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## **FEATURES OF TEACHING THE COMPUTER DESIGN DURING THE PREPARATION OF FASHION-DESIGNERS**

### **Abstract**

*The aim of the article is to analyze the modern information technologies in design of the clothes and their application in the process of training of fashion-designers in Kiev National University of Technologies and Design (KNUVD). Systematic approach to consideration of the ways to introduce the modern information technologies into the teaching process is used in the article. The peculiarities of the training of designers, fashion-designers of the clothes and teaching of disciplines, related to computer modeling and designing of the clothes, are considered; the structure of the discipline «Computer Design of Products», its content modules, its place in the structural and logical scheme of training of the specialists of education program «Styling, Designing and Artistic Finishing of Light Industry Products», discipline 18 – «Production and Technology», specialty 182 – Technology of Light Industry, educational degree «bachelor» are presented; the knowledge, skills and abilities, acquired by the students during the study of the discipline, are described; the examples of the students works are provided. It is shown that in order to solve the fashion-designer's tasks at a garment enterprise, he needs to know the computer graphics programs for the development of the sketches, technical drawings of the models of clothing, for the creation of a mood-board collection of the clothes, selection of the colors, creation of the fabric drawings etc.; also he should know the possibilities of the modern CAD systems in designing, modelling and developing of the details drawings of the clothes of various assortment and purpose. It is found that the training of specialists with the use of the industrial computer software for design-projection of the clothes makes it possible to ensure the necessary competencies for the further effective work of graduates at the garment enterprises; collaboration with the developers of CAD systems makes it possible to train highly skilled specialists, who know the latest innovative design technologies.*

**Keywords:** *information technologies; design-education; computer design; bachelor; fashion-designer of the clothes.*

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## **ОСОБЛИВОСТІ ВИКЛАДАННЯ КОМП'ЮТЕРНОГО ДИЗАЙНУ ПРИ ПІДГОТОВЦІ МОДЕЛЬЄРІВ-КОНСТРУКТОРІВ ОДЯГУ**

### **Анотація**

*Метою статті є аналіз сучасних інформаційних технологій дизайну одягу та їх застосування в процесі підготовки модельєрів-конструкторів одягу у Київському національному університеті технологій та дизайну (КНУВД). В роботі застосовано системний підхід до розгляду шляхів впровадження сучасних інформаційних технологій в навчальний процес. Розглянуто особливості підготовки дизайнерів, модельєрів-конструкторів одягу та викладання дисциплін, пов'язаних з комп'ютерним моделюванням та дизайном одягу, показано структуру дисципліни «Комп'ютерний дизайн виробів», її змістовні модулі, місце в структурно-логічній схемі підготовки спеціалістів освітньо-професійної програми «Моделювання, конструювання та художнє оздоблення виробів легкої промисловості», спеціальності 182 – Технології легкої промисловості, описано знання, навички та здібності, які набувають студенти під час вивчення дисципліни, надано приклади робіт студентів. Показано, що для вирішення завдань модельєра конструктора на швейному підприємстві йому необхідно знати програми комп'ютерної графіки для розробки ескізів, технічних рисунків моделей одягу, створення колажів колекції одягу, підбору кольорів, створення рисунків тканин тощо, а також знати можливості сучасних САПР для конструювання, моделювання та розробки креслень деталей одягу різного асортименту та призначення. Виявлено, що підготовка спеціалістів з використанням промислових комп'ютерних програм для дизайн-проекування одягу дає можливість забезпечити необхідні компетентності для подальшої ефективної роботи випускників на швейних підприємствах; співпраця з розробниками САПР дає можливість готувати висококваліфікованих спеціалістів, які знають сучасні інноваційні технології проектування.*

**Ключові слова:** *інформаційні технології; дизайн-освіта; комп'ютерний дизайн; бакалавр; модельєр-конструктор одягу*

### **1. Statement of the problem**

Today, in the labor market, fashion industry enterprises (garment factories, ateliers, design studios, etc.) wish to rescut universal professionals, who have the competencies in design-projecting of garments of various assortment range and purpose, and have knowledge in desing, construction and technology of the clothes. Such specialist should have a comprehensive training, aimed at obtaining knowledge and skills for designing of the models of sketches, taking into account the fashion trends and based on the principles of composition, construction and modeling of new models of the clothes, made of different materials, the development of the technology of a garment, etc. The problem of training the personnel, who knows the methods of computer modelling of the clothes, is equally important.

