THE STATUS OF TEACHING THE SUBJECT "CONSTRUCTION DRAWING" IN HIGHER EDUCATION INSTITUTIONS

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Abstract: The current state of the course of construction drawing in higher education institutions and measures to improve it, increase students' knowledge of construction drawing.

Keywords: Construction, drawing, computer graphics, graphics software, construction drawing.

Radical changes are being made in the field of education for the youth of our country to grow up to be fully mature, intellectually talented and competitive personnel, healthy and well-rounded. In particular, a modern system of pre-school education is being created, 11-year education has been introduced in secondary schools. New, modern educational institutions, including branches of prestigious foreign universities, are being established and improved in the higher education system.

Modern teaching aids, computers, special graphics programs, electronic whiteboards, specially equipped classrooms for the teaching process create a comfortable environment for teachers and students. Educated in such a favorable environment, the young people of our country have excellent knowledge and skills in their fields and help them to contribute to the development of our country.

Today, construction drawing is understood as a set of methods and tools for presenting, modifying, and storing graphic information about objects, processes, and real (existing), ideal (imaginary) events.

Tasks of the science of construction drawing:

- to study the creation of spatial graphic models based on orthogonal projection and the solution of problems related to spatial shapes and relationships in these models;
- to study the architectural drawings in accordance with the requirements of state standards and to gather the necessary knowledge for their development;
- Familiarity with modern graphics software systems for solving problems of computer graphics, geometric modeling, the concept of graphic objects, automation of graphic works.

From the above tasks, it is clear that the role of the science of construction drawing, which is one of the disciplines of engineering graphics, in the field of construction, especially in the correct reading and understanding of architectural construction drawings, is invaluable.

Among the disciplines taught in higher education, the subject of "Construction drawing" has a special place. However, the current teaching hours of this subject are not considered sufficient to increase students' graphic literacy. The fact that this subject is taught for 1 semester in some higher education institutions and for certain hours during 1 semester in other higher education institutions clearly shows the existing problem. Among the higher education institutions, the Tashkent State Pedagogical University named after Nizami, which is the main center for the training of teachers, also has a significant number of hours devoted to construction drawing (Table 1).

Table 1

R1	Brief information on the specifics of construction drawings, types of buildings and building codes and guidelines. General rules of graphic design of architectural and construction drawings. Brief information about the main components and architectural elements of the building. Conditional images of building elements and some sanitary facilities, graphic designation of building materials.
R2	The concept of building plan, facade and trim. General information about the drawings of building plans (floors, foundations, floors, walls and curtains, ceilings and partitions, roofs, stairs). Procedure for drawing a building plan. Procedure for making facade drawings of the building. Reading architectural drawings of industrial buildings. Describe the view of the

	building in axonometry and perspective. Sketches of buildings: drawings of architectural and structural sections of the building. Procedure for making a building shear drawing.
R3	Functional and artistic requirements for interior design. Take into account their specialization and form of teaching when creating the interior of classrooms. Peculiarities of student and teacher workplace organization.
Type of training: practical training (P)	
P1	Measurement of coordinate axes and construction drawings. Single module system.
P2	Brief information about the main components and architectural elements of the building. Conditional images of building elements and some sanitary facilities, graphic designation of building materials.
P3	Conditional images of elements of buildings and structures
P4	Conditional images of doors and gates. Conditional graphic symbols of heating stoves, water heaters, heating boilers, kitchen hobs and refrigerators.
P5	General information about plumbing fixtures and fittings. Methods of drawing various pipelines.
P6	Procedure for making and reading drawings of water supply and sewerage systems of the building
P7	Drawings of architectural and structural sections of the building. Complete the stair drawing in plan and cut.
P8	The concept of layout of the elements of the roof and attic beams. Drawings of the foundation and roof plans of the building.
P9	Completion of the plan drawing of floors of residential and industrial buildings.
P10	Completion of the facade of the building. Types of facades. Procedure for sizing and other information on the facade. How to paint a facade of a building with a dream or one-color watercolor paint.
P11	Completion of building shear drawing
P12	Drawings of concrete, reinforced concrete structures. Drawings of devices for axonometric projection of the reinforced concrete device node. Drawings of metal devices. Perform axonometric projection of the metal device node.
P13	Drawings of wooden devices. Perform axonometric projection of a wooden device node.
P14	Completion of master plan drawings. Conditional topographic signs. The content of the master plan drawings and the order of their placement.
P15	Principles of shaping the interior of rooms in educational institutions. Artistic decoration of the walls of the room in accordance with its features. Execution of a fragment of the interior decoration of the walls of classrooms.
P16	Principles of the organization of the open field environment, equipping sports grounds on the school grounds, student recreation areas, etc. and describe it in a fragment of the master plan.

