

## ENGINEERING GRAPHICS ADVANCES AND IMPROVEMENTS, NEW PROPOSALS

**Jumanazarova Zuhra Qosimjonovna**

Namangan Institute of Engineering and Technology (Namangan, Uzbekistan)

E-mail: [zuhrahonjumanazarova@gmail.com](mailto:zuhrahonjumanazarova@gmail.com)

<https://doi.org/10.5281/zenodo.14587594>

**Abstract:** The study of graphic communication methods that engineers, architects and designers use to express ideas and concepts, or the graphic expression used in the design process, is becoming increasingly important. Correct interpretation of graphic language allows for the development of skills in the training of an engineer or architect. For this reason, research on this topic is particularly valuable in finding improvements or new proposals that will help to better understand these methods. In this special issue, the reader is presented with examples from the various disciplines available, such as engineering graphics, industrial design, geometric modeling, computer-aided design, descriptive geometry, architectural graphics and computer animation.

**Keywords:** engineering graphics, computer-aided design systems, geometric modeling, industrial design, descriptive geometry, architectural graphics, computer animation.

## MUHANDISLIK GRAFIK YUTUQLARI VA TAKOMILLASHTIRISH, YANGI TAKLIFLAR

**Annotatsiya:** Muhandislar, me'morlar va dizaynerlar g'oyalar va tushunchalarni ifodalash uchun foydalanadigan grafik aloqa usullarini yoki dizayn jarayonida ishlatiladigan grafik ifodani o'rganish tobora muhim ahamiyat kasb etmoqda. Grafik tilni to'g'ri talqin qilish muhandis yoki arxitektorni tayyorlashda ko'nikmalarni rivojlantirishga imkon beradi. Shu sababli, ushbu mavzu bo'yicha tadqiqotlar ushbu usullarni yaxshiroq tushunishga yordam beradigan yaxshilanishlar yoki yangi takliflarni topishda ayniqsa qimmatlidir. Ushbu maxsus nashrda muhandislik grafikasi, sanoat dizayni, geometrik modellashtirish, kompyuter yordamida loyihalash, tasviriy geometriya, arxitektura grafikasi va kompyuter animatsiyasi kabi mavjud bo'lgan turli fanlardan misollar o'quvchiga taqdim etiladi.

**Kalit so'zlar:** muhandislik grafikasi, kompyuter yordamida loyihalash tizimlari, geometrik modellashtirish, sanoat dizayni, tasviriy geometriya, arxitektura grafikasi, kompyuter animatsiyasi.

## ИНЖЕНЕРНАЯ ГРАФИКА: ДОСТИЖЕНИЯ И УСОВЕРШЕНСТВОВАНИЯ, НОВЫЕ ПРЕДЛОЖЕНИЯ

**Аннотация:** Изучение методов графической коммуникации, которые инженеры, архитекторы и дизайнеры используют для выражения идей и концепций, или графического выражения, используемого в процессе проектирования, становится все более важным. Правильная интерпретация графического языка позволяет развивать навыки в обучении инженера или архитектора. По этой причине исследования по этой теме особенно ценны для поиска улучшений или новых предложений, которые помогут лучше понять эти методы. В этом специальном выпуске читателю представлены примеры из различных доступных дисциплин, таких как инженерная графика, промышленный дизайн, геометрическое моделирование, автоматизированное проектирование, начертательная геометрия, архитектурная графика и компьютерная анимация.

**Ключевые слова:** инженерная графика, системы автоматизированного проектирования, геометрическое моделирование, промышленный дизайн, начертательная геометрия, архитектурная графика, компьютерная анимация.

## INTRODUCTION

The study of engineering graphics, defined as a set of graphic communication methods that engineers, architects and designers use to express ideas and concepts, or graphic expression applied in the design process, is becoming increasingly important. It is not surprising that engineering and architecture studies play one of their main roles in teaching graphic communication, since it is the universal language of an engineer, architect or designer in the field of engineering and/or architecture. The correct interpretation of the graphic language allows the development of skills in the training of an engineer or architect. For this reason, research on this topic is particularly valuable in finding improvements or new proposals that will help to better understand these methods. The scope of case studies is very wide and can cover various engineering disciplines, such as mechanical engineering, civil engineering, chemical engineering, electrical and electronic engineering, automation and robotics or telecommunications engineering, as well as architecture. In particular, research on the educational aspects of teaching graphic communication methods that improve the development of skills related to engineering and architecture is especially welcome. This special issue invites researchers to submit original research papers and review articles from any discipline that addresses theoretical or practical issues in engineering graphics. Topics of interest include, but are not limited to:

