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FORECASTING FASHION TRENDS UNDER THE INFLUENCE OF MEGATRENDS

The article presents an analysis of the influence of the “cocoon” megatrend on the development of fashion at the end of the 20th and beginning of the 21st century. The following tasks were solved: the characteristics of the directions that make up the “cocoon” megatrend were given, their manifestation in the fashion collections of the 2012/2013 and 2020/2021 seasons was revealed. It has been proven that the influence of the megatrend on world fashion is obvious and will continue further, since the collections reviewed for 8 seasons retain the basic characteristics of styles, demonstrating only nuanced changes. Keywords: “cocoon” megatrend, fashion, forecasting, styles, fashion design

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SEMIOTICS AND ARTMETRY AS METHODS OF COGNITION OF CULTURE AND ART

An analysis of the concepts of semiotics and artmetry is carried out. The interrelations of these concepts with the aesthetics of the subject environment are revealed. The influence of semiotics and artmetry on human culture is considered. Using the methods of theoretical research, the main elements that form databases in semiotics are considered. The sign, as the basic unit in semiotics, allows you to unify information of a different nature. The ability to work with information obtained from sources of different nature, formed throughout the chronology of the development of human culture, opens up new approaches to its analysis, allowing us to identify both patterns and features. Unification of the initial data allows the use of information technologies and mathematical methods in the process of working with objects of culture and art. Keywords: semiotics, artmetry, objects of decorative and applied art

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JEWELRY ART THE PANDEMIC 2019–2021

The article discusses changes in the design of jewelry during the pandemic 2019–2021. A number of jewelry design trends are identified, which were formed during this period under the influence of external factors. The analysis of new collections of some European companies was carried out. An analogy of modern jewelry with the features of the Art Nouveau style is made. Keywords: jewelry, trends, pandemic, online space, modern style, materials, technologies

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FUTUROLOGY OF COSMIC LUNAR SPACES IN THE IMAGES OF THE WORKS OF A. C. CLARK IN THE CREATION OF DESIGN OBJECTS REPRESENTED BY PARURA «»

The paper studies the creation of a cultural code of the image of the parure, represented by a cognitive-mental map using the linguo-combinatorial method, which is implemented by the visual-symbolic cognitive information dynamic system (VCIDS) “man — the ontological and semiotic reality of the matter of the cosmos — jewelry of the parure «Selena»” with a locally stable structure (LSS).

Keywords: space, futurology, constellations, semiotics, design, cultural code, image, system, structure

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THE HISTORY AND THE ORETICAL FOUNDATIONS OF PROPORTIONAL METHODS OF GARMENTS DESIGNING

This article presents a retrospective study of - proportional methods of designing clothes, which are based on the theories and worldviews of anthropologists, artists, architects from the time of Ancient Egypt to the present day. Proportioning systems are confirmed by modern mathematical methods. That systems are contribute to the creation of a design that is harmonious for human perception at a new level using virtual technologies Keywords: proportioning, design methods, harmony, human body

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UDC 7.05

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HUMANITARIAN TECHNOLOGIES IN DESIGN OF COMFORT URbAN ENVIRONMENT

The article examines the use of humanitarian technologies in urban processes and presents a scheme of interaction of process participants in the practice of design of a comfortable urban environment. As part of the study, a design project of revitalization the territory of the ethnographic park in the Udmurt Republic was developed. We can conclude that when designing urban space, it is necessary to take into account the regional cultural processes taking place in each individual locality. Keywords: comfort urban environment, typology, culture of region, design-technology, algorithms

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UDC 7.025.4 Y. I. Verhovskaya*

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MACROSTRUCTURE OF AMBER APPLIED ARTS BY VISUAL-OPTICAL CONTROL

The study of amber applied arts is represented by non-destructive methods of visual — optical control. The macrostructure of amber materials was analyzed using high-intensity white, blue LEDs and UV lamps. Results have been obtained that increase by up to 10% the degree of detection of inclusions, defects, damages and features in a macrostructure larger than 0.01 mm on the main background under UV lamps. Keywords: pre-restoration research, applied arts, amber
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ANTHOPOLOGICAL DESIGN AS A MULTI-AGENT SYSTEM

