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# MODEL FOR THE DEVELOPMENT OF GRAPHIC COMPETENCE OF STUDENTS OF THE ENGINEERING DIRECTION

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**Abstract:**

In modern conditions, higher educational institutions are aimed at the development and formation of students' social abilities, since this is the preparation of students for the life of society. The future specialist should be able to independently model the prospects of his life path, design future professional activities.

**Keywords:** higher educational institutions, life of society

Particular attention is paid to increasing the quality and effectiveness of education in the world, the large-scale use of a competent approach in the development of professional competencies of students in technical higher educational institutions.

In modern conditions, higher educational institutions are aimed at the development and formation of students' social abilities, since this is the preparation of students for the life of society. The future specialist should be able to independently model the prospects of his life path, design future professional activities.

One of the most important tasks of higher education at the present stage is the task of modeling the integral pedagogical process.

Pedagogical modeling allows you to train a modern specialist in a very short time (studying at an ATM)-to train a specialist who can be competitive in the labor market, that is, have the necessary professional qualifications and have graphic competence as its necessary component.

On the model of formation and development of graphic competence of students of technical higher educational institutions, we understand the integral pedagogical process, which is a set of teaching approaches aimed at students to acquire certain knowledge, skills and abilities, as well as to develop the personality of the student as a future participant in professional activity.

Systematic personality-oriented professional training of students involves the intensive involvement of the future specialist in active cognitive activity, independence, creative initiative, effective thinking and the development of other necessary professional and social competencies.

The pedagogical model should have not only a didactic, but also a socio-pedagogical description.

In this regard, it is necessary to talk about the transition to innovative forms of Organization of the educational process. In the organization of such innovative approaches, there are:

- personality-oriented education;

-conditions for the development of students ' creativity and self-awareness;

- humanization of Education;

- developmental orientation of Education (modular, problematic, project, activity-oriented, etc.);

- integrity of the pedagogical process and others.

All these approaches are significantly different from the traditional approach to education, aimed at mastering a certain amount of knowledge and skills system [4].

Modeling of pedagogical processes involves the regulation of pedagogical means, the establishment of various connections between them, the determination of the sequence of their application. The model of the pedagogical process must always take into account its dynamics and integrity.

The Model reflects the system composition of the elements of the process; the nature of the relationship between the elements of the system; is manifested in the functions performed by the elements and the model as a whole. The Model acts as a theoretical image of a real practical pedagogical process.

Based on the theoretical analysis of the process of forming graphic competence, a model for the formation of graphic competence was developed in the process of studying the discipline "computer graphics [5].

The developed model is considered by us as a set of regular, functionally dependent competencies that make up a particular integral system from the point of view of its systemic and personal functioning approaches. The model for the formation and development of graphic competence of students in the process of teaching the subject "computer graphics" using a specialized software and methodological complex includes interconnected blocks (Figure-1).

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The goals and objectives presented in the model reflect the main areas of pedagogical activity that ensure the formation of graphic competence. The main approaches used in the development of a model that determine the direction and results of the pedagogical process are systematic, competence-based, personal activity[8].

The systematic approach involves the application of a modular principle and the use of system methodology, including modeling, which allows students to review the objects studied, systematically identify new connections, qualities and relationships[2,3].

The competence approach is the feasibility of the educational process, and in it competencies determine the highest, generalized level of students ' skills and abilities, and the content of education is determined by a four-component model (knowledge, skills, experience of creative activity and experience of a value attitude).