The analysis of various design higher education institutions around the world [1, p. 98] showed that the advantage of domestic models of training of design specialists is a practice-oriented teaching and co-operation of education institutions with the enterprises of the fashion industry. In the article [2, p. 9] the stages of formation and development of the specialty «Desing» in Kiev National University of Technologies and Design are considered; the experience of training the specialists in costume design, the main directions of scientific researches on development of the problems of theory, methods and practices of costume art design, theoretical and methodological base for design and art studies education in Ukraine are described.

The monograph of O.V. Yezhova [3] is devoted to the problem of training the specialists, prepared for the introduction of innovative, and in particular information technologies of the garment industry. Authors [4, p. 309] in their research consider the competencies, required by future designers. Using multiple quantitative and qualitative methods to examine engineering design learning, they found that students taking a course in engineering design and/or studying engineering for four years acquired engineering design language that is common to a larger community of practice as well as common to their own programs and institutions of higher learning.

The paper [5, c. 104] is based on the premises that the purpose of engineering education is to graduate engineers who can design, and that design thinking is complex. Several dimensions of design thinking are then detailed, explaining why design is hard to learn and harder still to teach, and outlining the research available on how well design thinking skills are learned. The article [6, p. 244] is devoted to the pedagogical aspects of application of innovative technologies of teaching the computer design of the clothes, in particular, the case-method in the process of studying the discipline «Fundamentals of CAD System in Technological Education» using the CAD Grazia. The results of the research are relevant for preparation of the fashion industry professionals, in particular, fashion-designers of the clothes.

The aim of the article is to outline the peculiarities of the training of fashion-designers of the clothes in Kiev National University of Technologies and Design (KNUTD) and teaching disciplines, related to computer modeling and designing of the clothes.

## 2. Main material

Computer technologies are widely used in design-projecting and modern technological processes of designing and manufacturing of the clothes, which upgrades the professional activity of the clothes designer to the new, higher quality level. In connection with the wide implementation of computer technologies into the garment manufacture, the functions of a modern specialist in the field of modeling and designing of garments are changing, therefore the development of theoretical foundations and practical skills of computer designing is an essential prerequisite for the training of highly-qualified specialists.

The department of designing of KNUTD provides training for the higher education specialists in the educational program «Styling, Designing and Artistic Finishing of Light Industry Products» [7]. Students studying this educational program, acquire a profession of fashion-designer of the products of light industry. For the students of the specialty «Styling, Designing and Artistic Finishing of Light industry products», the curriculum for the bachelors provides for the study of the discipline «Computer Design of Products», the aim of which is to consider a wide range of issues of the modern process of design of the clothes and to develop documentation with the use of computer-aided design (CAD), as well as to form the skills for solving the tasks of designing the clothes in an automated mode. The discipline «Computer Design of Products» (9,0 ECTS credits) is being studied by the students during their 4-th year of study, after studying general technical disciplines, namely «Information Systems and Technologies», «Engineering and Computer Graphics», «Artistic and Graphic Composition», «Fundamentals of Applied Anthropology», «Fundamentals of Designing and Manufacturing of Clothes», «Fundamentals of Garments Designing», «Fundamentals of Garment Technology», «Materials Science», etc., which provides interconnection with the previous training course. This discipline is studied together with the disciplines such as «Ergonomics», «Comfort and Safety of Clothes», «Designing of Plastic Form of Clothes», «Artistic Design of Garment Industry Products», etc.