In addition, as can be seen in Table 1, the volume of topics in the lectures and workshops (i.e., several topics combined) is large.

For example, consider the topic for the second lecture. The topic of Lecture 2 is “Understanding the plan, facade and layout of a building. General information about the drawings of building plans (floors, foundations, floors, walls and curtains, ceilings and partitions, roofs, stairs). Procedure for drawing a building plan. Procedure for making facade drawings of the building. Reading architectural drawings of industrial buildings. Describe the view of the building in axonometry and perspective. Building sketches: drawings of architectural and structural sections of the building. The procedure for making a sketch of the building "covered ten topics at once in this lecture.

- understanding of the building plan;
- The concept of the facade of the building;
- The concept of building trim;
- general information on drawings of building plans (floors, foundations, floors, walls and curtains, ceilings and partitions, roofs, stairs);
- The order of execution of the drawing of the building plan;
- The order of execution of drawings of a building facade;
- Reading architectural and construction drawings of industrial buildings;
- description of the building in axonometry and perspective;
- Sketches of buildings: drawings of architectural and structural sections of the building;
- The order of execution of the sketch of the building;

Also, some topics need to be taught in pairs. Especially among these topics, "General information about the drawings of building plans (floors, foundations, floors, walls and curtains, ceilings and partitions, roofs, stairs)" lacks a single lecture to convey the essence of this topic to students. The reason is a single lecture to explain the plan of the building and the conditions in it (doors, frames and their design), a separate lecture for the foundation, walls and curtains, terraces and partitions, roofs and stairs. separate lecture sessions are required. This is because explaining the subject of roofs and stairs requires rules and standards for drawing roofs, and if there are adjacent buildings around the building, which standard to follow, or a special approach to drawing roofs in a modern look. When designing stairs, it takes a lot of effort to decide which type of stairs is appropriate for the project, to learn how to place one of the standard or non-standard stairs in the project.

It is difficult for a student to master such a large topic at once, in short, it is not an exaggeration to say that it is impossible. According to research by psychologists, students gain a better understanding of the subject in the first twenty minutes. As a result, you will need to master ten topics in the first twenty minutes. Even in eighty minutes, not twenty minutes, it will be difficult, if not impossible, to grasp the essence of the subject for the second lecture. This is the situation in higher education institutions, which are the basis for pedagogical specialties, and, in short, the situation is almost the same in other higher education institutions, which train teachers.

From the analysis of teaching hours given in the above tables, it became clear that in the process of mastering the given hours it is expedient to carry out educational tasks based on graphics programs and modern computer technology, aimed at developing students' perfect knowledge of the subject of construction drawing. is calculated. The computerization of the rapidly evolving education system is the basis for the formation of students into highly qualified professionals. Through the computerization of the modern education system, the belief in modeling not only nature and society, but also various events, experiences and processes in the educational process is created, managed, studied, diagnosed and analyzed. As a result, the quality and efficiency of education will increase significantly.

The use of computers and graphics programs in the teaching of graphic sciences in research and experiments is the result of our research, which has led to an increase in students' attitudes, interest and imagination in science. The use of computer and information technology in the educational process increases the quality and effectiveness of education. Therefore, it is advisable to teach the subject of "Construction Drawing" using computer technology.

In short, the integration of computer graphics led to the emergence of a new engineering computer graphics science. This has led to a change in the structure of engineering graphics education. Computer graphics takes the process of training engineering graphics professionals to a new level. This will require a review of the methods and tools used to teach engineering graphics.

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