Engineering graphics; Computer-aided design systems; Industrial design; Industrial drawing; Geometric modeling; Virtual reality; Augmented reality; Technical drawing; Descriptive geometry; Architectural graphics; Computer animation; Multimedia

In today's world, the cost and demand for graphic design services are at an all-time high. Any business or organization understands the importance of great graphic design for their brand and marketing efforts. It is also no secret that technology has increased in popularity in recent years to improve the visual design process. There is no excuse for a company not to hire a graphic designer, especially with the evolving technology in the field and access to a global labor pool. The growth of visual and digital materials in recent years has created a great need for graphic designers. The changes and advancements in technology have taken this field to a new level. Technology has enhanced creativity and made this field more advanced. This has given a huge scope to graphic design and creativity. Let's discuss how advanced technology will help advance graphic design for the current and future generations.

## MAIN PART

As trends change and industries adapt to the ever-changing landscape of creative work, it is important to understand where graphic design will be heading in the coming years. It is vital to keep your ears open and tuned to the noise of the digital industry and the marketing world, whether you are a graphic designer yourself or you hire graphic designers. Advanced tools on the internet have made graphic designing easier and more efficient and reliable. Let us illustrate the online tools that have brought advancements in the field of graphic design.

Logo Maker: Online logo makers provide their customers with a rich experience in creating insightful and professional looking logo designs. Logo maker has made it easy to create a business logo in a short time. The logo can be created in minutes. It asks for your brand identity and you have to provide simple facts in response. With the user interface and simplicity of the design, you

can create your logo in no time. Just search the logo database, choose from thousands of logo design templates, customize the color and text and download. The online logo maker also allows you to create a unique logo design using different fonts, colors and text sizes. The logo maker contains simple steps that do not take much time. It is also a great place to implement creative logo ideas.

**Flyer Maker:** There are exclusive flyer maker tools that help graphic designers in their fast-paced lives. You can create flyers with a flyer maker without spending a lot of time drawing them step by step. This has contributed to the progress in the lives of graphic designers. Using these tools, they can easily create flyers. It is essential to have tools that are scalable when creating flyers. After all, it is rare that you will need just one. Rather, you often produce and distribute dozens, if not hundreds of flyers. This process can be sped up by using an online flyer maker. You can easily create flyers, share them with your colleagues, and improve on each other's designs using simple drag and drop tools.

**Invitation Card Maker:** A well-designed invitation card is essential to make a great first impression. Instead of hiring an expensive designer, you can create a unique card design in just a few minutes with an invitation maker. Yes! It doesn't matter if you are a designer; you can create a card using the basic tool. The online invitation card maker comes with a set of templates that can help you create an invitation card in just a few steps. These invitation and greeting card makers offer endless attractive themes with high-definition images. You can change the fonts and colors to suit the occasion. You can easily create printable invitations with the invitation maker tool. Just choose a great, easy-to-customize invitation template from the menu and add graphics and images. Provide the title, date, and location of your invitation. As a result, you can easily change the invitation template to suit the concept of your event.

### **CONCLUSION**

The year is quickly coming to an end and we are excited to welcome a new one; As this calendar year comes to an end, it is time for creative professionals and business owners to think about the additional features of graphic design tools. Graphic design trends have changed dramatically over the past year as people are looking for new and innovative ways to convey their views. As technology advances and designers experiment with new and cutting-edge concepts, the graphic design industry is rapidly evolving. Graphic design is turning into a significant industry; thus, leading designers will continue to innovate and create designs that have never been seen before. If there is one thing you can count on about graphic design, it is that it is constantly changing. And indeed, this change is due to the introduction of new and cutting-edge technology. Cutting-edge technology has made graphic designing easier in an amazing way. This has increased the work efficiency and productivity of designing. The workload of graphic designers has been challenging and fulfilling the requirements. One of the most challenging tasks for graphic designers has been time management. Effective tools and technologies have helped to create large-scale and outstanding projects in minutes. However, technology has made every field, skill, interest and business easier. As for graphic design, this field has built its future thanks to technological advancement.

### **REFERENCES:**

1. Вох Е.П. Формирование графических компетенций у будущих инженеров в самостоятельной познавательной деятельности: дис. ... канд. пед. наук. – Екатеринбург: 2008. – 189 с.

