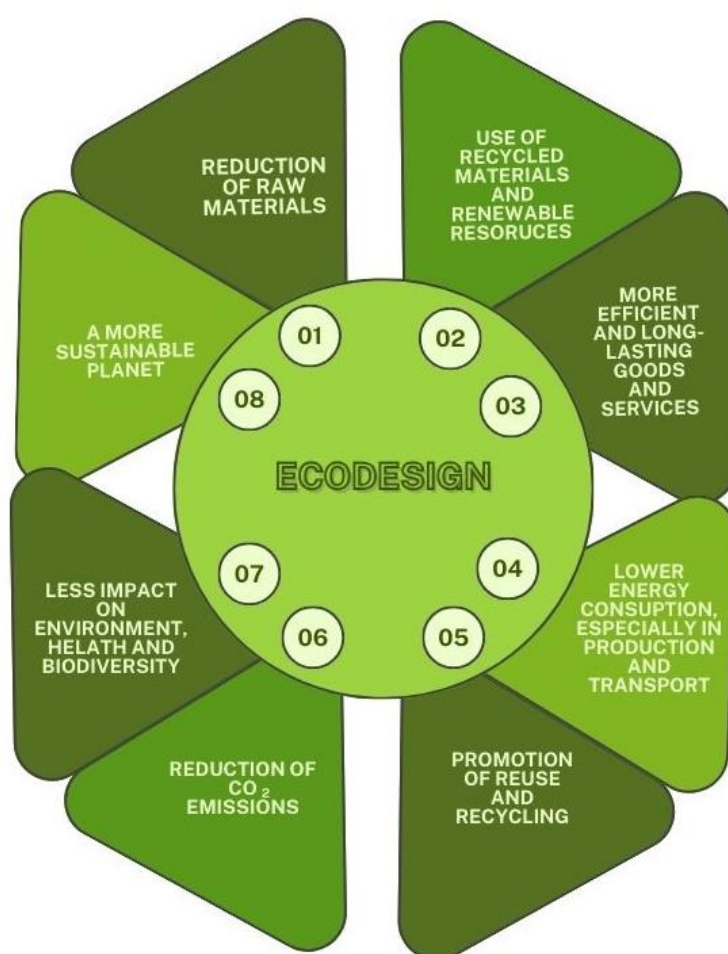


Book of abstracts
TEXTILE SCIENCE RESEARCH CENTER
OPEN DAY 2024

ECODESIGN



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DUNJA DRMAČ:

European Chemical Industry Council (CEFIC), Bruxelles, Belgium

**ECODESIGN FOR SUSTAINABLE PRODUCTS REGULATION:
WHAT DOES IT MEAN FOR THE BUSINESSES AND HOW IT
MAKES IT A SUCCESS?**

Abstract:

The EU put forward new rules to make sustainable products the norm – the Ecodesign for Sustainable Products Legislation (ESPR).

The new regulation aims at improving EU products' circularity, energy performance and other environmental sustainability aspects for the benefit of consumers, the environment, and the climate. The ESPR will introduce a Digital Product Passport (DPP), a digital identity card for products, components, and materials, which will store relevant information to support products' sustainability, promote their circularity and strengthen legal compliance. All products placed on the EU market will need to have a DPP, including imports. The initiative will also address the presence of substances of concern in products and proposes a new restriction system, based on the sustainability aspects of such substances.

The presentation will explore the following: How does this Regulation intend to shape the landscape of a sustainable industry in Europe, and how will it impact various business and their value chain? How could this Regulation make EU sustainable products a business success? How could DPP help enforcement and customs authorities in their controls when it comes to imported products?

Key words:

Ecodesign, sustainable products, substances of concern, Digital Product Passport



MARIJANA TKALEC & MARTINIA GLOGAR:

University of Zagreb Faculty of Textile Technology (TTF), Zagreb, Croatia

ASPECTS OF DIGITAL PRINTING IN THE CONTEXT OF ECODESIGN

Abstract:

Eco-design involves the integration of environmental aspects into the product development process (long-lasting, safe products that can be recycled and are less harmful to the environment) by balancing ecological and economic requirements. Eco-design considers environmental aspects at all stages of the product development process, striving for products which make the lowest possible environmental impact throughout the product life cycle. It is known that the textile sector is one of the biggest sources of water degradation and land use. In the process of textile printing, the large consumption of chemicals, water and energy significantly affect the environment and are responsible for its pollution. The trends of fast fashion and fast production, which are more present and much more popular than the concept and philosophy of slow fashion and encouraging the production of sustainable products, do not contribute to the current situation. Fast production of textiles (and other) products – encouraged and demanded by society itself – definitely has certain consequences for the economy, ecology and society, but also for people's health, given the harmful by-products that inevitably arise from the textile industry. With the entry of digital inkjet printing technology into the field of textiles and textile printing technology, the production process is shortened and certain stages that were part of the classic printing process, which required significant economic resources and the use of significant amounts of energy and water are avoided. How can textile printing contribute to product durability and safety? What types of textile printing include ecological aspects in the development of a textile product? What characteristics does a (textile) product contain that is safe for the environment, society and the future?

The paper provides an overview of digital printing technology in the context of environmental sustainability; ecological aspects and the optimal choice of printing with the aim of improving digital printing techniques and quality ecological textile production.

Key words:

Digital printing, ecological printing, ecological design



IVANA BIOČINA:

Institute for Sustainable Fashion, Koprivnica, Croatia

SUSTAINABILITY AND CREATIVITY: INTENTION AND LANGUAGE OF CREATION

Abstract:

In constant acceleration we perpetually search for time, a different, sustainable way of creating and working. How can we as individuals imagine, create, and act better, persevere, and most importantly – step out of the rigid, unsustainable culture? How can we dare and step onto the path of change? The answers have always been found within the process, mostly before the design phase – in the intention. It is time for bold, different understanding of creativity, it is time for mature creativity and real change.

Ivana Biočina is an author, textile engineer, designer and founder of Institute for Sustainable Fashion. Ivana is the author of three books about textile industry and sustainable fashion. With background in theory and research, in 2020 she founded Institute for Sustainable Fashion (IOM) in northern Croatia. Sustainability and creativity are connected to every part of IOM, from intention, design, materials, production, packaging, end-of-life of the garment to business model.

Key words:

sustainability, creativity, intention



DRAGANA KOPITAR:

University of Zagreb Faculty of Textile Technology (TTF), Zagreb, Croatia

ECODESIGN OF BIODEGRADABLE NONWOVEN AGROTEXTILES

Abstract:

The need for sustainable alternatives to conventional plastic mulches in agriculture has led to the development of biodegradable mulches made from natural fibres and biopolymers to reduce environmental pollution caused by conventional plastic mulch usage. Therefore, more than 30 nonwoven mulches of jute, hemp, viscose, and PLA fibres are designed to investigate their properties and performance in open-field experiments. The greatest advantage of nonwoven mulches is that choosing the type of fibres from natural and renewable sources, their proportions in blends and the production parameters can tailor their physical and mechanical properties, influencing their performance in open fields and decomposition time.

Highlights of the extensive investigations showed that nonwoven mulches provide lower temperatures and higher soil humidity beneath mulches compared to traditional agricultural foil leading to more effective preservation of soil temperature and moisture during critical plant growth periods positively impacting plant yields, certain micro and macro nutrients as well as soil quality. Almost all tested nonwoven mulches effectively suppressed weed growth, comparable to conventional agrofoil, eliminating the need for herbicides.

The newly produced mulches have the potential to replace traditional agrofoil, offering improved conditions for plant growth, effective weed control, and tailored degradation without causing harm to the environment.

Key words:

fibres from natural and renewable sources, nonwoven mulches, biodegradation, performance



BRANKA KOŽUH & IVANKA KNEŽEVIĆ:

School of Fashion and Design, Zagreb, Croatia

THE FASHION JOURNEY OF THE NO MATRIX COLLECTION IN THE ENVIRONMENT OF SUSTAINABLE DESIGN

Abstract:

Creation of beautiful clothes has always been the dream of each designer, regardless of whether he works in semi-amateur or professional conditions. Today, when we are witnessing a great outcry on the fashion industry as one of the serious polluters of the environment, the challenge is to educate and guide young people to ensure environmental friendliness and sustainability while maintaining the original creative idea when designing new fashion products. The NO MATRIX collection was created in response to the request of the WorldSkills Croatia 2024 national competition in the discipline of Fashion Design and Technology. The focus of the collection is placed on the fashion of the future, but not the one that remains fictitious in the virtual space, but on the creation of a high quality, wearable, and thus sustainable fashion collection. The inspiration for this collection were the binary codes from the cover of the 1999 film *The Matrix* and an oversized silhouette with many different types of pockets. The entire process of realization of timeless models, from the development of the idea, the realization and construction and modeling of clothing, the selection of materials and the presentation of the collection, was created using various digital tools and systems. Two digital tools were used to develop the idea, *Befunky* for the inspiration collage and *Inkscape* tool for creating the collection. These tools have allowed a series of modifications and adjustments to the aesthetics of imaginary models. The *Lectra* system for computer construction and modeling of patterns has contributed to flexibility and planning of material consumption so that the amount of material needed is rationally planned. The design of the fabric is processed in the *Caspar* tool and the desired raw material for the production of the model is obtained using digital printing technology. For visual representation, the digital tool *Tinkercad* was used to design models for 3D printing ornaments, and the collection itself was presented with fashion photos edited in the *Remove Background* tool. The path from the idea to the final product is long and accompanied by doubts and real obstacles, which contributes not only to the loss of time, but also to the creation of residues of various types of raw materials that must be adequately disposed of. With a thoughtful and planned application of digital tools in the service of man and his creativity, we can greatly contribute to greener fashion.

Key words: sustainable collection, digital tools, digital printing fabrics, 3D printing ornaments



IRENA ŠABARIĆ ŠKUGOR:

University of Zagreb Faculty of Textile Technology (TTF), Zagreb, Croatia

CAN FASHION BE SUSTAINABLE?

Abstract:

The daily production of clothing, which is only accelerating, and the harmful effects on the environment are in no way conducive to the additional production of new clothing. The first step is good training for young designers who will later apply their knowledge in their work. As part of the FashionTEX project, the focus is on training students where they learn about new modern tools that they can use in their work to make their collections sustainable. What can be done in this regard and how much the designer can influence with their knowledge and skills is also shown through examples of good practice that exist, from digital tools to zero waste concept.

Key words:

ecodesign, fashion, sustainable collections, digital tools



MARTINA BOBOVČAN MARČELIĆ:

LUN, Zagreb, Croatia

REFORM, TRANSFORM AND WEAR AGAIN

Abstract:

The fashion industry is most often based on the fast fashion model, which is conceived through mass production, fast-changing trends and all this through strong marketing propaganda in response to customer demand. The price of such clothes is sometimes very cheap and after a few wears such clothes end up in the trash due to poor quality.

In order to reduce the purchase of new clothes that have very poor quality, it is necessary to raise the awareness of customers about the harmfulness of such purchases and the ecological footprint that we create by such purchases.

Through Mindful stitches creative workshops, the LUN promotes the reform and transformation of an old but dear item of clothing. By using several techniques, such as: embroidery, dyeing with textile colors, collage with fabric scraps and their combination, we give old clothes a new look and wear them again.

Before you need to buy an item of clothing, take a look in the closet, find an old blouse, pants or a regular T-shirt, create a reform concept, be creative and wear clothes that you have redecorated yourself.

At clothing reforming workshops, I promote embroidery as a method of relaxation, awareness of presence and break from fast and stressful life.

Key words:

mindful stitches, embroidery, clothing recycling, T-shirt reform



KRISTINA BURJA:

KRIE DESIGN, Zagreb, Croatia

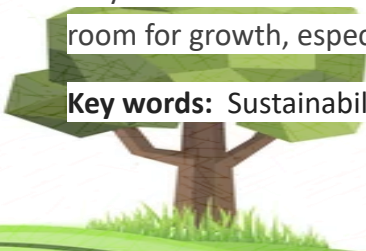
GREEN MISSION: HOW FASHION CAN SAVE THE PLANET

Abstract:

Design, for me, represents a tool for communicating important issues, especially those that are difficult for many to understand or that are not in focus. Since 2016, I have actively promoted sustainability in the textile industry—one of the planet’s largest polluters—through the international project Green Fashion Week, supported by GD Major from Milan and FSA, and under the patronage of the UN and the Italian Ministry for the Environment, Land, and Sea. My motto is: *Buy what is valuable, has a clear origin, and is made to last.* As consumers, we can influence supply with our demand, thereby preserving our planet. This mindset about fashion led to Krie Design being selected as the only regional brand to address these issues and inspire the community through the UN project GFW. In 2017, I spoke about sustainability and represented Croatia through my example of positive practice at the Temple of Hadrian in Rome during a panel on sustainable development in the fashion industry. Krie Design was invited as the first sustainable brand to the prestigious Arab Fashion Week in 2018. Additionally, I showcased my work at the Croatian Pavilion at Expo 2020 in Dubai.

