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The Importance Of Cad Programs For Architecture And Design Students

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Abstract: This article provides recommendations for future teachers of architecture and design to acquire the competencies to visually express new ideas, increase their creative and intellectual activity, direct them to independent thinking and develop their creative abilities, know the functional and constructive uniqueness of buildings and structures, work with spatial-visual images, visualize, and master the disciplines of architecture and design.

Keywords: AutoCAD, SolidWorks, 3ds Max, CorelDRAW, drawing automation, 3D modeling, technology, competency, interactive, visual, education, design, marketing, animation, web design.

Introduction: Developed countries are currently developing modern methods for automated drafting, teaching 3D modeling, and implementing design technologies in virtual environments using AutoCAD, SolidWorks, 3ds Max, CorelDRAW, and other graphics programs. In this context, acquiring skills for creative work in a digital environment, particularly the visual expression of new ideas, is becoming increasingly important. Computer graphics is important because it allows students to interactively and visually express their thoughts, feelings, and imagination, enhances their creative and intellectual activity, encourages independent thinking, and develops creative abilities. The labor market is increasingly in need of specialists with creative thinking skills, innovative problem solving, and the effective use of visual communication tools. Knowledge and skills in computer graphics provide students with the necessary foundation for a successful career (in fields such as education, design, marketing, animation, and web design) and are relevant because they help train personnel in accordance with international standards.

In global practice, when developing the professional graphic competence of an architecture and design teacher, it is important to effectively apply graphic knowledge and competencies based on knowledge of the functional and structural features of buildings and structures, to create an environment for free creativity in the field of graphic information technology, its significance and relationship to specific technological issues, as well as to develop work aimed at preventing errors in architecture and design teachers.

In recent years, our country has been undertaking extensive work to improve the content and methodology of education, enhancing its quality and effectiveness. Particular attention is being paid to the design of educational content, structuring professional graphic competencies, creating new methodological teaching models, and implementing them into educational practice. The Strategy for the Further Development of the Republic of Uzbekistan prioritizes continuing the policy of training highly qualified personnel based on "Improving the System for Training

Qualified Specialists in Fine, Applied Arts, and Design."

In practical terms, architecture and design disciplines should be more focused on fostering and developing entrepreneurial, business-like, and creative qualities in the younger generation. By explaining the concepts of spatial and visual images and cognitive activity based on figurative representations, these disciplines develop the professional skills, thinking, and imagination of future teachers of architecture and design. As is well known, any creative activity can develop a creative approach in a person, drawing on their own imagination. In developing such creativity, working with spatial and visual images, figurative imagination, and activating students' independent creative activity in mastering the disciplines of architecture and design have an important educational and developmental value in developing the professional skills of future teachers of architecture and design.

The educational process in higher education institutions should be based on the formation of fundamental knowledge in the field of computers among students, the study of information technologies for design, programs and systems for computer design and graphics, as well as computer animation and graphic visualization techniques. Students should study in depth the design of technical and production facilities using modern computer technologies, acquire skills in working with software products and information complexes in the media industry and design.

The use of computer-aided design (CAD) programs by students of the architecture and design specialization increases their interest in information about the buildings and structures and room interiors being studied, forms and deepens their theoretical knowledge, and also helps to make the educational process more effective and technological. The implementation of knowledge (sequence, presentation, presence and differentiation) in creating three-dimensional volumetric models of complex shapes in the performance of educational tasks is determined in further studies of the educational process and subsequent creative activities.

In conclusion, the emergence of software disciplines such as AutoCAD, SolidWorks, 3ds Max, CorelDRAW for students of the Architecture and Design specialty has been effective. This is leading to a change in the structure of education. It will take the process of training architecture and design specialists to a new level. This requires further improvement of the methods and tools for teaching software disciplines such as AutoCAD, SolidWorks, 3ds Max, CorelDRAW.

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