### **History of Engineering Graphics and Design Sciences**

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**Abstract:** This article discusses the historical sources of integrative teaching of engineering graphics and design sciences, in which students get acquainted, albeit briefly, with information about our ancestors who contributed to the origin and development of these two disciplines.

**Key words:** profession, craft, engineering, graphics, history, design, integration, subject, geometry, color, drawing, physics, image, stairs, surface, shape, circle, rectangle, ornamental.

#### Introduction

It is worth recalling the following opinion of Abu Nasr al-Farabi, an oriental scholar who lived and worked in the tenth century, dedicated to the profession: What is invented or created is really good and useful if it is in accordance with one's own will and the will of another, or if it is suspected that it is in accordance with the will of others. The integration of engineering graphics and design sciences is a design product of the harmony of different shapes, their decorations in any product or product produced in our society. It arises on the basis of research in the process of teaching engineering graphics and design sciences, conducting tests, reading a lot of literature, studying best practices and drawing appropriate conclusions from them.

Integration is a traditional learning tool; to fill in the gaps that were previously unknown at the intersection of existing knowledge, to establish an existing connection between them; increase the level of knowledge of students by updating the existing narrow specialization in teaching; Integration significant potential study subjects with specialist knowledge, techniques, personal qualities, the integrity of a whole resembles considered as a factor.

The integrated teaching of engineering graphics and design sciences enhances the spiritual outlook of the specialist. It informs the cultural past of the peoples of Central Asia. It provides a basis for knowing the properties of local materials, the geometric shapes of objects, the structure and meaning of patterns, the place of use of colors.

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As a result of their attitudes to the various events that take place around them, there is a need for people to discuss the accumulated information, the accumulated knowledge, the experiences in different ways. There were many unanswered questions that tormented people. This required experimentation, observations, and work. The development of nature as a science over time (384-322 BC) is reflected in Aristotle's works "Physics", "Metaphysics". The twelfth and fourteenth centuries were a period of preparation for the revival of the productive forces, trade, and the revival of science in Western Europe. Scholars such as Farobi (950), Abu Ali ibn Sina (980-1037), Abu Rayhan Beruni (973-1048) made a great contribution to the study and development of nature as a science. In the twelfth century in Western Europe, the works of Euclid, Heron, Ptolemy, Galen, Muhammad Musa al-Khwarizmi, Abu Ali ibn Sino and other thinkers were translated and studied. That is why this century is called the age of "translation".

diagnosis is result of the development of the human mind to So the а form culture. Production began, the development of architecture. These, in turn, began to win us the main types of graphics drawing. During the construction of residential the nature of buildings, fortifications, and other drawings. Graph only one image, and called his plan. Typicall y, these plans rather than direct construction of structures, that is, the surface of the earth, done with the original size. Land, the ancestors of our great ancestors, who lived exemplary lives and activities, superb scientific and creative breakthroughs, should be noted with pride that struck the people of the world today. For Musa example. Muhammad al-Khwarizmi in decimal notation system, algorithm and algebra concepts one teachers in the the basis of science, that time has world in the field of science and on created a solid foundation for the development of great importance to the development of human progress We all know that.

When we first talk about how our ancestors worked with drawing, they have been working on simple graphic representations for over a thousand years. They skillfully used drawings in their works. An example of this is Ibn Sina's Encyclopedia. In the geometry section of the encyclopedia, he described the procedure for performing problems with calipers and rulers from drawing tools. In the section on mechanics, the structure and vivid depiction of simple objects such as a ruler, a lever, a block, a ponta, a screw are shown in graphic images. And in design, we all know that our past values are the invaluable cultural heritage of our people. When we think of ancient cities such as Samarkand, Bukhara, Khiva, Shakhrisabz, Turkestan, we first see the priceless architectural monuments of the past, built in those holy shrines at different times. They embody the creative work of our ancestors, which embodies the centuries-old experience of our ancestors. Samarkand is one of the oldest cities in Central Asia, such as Bukhara, Khiva, Shakhrisabz, Turkestan, and they are world famous for their historical monuments. The architectural monuments of these cities are beautifully decorated with geometric lines, their design, high inscriptions on the towers and towers have amazed the human mind for centuries. Ancient architectural monuments include domes, spiral staircases, roofs, arches, mugarnas, and other surfaces, and the construction of such complex structures, common in the builders, requires mathematical calculations and the depiction of geometric history of surfaces. Domes and revolving stair-canoes are called curved surfaces in architecture. The question arises as to how or in what order such luxury buildings were built in the past, whether they had drawings, and who were the masters. The craftsmen and engineers

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involved in the construction of such buildings were well versed in the sciences of drawing, geometry, mathematics, material resistance, and astronomy. Engineers were able to create drawings and even mock-ups of the buildings they wanted to build.

In Tokharistan (Bactria), Khorasan (Parthia) and Sughd, the art of sculpture was widely developed in the ancient and early Middle Ages. Examples of sculptural art are widely used in the interior design of palaces, pyramids and houses of rich families. The art of sculpture is mainly formed in two directions. It is bulky and the bas-relief is a wall, half-embossed on the surface.

This idea is in the heart of every expert. In the early Middle Ages in Sogdia, carving wooden images through geometric shapes was widely introduced. This is evidenced by the wooden artistic images in Panjiket. Here a work of art is created from wood in two directions. The first is an ornamental, in a plot image on a wooden or wooden bas-relief, engraving or pattern, the second is a three-dimensional image, in a sculpture.

The image, carved through geometric shapes of the first type, was mostly worked on planks and logs oriented along the wall under the ceiling or ceiling of the room. In them, images carved through geometric shapes can be processed in one or two rows. The above row was wide and divided into arches. Inside the arches, a bow depicts a hero on horseback, a king sitting on a throne, and a warrior riding in a chariot. In the space between the arches is a picture of a flower and in the lower row is depicted winged lions stepping towards one side. Also on the day, on the rectangular boards, there are rhombuses, circles, "Horse Hunter", "Winged Lion", "Woman on a Lion". Similar images are found in the wooden parts of Jumalaktepa Palace. In it, the image of people inside the arches is carved to the waist. They represent the image of nobles and heroes.

Today in our society, the concept of "Design" is associated with the most advanced form and the highest modern technical achievements. The works of design are not only resonant for their time, but for a certain part of it is half a step ahead for the development of tomorrow's or future achievements in modernity. We can see the active participation of design in all the innovations that come into our daily lives, in construction, in clothing, in different models of cars, in household goods, in technology. Designers 'research in the elegant forms of artistic form windmills, we can look to the future, as well as to the engineers' clear realistic existing drawing patterns. Large organizations carefully study the process of consumer demand, predict the future, create a model of the future, and now produce products for future buyers, of course, for their various district high quality art demand and delicate tastes.

Therefore, it is important for today's youth to study our cultural heritage in depth, to know the history of its creation, to seek new opportunities and enrich it, especially in modern times. To do this, the Uzbek people need to study in depth what they have created throughout their history.

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