My mission is to explore innovations in sustainable materials and technologies and to connect people from various industries. The project *By the Sea, For the Sea - Green Mission* demonstrated the importance of collaboration by linking Croatian fishermen and saving the Adriatic from over 35 tons of discarded fishing nets. These nets were transformed into ECONYL® fiber, regenerated nylon that can be regenerated infinitely. This means that products made from this fiber can be used as raw materials and never become waste, which is a significant advancement for ecology. Reducing or eliminating waste is crucial for our future and the planet’s survival. The project has been recognized by the Croatian Ministry of Tourism and Sport, the Ministry of Economy and Sustainable Development, the Ministry of the Sea, Transport and Infrastructure, and international organizations under the patronage of the UN. In this way, I have gathered like-minded individuals who began collaborating and finding solutions to stop environmental pollution. I am pleased that we have set these standards in the Alpine-Danube-Adriatic region, and that today nylon waste from around the world is being recycled here and that we are creating collections of future here. I believe there is still much room for growth, especially in educating consumers and promoting sustainable fashion.

Key words: Sustainability, regenerated fiber, ECONYL®, fashion industry, sustainable fashion



Exhibition Ecodesign



Students of the University of Zagreb, Faculty of Textile
Technology, Mentor: M Tkalec, TTF

Collection: Bags



Ivana Biočina, Institute for Sustainable Fashion

Collection: Sustainability & Creativity

IOI
M



Branka Kožuh & Ivanka Knežević, School of Fashion and Design

Collection: No Matrix



Dora Busak, School of Fashion and Design:

Collection: Oslonac (Support)

Mentor: Jasminka Končić, TTF



Abstract:

The figure of the heroine's mother as an autobiographical narrative in the design of the fashion collection is a work that, through the concept of single parenthood, studies the designer's work of the author's mother and the stylistic characteristics of clothing in the 1980s. The concept of working on the collection is based on theoretical research of my mother's drawings and photographs created during her schooling in the field of textile and clothing design. The goal was to take guidelines and key details from my mother's works to create my own collection, by accepting old ideas of textile and clothing design and revitalizing them.

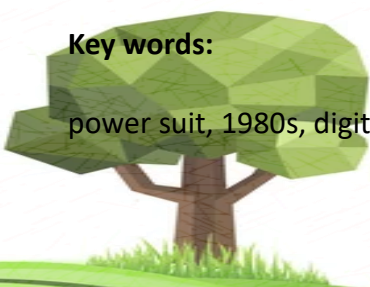
From the newly created series of fashion drawings, 21 items of clothing, or seven fashion combinations, were selected and realized. In all models, the emphasis is on accentuated cut forms in the shoulder area to emphasize the T-silhouette inspired by the power suit style of clothing. Material consumption was carefully planned through the Lectra Modaris, Marker Manager and Marker Making systems. Fabric design sketches were made in the Sketchbook® digital program, and project and technical drawings in the Inkscape vector program in order to reduce paper consumption to a minimum. Digital printing for the necessary amount of material for the creation of the collection was realized using Caspar create, and at the same time a print with ecological water-based ink technology was used.

In addition to a responsible and sustainable technical-technological approach to the creation of the collection, special emphasis was placed on the redesign of textile and clothing collection ideas deeply connected to the figure of the mother, who played a key role in the development and shaping of the author herself.

Entire collection was created as a result of research carried out for the needs of the master thesis The figure of the heroine's mother as an autobiographical narrative in the design of the fashion collection at the University of Zagreb Faculty of Textile Technology under the mentorship of prof. art. Ph.D. Jasminka Končić.

Key words:

power suit, 1980s, digital tools, digital printing



Martina Bobovčan Marčelić, LUN:

Collection: Reform T-shirt!



Kristina Burja, Krie Design:

Collection: Green mission

KRIÉ



Grafko Caspar d.o.o., Varaždin:

Service for digital printing



Crescat d.o.o., Zagreb:

Materials for restorers, archives, museums, libraries and private collections



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Organisation team:

Sandra Bischof, president

Tanja Pušić

Željko Penava

Zorana Kovačević

The implementation team:

Lea Botteri, president

Branka Brkić

Katia Grgić

Kristina Šimić

Eva Magovac

Gabriela Vanja