The article is dedicated to examining the possibility of presenting the system of anthropological design as a multi-agent system on the process of creating the artistic object of ecological design. Keywords: anthropological design, biogeocenology, multi-agent system

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UDC 747.012 O. E. Sonina*

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SECONDARY USE OF MATERIALS AS A CREATIVE METHOD IN MODERN EXHIBITION PROJECTS

The article analyzes modern exhibition projects using recycled materials. The main approaches in the design of expositions were formulated, providing an eco-friendly approach and a careful attitude to the environment. The main factors influencing the introduction of secondary materials into the exhibition space are determined. Keywords: secondary materials, design, exhibitions, ecology

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UDC 677 M. V. Mochalina*, Zh. V. Chaikina, M. E. Starygina, Y. S. Suhareva

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RESEARCH OF MATERIALS AND PRODUCTS OF LIGHT AND TEXTILE INDUSTRY FROM ECO FABRIC

The article explores the issue of the revival of interest in ecological fabrics. Nettle is being studied as a raw material for the manufacture of eco-fabric. The properties of the nettle fabric are analyzed and compared with other natural fabrics. Consumer

interest in nettle clothing is being studied. Based on the data obtained, the demand for this clothing among consumers and the need for the revival of this industry are shown. Keywords: eco-fabrics, properties of natural fabrics, nettle fabric, nettle clothing, consumer opinion

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FEATURES OF MODERN BOMBER JACKETS AND THEIR MANUFACTURING TECHNOLOGY

Bomber is a trendy jacket, one of the most popular types of clothing. This jacket is a universal thing and is in great demand among the adult population, including children today. The long-term evolution of the bomber has led him to the world's catwalks, to a permanent presence on the fashionable Olympus. Such jackets are found in the collections of many brands, they look good with everyday things and types of shoes. They can be the subject of an expensive and even luxury wardrobe. A number of features are highlighted by the authors of the article among the variety of types of bomber jacket. The classification of modern bomber jackets has been developed in accordance with these characteristics. The state of the Omsk clothing market in terms of the jacket assortment is discussed in the article. The results of the research will allow local producers to develop an assortment policy taking into account preferences of the Omsk consumer. The proposed schemes for processing the components of products can be useful to specialists in the sewing industry when mastering the technology of manufacturing modern models of bombers. Keywords: bomber, classification, Omsk market research, technology, processing methods *

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UDC544.35 O. I. Yakovleva, E. S. Sashina*

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COMPARATIVE EVALUATION OF THE POROSITY OF NONWOVEN MATERIALS FROM FIBER WASTE SILK AND FROM POLYESTER FIBERS

Under similar conditions, non-woven needle-punched materials were obtained from fibrous wastes of natural silk 20–120 mm long with a linear density of 0.11–0.14 tex and from polyester fibers 66 mm long with a linear density of 0.15 tex. The specific surface area for the polyester material was 0.187 m²/g; material from silk waste 0.223 m²/g. The average pore size of the polyester material was 110 μm, the material from silk waste 85 μm. Keywords: natural silk, silk processing waste, polyester fibers, non-woven needle-punched materials, pore sizes, specific surface area

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UDC 677.027.43 A. P. Mikhailovskaya*, M. S. Kalugina, N. E. Serova

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THEORETICAL ASPECTS OF THE DYEING PROCESSES OF COTTON FIBER WITH ACTIVE DYES USING QUATERNARY AMMONIUM SALTS