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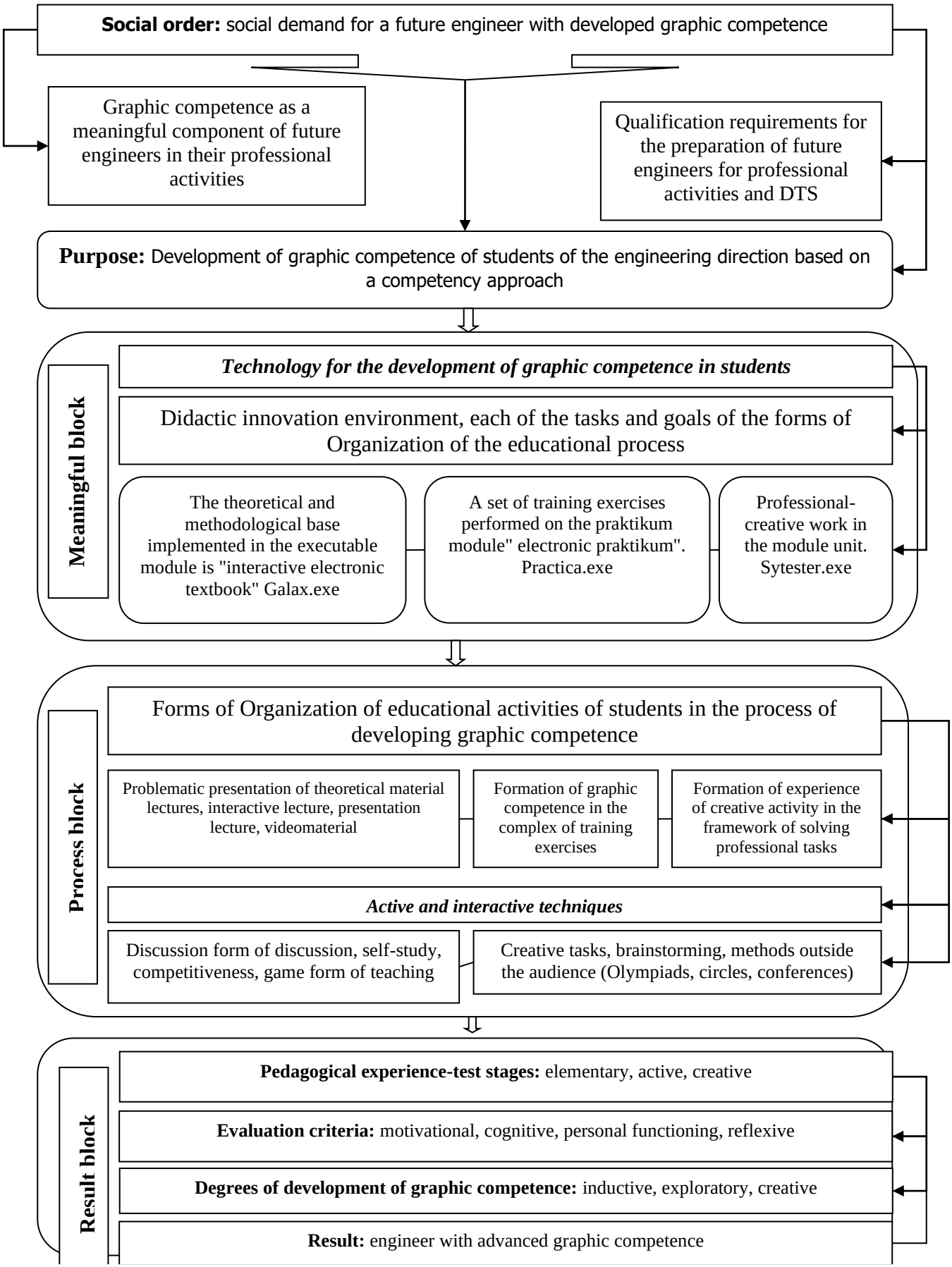


**Figure-1. Model for the development of graphic competence of future engineers.**

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The personal-activity approach is a type of training in which the student acts as an active, creative subject of educational activity. Such an approach requires taking into account the individual psychological characteristics of students, their abilities, interests and needs.

The meaningful block of the model is represented by the following didactic innovation tools that correspond to goals and objectives:

-"interactive electronic textbook" is a theoretical and methodological base that is performed at galax,exe. The electronic textbook contains all the theoretical materials necessary and sufficient for the formation of graphic competence;

- "electronic practicum" practica.exe set of training exercises performed on the exe module. Electronic practicum provides the teacher with the opportunity to organize the implementation of the calculation work for each student at an individual pace or collectively;

- Sytester.exe. it is a kind of educational environment for the organization of laboratory work by students together with the teacher and independently. The module includes a theoretical part containing methodological recommendations for laboratory work, as well as an electronic version of the work performed.

The process block of the model presents the forms and methods of organizing educational activities.

Within the framework of the forms used by the teacher, active teaching methods are used (discussion form of discussion, self-education, consistency, game nature of classes) and interactive teaching (non-audience methods such as creative tasks, brainstorming, Olympics, Club, conference).

The result block of the model reflects the stages of the formation of students ' graphic competence. The learning process includes three stages, each of which achieves a certain level of formation of all components included in the graphic competence.

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