

Role of psychology in forming the professional competence of a future engineer

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Abstract: The article discusses the issues of training engineers in the context of a system of additional vocational education. It is desirable to build training in this system from the position of andragogy based on the acmeological approach.

Keywords engineer, psychological culture, resistance to stress, communication, ambition, healthy ambitions, the word “Loyal”.

Introduction

What is a modern engineer? In the modern world, the importance of an engineer is extremely high. Without a research engineer, the emergence of new technologies and equipment is impossible, without a design engineer, even the best innovative ideas will remain only on paper, without an operating engineer, it is impossible to ensure the efficient and safe operation of equipment, transport, objects of various fields.

A modern student of an engineering specialty must achieve mastering not only theoretical material, but also learn how to work in practice with modern production equipment, technology and software. Receive training in related areas of expertise that will allow you to adapt when you come to the enterprise. Learn to think for yourself and make the right decisions.

Engineering education at the present stage, along with fundamental knowledge in the chosen specialty, should also contain knowledge in the so-called “human” disciplines. It is well known that

an engineer is a socio-technical profession: 50% of his work falls on technology, 50% on interaction with other people.

In modern conditions, one of the central tasks facing a higher technical school is, as you know, the production of specialists with a level of training that allows them to withstand fierce competition in the labor market. Is it enough to solve this problem of simply improving the quality of general technical and special training? Obviously, this is an extensive path.

Therefore, when choosing priorities in this regard, it is necessary to focus, first of all, on the directed formation of students' creative thinking.

The etymology of the word engineer (from the Latin ingenium - ability, ingenuity) suggests that a person who has mastered an engineering specialty has a wide range of different types of ingenuity, which cannot be developed without a broad general cultural background [1].

The training of engineering personnel must necessarily proceed from the duality of the nature of technology, that is, from its objective and subjective components.

Objectives

The objectivity of technology consists in the fact that it is designed, produced and operated on the basis of the laws of natural science; subjectivity is that a person actively interacts with it at all stages of the life cycle of technology. Only he determines the need for new technology, sets goals, makes decisions based on his interests, his understanding of the surrounding reality.

The quality of the designed technical systems, their effectiveness is largely determined by the personal characteristics of people, since it is people who take into account the measure of their activity, the degree of stress, the assessment of the success of the work performed, relying on a subjective understanding of the meaning of their activities.

Main part

Psychology - the pedagogical culture of an engineer includes understanding and taking into account the patterns and characteristics of human functioning in the psychological system. Indeed, first of all, the working conditions (temperature, noise, vibration, etc.), the parameters of the workplace, the content and organization of labor depend on the engineering developments. Therefore,

already at the stage of design and development, solutions should be laid that lead to a reduction in the content of labor, an improvement in ergonomic indicators.

Hence, it is clear that it is necessary to form a psychological culture of an engineer, which includes responsibility, frugality, and prudence in relation to both man and nature, of which man himself is a part.




Professional self-improvement of an engineer as an integral component of training specialists is also impossible without psychological and social knowledge.

Psychological and pedagogical research in various labor systems shows that professional self-improvement is always the result of a conscious interaction of a specialist with a specific social environment, during which he realizes the need to develop in himself such personal qualities that give success in professional activity and in life in general [2] ... Consequently, self-improvement is a personal and social phenomenon.

The sources of professional self-improvement of specialists are in the social environment. Self-improvement as a social process is based on the requirements of society and the profession to the personality of an engineer. Moreover, the requirements should be slightly higher than the available capabilities of a particular person. Only in this case there are prerequisites for self-improvement in the form of internal contradictions.

In the process of the formation of a worldview, there is a consistent formation of such personality qualities as a sense of novelty, realism and courage in posing and solving various issues, that is, the process of developing a culture of thinking, the most important content of culture as a whole, is underway. The general humanitarian culture provides a broader orientation for the creative activity of the engineer. Solving technical problems, he cannot but take into account the humanistic aspects - environmental problems, physical and spiritual health of a person.