The article presents the scientific foundations of the intensifying effect of quaternary ammonium salts in the processes of dyeing cotton fiber with active dyes, formulated on the basis of experimental data. Determination of the reactivity of tetraalkylammonium salts in water systems «cotton — intensifier — active dye» allowed the development of technologies for coloring textile materials based on cotton fiber in periodic, semi-continuous and continuous ways. Keywords: dyeing, intensification theory, cotton fiber, active dyes, quaternary ammonium salts

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MODELING OF ELASTIC PROPERTIES OF TWISTED TEXTILE THREADS

The article studies the issues of modeling the elastic properties of polyester twisted textile threads. Reducing the degree of twisting of textile threads within acceptable limits affects the reduction of time spent on the technological process of production and brings an economic effect. Keywords: mathematical modeling, polyester filaments, elastic properties, deformation, degree of twist * Corresponding author: Alexander A. Kozlov, Saint-Petersburg State University of Industrial Technologies and Design, Saint Petersburg, Russia, e-mail: aakozlov92@mail.ru.

UDC 67.02

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COMPARATIVE ANALYSIS OF THE MANUAL METHOD OF MANUFACTURING AND THE METHODS OF REPRODUCTION OF FILIGREE ORNAMENT

This article is devoted to a review of the technological processes, equipment and materials used in the reproduction of filigree products, as well as a comparative analysis of the manual method of manufacturing and methods for reproducing filigree ornaments. The article identifies the main reasons that hinder the development of technology for manufacturing filigree products and the conditions needed for obtaining high-precision and high-quality filigree ornaments. Keywords: methods of reproduction of filigree ornament, technological process, jewelry making, filigree ornament, wire, imitation of filigree weaving, replication of filigree products

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UDC 655.224.261.31 N. E. Milchakova*, A. E. Dryukova, V. k. Ulshina

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INFLUENCE OF TECHNOLOGICAL PRINCIPLES OF PROCESSING ON THE QUALITY OF IMAGES ON POLISHED GRANITE

The article deals with the technological features of engraving monochrome images on granite using a shock-engraving machine of the classic type SAUNO «Graph-3K». As a result of a series of experiments, the most rational parameters for obtaining contrasting harmonious images based on various parameters of the surface treatment of polished granite were revealed.

Keywords: granite, engraving, monochrome image, CNC-machine

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UDC 7.025

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SYNTHESIS OF MIRROR COATINGS APPLIED BY COLD GAS DYNAMIC SPRAYING ON BRONZE CASTING OBJECTS

The topic of metal synthesis in artistic metalwork is insufficiently studied in modern scientific research. The purpose and subject of this research was to study and analyze the reflectivity of metal and the use of simultaneously polished surfaces and patinated bronze in artistic metal works. The basis was the study of an esthetic perception as a special trend in decorative art, the relationship of artistic processing and mechanical capabilities of materials in art and design, as well as the influence of the technological component in the creation of a unified artistic image, obtained as a result of the organic interaction of two heterogeneous metals. The basis of the study is to create a qualitatively new technological phenomenon that determines the material and aesthetic spheres of perception. As a result of the conducted work, the specifics, aesthetics and functional purpose of the creation of artistic works, using the method of cold gas-dynamic spraying were identified. Accelerated corrosion tests in laboratory conditions were carried out to determine the resistance of the investigated coatings to the atmospheric urban environment. Due to the difference of electrode potentials of coating and substrate, substrates of other metals were examined to determine cathodic and anodic coatings and to determine the best protective pair. Also the general tendencies of ongoing changes in the field of artistic expressive media, associated with a change of perception, with the emergence of new technologies for producing protective-decorative coatings were outlined.

