

REVIEW

**by Assoc. Prof. Dr. Eng. Tihomir Dovramadjiev – Department of Industrial Design,
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for a dissertation on the topic:

MODERN ERGONOMIC AND DESIGN ASPECTS IN DESIGNING SPECIAL PURPOSE CLOTHING

developed by Galina Doncheva Stefanova

for awarding the educational and scientific degree "Doctor"

doctoral program "Ergonomics and Industrial Design"

in professional field 5.13 "General Engineering"

TU-Varna, Department of "Industrial Design"

1. Relevance of the problem developed in the dissertation

The dissertation work of Galina Doncheva Stefanova is dedicated to the research, analysis and design of special purpose clothing for everyday use in the food industry. This type of professional clothing integrates protective, ergonomic, hygienic and aesthetic characteristics and is bound by strictly defined European regulatory requirements. Although they do not fall into the category of highly specialized protective suits for extreme conditions, the clothing considered in this work represents a key component of the production environment and has a critical role for the safety, health and efficiency of workers.

The main goal of the dissertation is to develop a methodology for ergonomic design of work uniforms that will optimize the design and implementation process, reduce the time from concept to finished product, and provide maximum functional and physiological comfort for end users.

The relevance of the study is undeniable and is determined by several key factors:

- The increased need for specialized workwear, tailored to the operational requirements of various industries, in particular the food industry, where hygiene, ergonomic and protective parameters are critical.
- The duality of requirements for workwear - the needs of employees (ergonomics, mobility, thermoregulation, reduction of physiological and psycho-emotional stress) on the one hand, and the organizational priorities of employers (efficiency, safety, ISO/EN standardization, corporate identity) - on the other hand.
- The need for integration of design thinking with engineering, technological and anthropometric parameters, which requires an interdisciplinary approach.

- The lack of complex methodologies that simultaneously take into account production conditions, safety requirements, the peculiarities of human physiology and the need for effective design.

The present study successfully emphasizes the synchronization of technical and technological standards with the anthropocentric approach, demonstrating a balanced analysis of the interrelationships between design, health, the production environment and consumer perception.

2. Degree of knowledge of the state of the problem and creative interpretation of the literary material

The dissertation is presented in a volume of 137 pages, including 42 figures and 20 tables, as well as 53 pages of appendices. The structure includes an introduction, an exposition in three chapters, a conclusion, scientific-applied and applied contributions, a list of used literature of 125 titles, as well as a list of scientific publications on the topic. A 37-page abstract is attached to the work, which correctly and fully reflects the content and contributions of the dissertation.

The presented dissertation is the result of a thorough knowledge of the current state of the issues related to the design of special-purpose clothing. The author covers a significant amount of theoretical material, analyzing in depth the complex impact of the parameters of the working environment on the human body - temperature, humidity, air flows, lighting, noise levels and other factors that directly affect the efficiency, safety and physiological comfort of workers. In addition, design aspects are also considered, emphasizing the need for them to be consistent with ergonomic, functional and production requirements, as well as with the corporate company identity..

The analysis of the Bulgarian and foreign scientific literature on the topic is extensive, systematized and precisely interpreted, which allows:

- to be clearly stated the significance of the problem;
- to be justified the need to search for new approaches in design;
- to be formed one's own scientific position;
- to be outlined the interdisciplinary nature of the research.

The author demonstrates a good command of the theoretical basis, skillful use of modern methods of analysis and a critical approach to literary sources. This creates a reliable basis for original developments and reasoned conclusions. The degree of development of the theoretical part is high and fully complies with the requirements for a dissertation for the acquisition of the educational and scientific degree "Doctor".

Scientific and applied contributions:

In his work, the doctoral student conducts a thorough and systematic study of the development and current trends in the design of specialized workwear for the food industry. The analysis includes not only the historical context, but also a detailed presentation of modern functional, ergonomic and aesthetic requirements, thus forming a comprehensive theoretical platform for subsequent developments.

The author consistently substantiates the conceptual and methodological principles that should be applied in the ergonomic design of professional workwear. The developed theoretical model combines modern scientific approaches with practically applicable design solutions, which provides a solid basis for the development of new products.

The dissertation develops an original and well-structured methodology for ergonomic design of work uniforms for the food industry, covering the entire process – from concept to implementation. The proposed methodology represents a significant contribution, as it unites design, anthropometric, functional and physiological criteria into a single, consistent and practically applicable system..

Applied contributions:

The experimental part of the dissertation demonstrates the application of the systematic ergonomic approach through the creation and testing of prototypes of workwear in real production conditions. This allows to assess key parameters such as comfort, mobility, functionality and adaptability to the specific features of the working environment. The author conducts an experimental verification of the developed methodology by designing and implementing models of workwear that meet the needs of enterprises in the food industry. The results obtained confirm its effectiveness, as well as its ability to lead to the creation of products that combine ergonomics, functionality and visual durability.

3. Critical notes

The conclusion on page 130 mentions that "Currently, computers make fast and high-quality service possible, supporting fashion and textile designers, constructors, pattern makers, technologists and the entire fashion industry. Computer-aided design and manufacturing (CAD/CAM) systems are part of the wide range of computer tools used in the entire product creation process - from conceptual design through detailed development to production optimization. However, the dissertation could be strengthened with a more detailed comparative analysis of specific software products applicable in the field of garment design and modeling (e.g. Gerber Accumark, Lectra Modaris, Optitex, CLO 3D, etc.), their functionality, advantages and disadvantages, as well as a justification for the choice of specific software in the implementation of the developed prototypes.

4. Conclusion

Based on the analysis performed, I assess the presented dissertation work as original, scientifically substantiated and completely completed. The formulated goal and the tasks

set have been fulfilled, and the obtained scientific-applied and applied contributions represent real and significant achievements of the doctoral student.

The dissertation work meets all the requirements of the Law on the Development of the Academic Staff in the Republic of Bulgaria, as well as the Regulations for its implementation. The style, structure, scientific apparatus and originality of the work fully comply with the criteria for awarding the educational and scientific degree "Doctor".

Due to all the above, my assessment of the work of doctoral student Eng. Galina Doncheva Stefanova is positive.

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Varna

Signature:

/Assoc. Prof. Dr. Eng. Tihomir Dovramadjiev/