In the process of educating future specialists, it is necessary to take into account three interrelated aspects of the philosophical worldview.

-  Properly worldview;
-  methodological;
-  moral.

The ideological aspect itself assumes that students master the amount of knowledge that reflects both the general modern picture of the world and social reality.

But along with the amount of knowledge, the student must master the basic laws of scientific thinking, its creative nature. However, most importantly, knowledge can only be called knowledge that has passed through the feeling and will of a person - knowledge that creates a new life. First of all, it is about the fact that knowledge and the methodological discipline of thought cannot but be imbued with moral indifference to life.

But an engineer is not only a “techie”, a person with knowledge of theory and practical skills in the field of engineering and technology, but also a leader. Along with a high professional level, he is competent in the psychology of relationships in his work team. A specialist who understands personnel management is no less than in the field of technology. An engineer in the modern world must be flexible and loyal.

The word “Loyal” is translated from English as correctness, correct attitude towards someone or something.

Much depends on the loyalty of employees: the success and prosperity of the enterprise, a good attitude towards the company, which is expressed in the stable work of the personnel. Loyalty in the enterprise must be mutual. High employee loyalty where there is respect for them, where employees clearly know and understand what they want from them and how they will be asked for it, where the punishment and reward is fair, where employees feel their value and are proud of their work. In this case, people respect their engineer as a manager, show a willingness to work with an average salary, but with a higher return than in enterprises with a high salary, but with lower management loyalty. High loyalty is ensured by a high reciprocity relationship. Therefore, what you demand from your subordinates - demand from yourself. The leader should be as fair as possible in criticism, punishment, and also not to forget about encouragement.

Research and discussions

Engineers understand how a radio, a turbine and, to a certain extent, a nuclear reactor work, but they know catastrophically little and understand how a person works, where he has "ignition",

"pedals" and "handbrake", which represent ambitions, feelings, emotions and how it all works. Why under the same conditions people behave differently. What is the psyche and how it works.

Lack of basic knowledge of human psychology and the psychology of human relations is one of the main reasons for almost most conflict situations at an enterprise.

Domestic specialists, engineers of the older generation "hardened" are no longer enough, there are many young ones, but most of them are still "immature" due to their age and little practical experience, skills, both in everyday psychology and in social.

Most of the problems in the team, everyday in the family due to the inability to build communication, lack of psychological culture.

Psychological culture is the unity of the culture of behavior and the inner culture of a person. If a person lacks internal culture, then where does cultural behavior come from? The inner culture of a person is deeply connected with spirituality. The higher the spiritual leaving, the higher the level of culture. If we consider psychological culture as something single, then it corresponds to the rule - "treat others the way you want to be treated."

When making a decision, in particular a collective one, you need to know how to distinguish your employees by character and behavior in disputable and conflict situations. Who makes their own decisions, who works better collectively, and who tries in every possible way to avoid solving problems.

To know and understand what meaning is hidden in the concepts of personal qualities, such as communicativeness, ambition, stress resistance.

Communicative does not mean talkative or chatty. Communication in the workplace is the ability to clearly and clearly express your thoughts, correctly convey them to the recipient, the ability to reliably and efficiently convey information without distorting its value or importance, the ability to create clear instructions, reports, etc.

Healthy ambition is a good thing. In this case, a person can defend his point of view with the help of arguments and facts, or realize his mistake by listening to the arguments of the other side.

Resistance to stress is the ability to work within a short time frame, in a team with people of different nature. This is resistance to conflicts and criticism.

Having brought clarity to the understanding of the essence of things, you realize that there are not so many such people with similar qualities. But this understanding of the essence of things, processes and mechanisms is one of the characteristic features of an engineer.

Conclusions

Knowledge of psychology is necessary for the process of improvement, raising the internal culture, making it possible to become better and more successful. Proven by many years of foreign and domestic practice. And it is precisely for an engineer with knowledge of human psychology and psychology of relationships that the work collective is usually quite loyal. Such a specialist is respected and appreciated, since he himself is a serious incentive for colleagues to work with dedication.

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