisted metallic thread. This thread is carefully worked in circular loops, creating a delicate and smooth finish around the flowers, often completed with small loops to secure the edges.

The embroidery art of Bukhara, which flourished under the skillful hands of Central Asian craftsmen, holds a significant place due to its artistic value. Over the centuries, master embroiderers have discovered and perfected the most remarkable methods of stitching.

When going to a gathering, women in Bukhara would wear several layers of dresses, and the number and type of garments they wore could be clearly seen from the delicate long sleeves. Less affluent women wore sleeves instead of richly embroidered dresses. These sleeves were usually sewn with a thick fabric and decorated with simple Islamic patterns as wide borders.

The embroidery of Bukhara still holds an important place in shaping the lifestyle of the city's population. These creations contribute immensely to the cultural heritage of Bukhara, enabling the creation of true artistic masterpieces. Uzbek national costumes are closely linked to our history, serving as material and spiritual monuments that reflect the national identity of the people and are distinguished by their ethnic characteristics.

The national embroidery patterns on women's dresses add diversity to the garments. In designing models, not only the pattern compositions of embroidery items but also the cuts, structure of decorations, and stitching techniques are chosen with a completely new style and appearance. Changes in fashion also influence the cuts of embroidered clothes, potentially creating new looks.



Figure 1. "Technological processing scheme of the dress."



Figure 2. "Recommended models of women's transformable dresses."

1. In modern clothing, national traditions have been combined with European styles. This is because our national costumes are adapted to our way of life and climate, which is why traditional garments continue to maintain their relevance in both men's and women's domestic clothing.

After the garments are tailored, the process of stitching embroidery with golden thread begins. There are thirty classic embroidery techniques in Bukhara embroidery, each differing from one another based on its distinctive features and names:

1. "Zardo'zi zamindo'zi" - a technique where the base is completely embroidered with golden thread.
2. "Zardo'zi guldo'zi" - the pattern's base remains open, with only the flower motifs embroidered in gold thread, creating a slightly raised effect.
3. "Zardo'zi birishimsdo'zi" - embroidered with a mix of silk thread and gold thread.
"Zardo'zi pulakchado'zi" - a technique using a small piston to embroider.

The process of embroidery is as follows: First, the main flowers are embroidered with golden thread, then parts of the flower are embroidered using more intricate golden threads like taftado'zi or simdo'zi. These threads are known by names such as "berishimdo'zi," "silk," "artificial silk," and "fine wire." Jewel decorations, natural and artificial stones, glass beads, metal sequins, and raised patterns are also embroidered. Once all the flowers are completed, the edges are finished with tightly twisted golden thread, delicately crafted into a fine line, forming small loops using a series of rings.

Economic indicators refer to the costs associated with designing the product, technological preparation, industrial production, and consumer exploitation expenses.

To increase the technological level of garment construction, the following should be considered:

- Reducing or completely eliminating the heating and wet processing steps in the process;
- Using integrated cut parts that eliminate unnecessary seams;
- Applying standardized parts and knots;
- Replacing manual processing methods with machine-sewn seams;
- Eliminating the need for the identification process by applying precisely cut patterns.

One of the main factors determining the rationality of the construction is its cost-effectiveness.

The cost-effectiveness of garment construction is determined by its price. Reducing material consumption for items is related to the degree of design solutions and increasing the overall technological level of production. Mathematical calculations are used to determine the durability of the garment. According to the proposed method, the garment is fastened at its length and at the lower parts of the sleeves and hem. Thus, to some extent, we can generalize the shape of the garment's silhouette as a golden rectangle and accept it.

As a result of analyzing the calculations, the positive aspect of the transformable garment is that it differs from a regular garment in terms of its durability. Our calculations show that the durability of the created transformable garment has been increased by 2.5 years.

Conclusion: The transformation methods and their classification have been discussed. The types of garments created by using a "zipper" tape in transformation clothing have been examined. Social research conducted through surveys allowed us to identify the factors that contribute to shaping the assortment of transformation garments. The most interest was shown by women regarding the ability to change colors and adjust sleeve length in the garments.

The color composition in the creation of transformation clothing has been considered, examined, and analyzed. In creating such garments, the typology of women's body shapes was studied and analyzed. Effective processing technologies for creating transformation clothing were developed. Additionally, the technology for creating accessories from the additional details of the dress was developed and recommended for implementation.

List of References:

1. G.G. Kharkovskaya, A.M. Medvedev. "Improving the practical use of morphological transformation techniques in clothing design" // Monograph, 2013.
2. Saidova K.K., Nimatova M.K. "Transformation in clothing" // Analytical Journal of Education and Development, Volume: 01, Issue: 06, 2021, ISSN: 2181-2624, pp. 370-373.
3. S.I. Sharipova. "Research and development of a style for the design of a stable clothing assortment (for school uniforms)" // PhD thesis in Technical Sciences. – Moscow, 2021.

