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**THE MOST COMMON PROFESSIONAL QUALITIES OF A MODERN ENGINEER**

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**Abstract:**

In addition to the knowledge acquired during education, a graduate of technical specialties must also possess certain spiritual qualities that are currently being formed in the educational process at universities. The discussion is based on the formation of the most general professional qualities of a modern engineer: competence, responsibility, diligence, independence, initiative, purposefulness, and the like.

**Keywords:** Pedagogical, information, technical, engineering, thinking, scheme, subject, psychology, model.

**Introduction**

The levels of information representation in the mental system of activity are manifested in the form of sensory, perceptual and conceptual organization of information, which, in turn, reflect two classes of conceptual representations of information in the student's mind. The first of them includes "concepts whose signs correspond to the visual-imaginative properties of objects. These concepts are formed first in the process of cognitive activity and determine the unfolding and course of perceived knowledge. The second class includes "category concepts", the signs of which are associated with the reflection of functional relationships between primary concepts and objects" [1].

**Literature review**

Researchers attach special importance to the formation of a system of interconnected concepts in the process of cognition for technical specialties. The future engineer helps to strengthen concepts in his thinking schemes by introducing additional associations, a concept into a set of relationships. Each new concept introduced should be clearly defined and interconnected, its relationship with other concepts should be determined. Pedagogical practice shows that in the process of studying the material, it is necessary to constantly refer to the system of concepts of the subject area under consideration in order to identify new, sometimes hidden connections and relationships. Therefore, the system of concepts should be presented to the student visually. Understanding the mental processes under consideration allows students to form organized internal cognitive structures [2].

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**Research Methodology**

According to psychologists and educators, the organization of cognitive structures of the human psyche is purely individual. However, if these structures are not purposefully formed, the effectiveness of training will be low. In our study, we can only talk about controlling mental processes at the level of “guiding” functions in the process of forming the psychological system of students' activities.

The conceptual model formed in the process of training appears in the engineer's mind in the form of an image, the main features of which are generality (reflection of only the most general and stable features of professional activity), schematicity (highlighting the elements of the object that act as a “support”) and panoramcity (reflection of the panorama as a whole), while this image can be an effective guiding basis for future professional activity [2].

Analysis and results. Thus, the resulting subsystem of professionally important qualities represents the necessary set of mental functions, states and characteristics necessary for the successful performance of professional tasks by a future engineer. A graduate of technical specialties, along with the knowledge acquired during his education, must also possess certain mental qualities that are currently being formed in the educational process at higher educational institutions. The most general professional qualities of a modern engineer are: competence, responsibility, diligence, independence, initiative, purposefulness, etc. Specific professional qualities include management, demandingness, courtesy, teamwork, responsibility, perseverance, mobility, creativity, etc. The purposeful and controlled formation of professionally important qualities can be achieved by modeling the elements of professional activity in the educational process, based on the analysis of the future professional activity of the engineer being prepared [3].

The highlighted rules allow us to conclude that the current system of training engineers should be aimed not only at the formation of knowledge, skills and qualifications. Particular attention should be paid to the creation of complete, holistic mental information complexes and the formation of important professional qualities [2].

**Conclusions and recommendations**

Most studies [2; 4] note that the ability to make professional engineering decisions can be considered one of the most important professional qualities of a modern engineer. Professional engineering thinking is a specific combination of certain types of thinking depending on the subject, means, conditions and results of engineering work, and consists in using thinking actions as a means of carrying out professional activities. As a professional type of thinking, the professional thinking of an engineer is characterized by the priority use of methods for performing problematic tasks in the field of engineering, methods for analyzing situations

arising in the process of professional activity, and methods for making engineering decisions in difficult conditions, such as an acute shortage of time, lack of information in a rapidly changing situation.

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