Keywords: cold gas dynamic spraying, coatings, nickel, bronze products, gloss

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Technology solution for ancient Roman diatreta

Presented research is devoted to current technological solutions of the ancient Roman diatreta analysis and authorial conceptual technological way of this artifact development, based on the technical and material capabilities of ancient Roman time period. Problematic aspects of «cold» and «hot» diatreta molding technological solutions are considered. A comprehensive approach is proposed that combines several technological stages of the process, based on both glasscrafting and other technologies. An ancient Roman diatreta conceptual model is obtained based on the available technical and technological knowledge of ancient Rome glassmakers. Keywords: concept, diatretum, technology, processing technique *Corresponding

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UDC 539.434:677.494 A. G. Makarov*, A. V. Demidov

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DIGITAL PREDICTION OF ELASTIC, VISCOELASTIC AND PLASTIC DEFORMATION COMPONENTS OF TEXTILE MATERIALS

The article proposes a method for digital prediction of elastic, viscoelastic and plastic components of deformation of polymer fibrous materials. The decomposition of complete deformation into components is carried out on the basis of digital prediction of the uniform stretching process of these materials. Knowledge of the elastic, viscoelastic and plastic deformation components of polymer fibrous materials is of particular importance in the design of various kinds of products of the required functionality. Keywords: mathematical modeling, digital forecasting, polymeric fibrous materials, deformation properties, elasticity, viscoelasticity, plasticity

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SYSTEM ANALYSIS OF DEFORMATION PROCESSES OF ARAMID MATERIALS

The article deals with the methods of system analysis of deformation processes of aramid materials. System analysis of deformation processes of aramid materials is based on mathematical modeling of the fundamental viscoelastic processes — relaxation and creep. A method for solving the problems of system analysis of the operational properties of aramid materials, studying the relationship of properties with structure, predicting short-term and long-term mechanical effects is proposed. Keywords: system analysis, relaxation, creep, aramid textile materials, deformation properties, mathematical modeling

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AUTOMATION OF CONTROL OF VISCOELASTIC CHARACTERISTICS OF POLYMERIC TISSUES BASED ON COMPUTER PREDICTION OF DEFORMATION PROCESSES

The article deals with the issues of automation of control of viscoelastic characteristics of polymeric tissues based on computer prediction of deformation processes. Computer forecasting makes it possible to divide the energy of tissue deformation into elastic and viscoelastic-plastic components. The proposed methods are illustrated on textile materials used in protective shockproof products. Keywords: computer forecasting, mathematical modeling, polymeric protective tissues, deformation properties, relaxation, creep * Corresponding author: Sergey V. Kiselev, Saint-Petersburg State University of Industrial Technologies and Design, Saint Petersburg, Russia, e-mail: sergkise@mail.ru.

UDC 539.434:677.494 N. V. Pereborova*

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QUALITY MANAGEMENT OF MATERIALS IN THE TEXTILE AND LIGHT INDUSTRY

The article deals with the issues of qualitative control of functional properties and improving the quality of materials of the textile and light industry, which are supposed to be carried out on the basis of mathematical modeling and system analysis of these properties. Keywords: polymeric textile materials, quality control, mathematical modeling, system analysis, increasing product competitiveness. *Corresponding author: Nina V. Pereborova, Saint-Petersburg State University of Industrial Technologies and Design, Saint Petersburg, Russia, e-mail: nina1332@yandex.ru.

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COMPUTER MODELING OF FUNCTIONAL PROCESSES OF TEXTILE MATERIALS

At the heart of the most reliable study of mechanical properties and prediction of operational processes of polymeric textile materials is the mathematical modeling of viscoelastic properties based on data from a simple experiment. Mathematical models of the mechanical properties of polymeric materials to a greater or lesser extent reliably allow to describe their operational processes. Keywords: mathematical modeling, operational processes, polymeric textile materials, deformation properties, relaxation, creep
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ANALYSIS OF DIRECTIONS OF TOPOLOGICALLY OPTIMIZED ART PRODUCTS POST-PROCESSING IN SPECIALIZED SOFTWARE

The paper presents options for post-processing the surface and shapes of topologically optimized models of art products in the field of additive and foundry production. Algorithms for topological optimization, the main limitations and issues of the optimization results, their solutions and options for post-processing the structures of the obtained models are described. Keywords: topology optimization, additive manufacturing, art casting, 3D printing, bionic design

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