2. Гребенников К.А. Компьютерная графика как средство профессиональной подготовки специалистов – дизайнеров: на материалах среднего профессионального образования: дисс. ... канд.пед.наук – Воронеж: 2002. – 195 с.
3. Mukundan R. Advanced Methods in Computer Graphics. India, 2012. – 53 p.
4. Zuo Z. Engineering kompyuter graphics and animation 3D modeling. Korea. 2013. – 56 p.
5. Bhatt N.D. Engineering Drawing.– India, 2012. – 183 p.
6. Rasch G. Probabilistic model for some intelligence and attainment tests.– Chicago. Univ. of Chicago Press. 2017. – 199 p.
7. Amari F. IT– literacy for language teachers: should it include computer programming, System, Volume 28, Issue 1, 2000, – p.77– 84.
8. Erig L.T. Construction of 3D modeling.– Ispania, 2014. – 34 p.
9. Godse A.P. , Godse Dr.D.A. Computer Graphics and Multimedia Concepts, Algorithms and Implementation using C. – AQSH, 2020. – 94 p.
10. David R.L. Vizualisation and animation of kompyuter graphics.– Korea, 2017. –105 pp.
11. Gambetta G. Computer Graphics from Scratch A Programmer’s Introduction to 3D Rendering. – AQSH, 2021. – 43 p.
12. Алимов А.А. Бўлажак касб таълими ўқитувчиларини шахсга йўналтирилган технологиялар асосида инновацион фаолиятга тайёрлаш: Педагогика фанлари бўйича фалсафа доктори(PhD) монографияси автореферати. – Т.: 2018. – 48 б. 126
13. Алижонов О.И. Мухандислик графикаси. Дарслик. – Т.: “Ўқитувчи”, 2004. – 176 б.
14. Арефьева О.В. Профессиональная подготовка студентовдизайнеров в процессе обучения компьютерной графике: Автореф. дисс...канд. пед. наук. – Магнитогорск, 2007.– 174 с.
15. Арцишевская Е. В. Индивидуально-типологические особенности подростков с художественно-изобразительными способностями // Известия РГПУ им. А. И. Герцена. 2008. №63-2. URL: <https://cyberleninka.ru/article/n/individualno-tipologicheskie-osobennosti>
16. Ачилова Д. А. Олий ўқув юртида ўқув жараёнини моделлаштириш (“Чизма геометрия ва муҳандислик графикаси” фани мисолида: Пед. фанл. бўйича фалс.докт. ... атореферат.– Т.:2020. – 13 б.
17. Балл Г. А. Теория учебных задач. Обрзования педогагические науки -М.,1990.125 с.- ИСБН 5-7155-0071-0.
18. Боровков А.И. и др. Современное инженерное образование/ учеб. пособие. – Санкт-Петербург: Изд-во Политехн. ун-та, 2012. – 80 с.
19. Панкина М.В. Основы методологии дизайн-проектирования // учеб. пособие. Екатеринбург Издательство Уральского университета – 2020.– 64 –71 с.
20. Гершунский Б.С. Компьютеризация в сфере образования: проблемы и перспективы. – М., 2008. – 268 с. 26.
21. Грибан О.Н. Формирование информационной компетентности студентов педагогического ВУЗА. Моног. – Екатеринбург: ИД «Екатеринбург», 2015 – 92 с.
22. З.К. Жуманазарова. (2023). Методика Развития Профессиональной Подготовки Студентов На Основе Преподавания Науки Инженерная Графика. Wire Insights: Journal of Innovation Insights, 1(6), 49–53. Retrieved from <https://academiaone.org/index.php/7/article/view/318>
23. THE PROCESS APPROACH IN WRITING SKILL AND ITS TEACHING. (2022). Journal of Pharmaceutical Negative Results, 3735-3738. <https://doi.org/10.47750/pnr.2022.13.S06.497> (Original work published 2022)

24. Abdullayeva Shahnoza Akbaraliyevna. (2023). THE MAIN PRINCIPLES OF THE ADMINISTRATION OF THE TURKIC STATES IN “KUTADGU BILIG”. *Galaxy International Interdisciplinary Research Journal*, 11(10), 160–166. Retrieved from <https://www.giirj.com/index.php/giirj/article/view/5725>
25. R.L. David. (2014). Visualisation and animation of computer graphics. Korea. – P. 105.
26. Cordella LP, Vento M (2000) Symbol recognition in documents: A collection of techniques? *Int J Doc Anal Recogn* 3(2):73–88
27. Cote M, Branzan Albu A (2014) Texture sparseness for pixel classification of business document images. *Int J Doc Anal Recognit* 17(3):257–273