4. С.А.Гончарова “Развитие приемов морфологической трансформ при проектировании одежды для детей”//Дисс.канд. техн. наук. М., 2001. - 123 с.
5. S.Sh. Tashpulotov, K.M. Kholikov, S.Yu. Rakhmatova, U.T. Muminova, I.V. Cherunova, S.I. Sharipova, D.F. Kurbanova, U.F. Mukhiddinova. "Analysis of the application of transformation mechanisms and elements in modern costumes" // Namangan Engineering-Technological Institute Scientific-Technical Journal, Volume 5, No. 1, 2020, pp. 52-57.
6. Ф.А.Мамедов Исследование и разработка рациональной технологии изготовления одежды стабильного ассортимента (изделий для учащихся ПТУ) //Дисс. канд. техн. наук. М., 1988.
7. Т.Н.Сухова, А.Ю.Кириленко Трансформируемая одежда// А.с. 2101989 С1 RU, 6 А 41 Д 15/00. № 96110545/12; Оpubл. 20.01.98, Бюл. № 2.

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USTKI KIYIMLARNI TIKISH JARAYONIDA HOSIL BO‘LADIGAN NUQSONLAR

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Annotatsiya. Ustki kiyimlarni tikish jarayonida tikuvchilik ishlab chiqarish korxonalarining tikuv chokidagi nuqsonlari ham o‘rganilib, tadqiqot natijasida tikuv ignasi ishqalanish va tikuv ipini va kiyim materiallarini kuydirish holatlari aniqlandi. Tadqiqot natijasida tikuv ipi ko‘p uzilishiga sabab o‘rganilib, kiyim materialidagi tanda va arqoq iplarini zararlanishlari o‘rganildi.

Kalit so‘zlar: prognoz, monitor, modellash, jarayon, optimal, harorat, ustki kiyim, zararlanish

ДЕФЕКТЫ, ВОЗНИКАЮЩИЕ В ПРОЦЕССЕ ПОШИВА ВЕРХНЕЙ ОДЕЖДЫ

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Аннотация. В процессе пошива верхней одежды также были изучены дефекты швейного соединительного шва предприятий швейного производства. В результате исследования были выявлены случаи трения швейной иглой и прижигания швейной нитью материалов одежды. Исследование показало, что причиной многих разрывов швейной нити является повреждение нитей основы и утка на материале одежды.

Ключевые слова: прогноз, монитор, моделирование, процесс, оптимальный, температура, верхняя одежда, повреждение

DEFECTS ARISING IN THE PROCESS OF SEWING OUTERWEAR

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Abstract. In the process of sewing outerwear, defects in the sewing connecting seam of garment manufacturing enterprises were also studied. As a result of the study, cases of friction with a sewing needle and cauterization of clothing materials with a sewing thread were identified. The study showed that many sewing thread breaks are caused by damage to the warp threads and weft on the clothing material.

Keywords: forecast, monitor, modeling, process, optimal, temperature, outerwear, damage

Kirish. Tikuvchilik sanoatida so‘nggi yillarda kiyimlarni ishlab chiqarishda kiyim sifati, qulayligi va mavsumga mosligiga ko‘proq e‘tibor berilmoqda. Ustki kiyimlar uchun eng muhim xususiyatlar bu uning chidamliligi, uzoq muddatga xizmat qilishi, estetikligi, shuningdek, rangi va mato tuzilishi kiyimning dizayni va estetik ko‘rinishiga ta‘sir qiladi. Kiyimning eng muhim parametridan biri komfortligidir [1].

Chok va tikuv turlari to‘g‘ridan to‘g‘ri ta‘sir qiladi. Kiyimning sifati, qulayligi va yaroqliligi ya‘ni chok va tikuv turini tanlash kiyim uchun mos emasligi kiyimning sifatini, qulayligini va yaroqliligi pasaytiradi. Choklarning ko‘rinishi va ishlashi tikuv jarayoni va chokka bog‘liq, chok zichligi, tikuv mashinasi sozlamalari va tikuv iplarining sifati kiyimning ishlashi matoning strukturaviy va mexanik xususiyatlariga bog‘liq. Choklarning mustahkamligi, cho‘zilishi, xavfsizligi, chidamliligi, tashqi ko‘rinishi va samaradorligiga bog‘liqdir. Bu muammolarning yechimlarini topish uchun avvalambor ip va ignani to‘g‘ri tanlash joizdir.