The course of the discipline «Computer Design of Products» is aimed at studying of specialized graphic programs for drawing and decorating of graphic images, as well as studying of the industrial software packages for computer design-projecting of the clothes. The curriculum of the program consists of the following content modules: 1. Computer graphics; 2. Computer design-projecting of the clothes. As a result of studying the discipline, the knowledge and skills of the future fashion-designer meet the requirements of the relevant qualification characteristics that provide knowledge for the implementation of the design process of the garments with the use of the modern computer information technologies.

In accordance with the requirements of the program profile, students must *know* basic concepts of computer graphics; principles of work in vector and raster graphics programs; features and functions of graphic programs for the creation of the images of artistic objects; sequence and stages of construction of the drawings of designs of new models of clothes in an automated mode; modern technologies of three-dimensional design of the clothes; *be able to*: develop the sketches of the clothes using the graphic editors; perform artistic finishing of the product images, display the color, drawing and texture of the material; carry out construction of drawings of the clothes of different assortment and purpose using CAD; make gradation of the patterns and form a complete set of product patterns,

execute design documentation for CAD clothes; *have skills in*: designing and processing of the images of the clothes, collections of the models by the programs of computer graphics; construction of drawings of the details of shoulder and waist garments of various assortment and purpose, modeling of the products and their elements, construction of patterns and execution of documentation for new models with the use of modern computer technologies; *be able to demonstrate*: the ability to design the image of the product, collection of the models, logo, advertising poster with the use of the modern design software; the ability to develop the sets of clothes patterns of various assortment and purpose and to execute design documentation with the use of CAD clothes.

Technical knowledge and experience in creative work on creation of visual accompaniment of design products by means of computer technologies are of great importance in the professional activity of the designer. These are sketches of the models, advertising brochures of the collections, invitations, prints on the clothes, etc. Students make mood-boards, creative sketches of the models and do other types of the work using a graphic editor Xara Xtreme Pro 7, Adobe Illustrator, CorelDRAW, Adobe Photoshop, etc. (according to their preferences), using new discoveries of aesthetic properties of the form, new materials, decoration (Figure 1).



**Fig. 1. Students works, discipline «Computer Design of Products»**

Computer design-projecting of the clothes is an industry that is developing very quickly; new software products, new technologies of designing and innovations take place, so there is a need for constant updating of lecturers' notes [8, p. 183], and the main sources of information are the sites of CAD developers in the Internet, specialized sites about light industry, specialized magazines.

The departments of the Faculty of Design collaborate with the specialists of CAD Legprom firm (Odessa), who have developed the CAD clothes JULIVI [9], and with the specialists of firm «Grazia» [10], who have developed the CAD Grazia (Kharkiv). These national programs for design-projecting and introduction into the industrial production of the clothes offer a wide set of functions and opportunities that provide automated realization of all stages of the design of the garment, from the creation of the sketch to the dressing of the virtual product on the electronic mannequin [11, p. 351; 12, p. 50]. The developers of CAD JULIVI and Grazia allow the students of KNUTD of any form of study (full-time, part-time, distance) to use their software during the study free of charge. In addition, while studying the discipline «Computer Design of Products», the students are studying the possibilities of other industrial software for design-projecting of the products: CAD Optitex (Israel), Lectra Systems (France), Gerber Garment Technology (USA), Gemini (Romania), and so on.

### 3. Conclusions

The experience of training the fashion-designers of the clothes shows that the knowledge of modern professional computer software for the future professionals is an essential prerequisite for their employment. For the student – the future designer of the suit at the stages of sketch work it is important to be able to use the possibilities of the linear and three-dimensional images of the models and individual details of the project, and the knowledge of computer graphics software is obligatory. The study of possibilities, and skills while working in CAD System are required to develop the patterns of the clothes details of different assortment and purpose. The training of specialists with the use of the industrial computer software for design-projection of the clothes makes it possible to ensure the necessary competencies for the further effective work of graduates at the garment enterprises.

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