

What qualities must engineers have?

Engineering is one of the main factors of modern scientific and technical revolution opening before mankind unprecedented opportunities. It is the basic for the development of modern industry, general direction of technological progress. At the present time the electricity sector is a rapidly growing field that is why many companies which are developing innovative equipment, want to pick up highly qualified workers- engineers. Employers want to work with the engineers who are able to solve complex problems and achieve goals. Each of us may ask the question: « What qualities must engineers have? »

To answer this question, the researchers analyzed the content of the professional activity of the modern engineer. In modern society, the engineering profession is not the only one of the most popular, but also is one of the most important according to the degree of impact on society.

The scientific journal "Engineers: the establishment and development of a professional group," interprets the term "engineer" in different ways:

- Specialist having high technical education;
- A specialist who on the basis of theoretical considerations and material resources creates viable cost-effective facilities, a variety of products, projects;
- Specialist solving design problems, construction, operation, practical application of engineering and technology on a scientific basis.

There are three fundamentally distinct types of engineering. The first type is characterized by a focus on the creation and production of technical objects, based on the capabilities of technical knowledge. The second type is characterized by an increasing dependence on natural sciences and engineering: the results of the natural sciences increasingly depend on the devices used; the increasing

complexity of technical objects implies dependence of engineering knowledge from the natural sciences.

In modern naturalistic conditions, engineering and everyday components are closely linked. This has led to a fundamental change in the professional practice of people, which in the present moment of time is based on the techniques and technologies. The widespread introduction of high technologies in the industry, specific solved in their engineering problems that are at the crossroads of several technical sciences, requires a combination of solutions in their efforts of specialists in various fields, finally has led to the transformation of many engineering disciplines. For successful performance of these functions the modern engineer must possess not only the sum of general and specialized knowledge and skills, but also a complex of certain personality traits that ensure productive work in a team of diverse specialists. UNESCO, with the participation of such authoritative international organizations as the FEANI (Europe) and ABET (America), associations of engineering education and engineering companies, developed requirements for the engineer of our time, which include: high professional competence, commitment to continuous personal and professional development, development of intellectual potential; possession of simulation methods, forecasting, design and research methods necessary for the creation of new intellectual and mathematical values.

A high level of intelligence is an integral characteristic of knowledge workers. You will not find the developer with a low level of intelligence, it is mutually exclusive qualities. People of this profession should have a good understanding in the exact sciences, such as physics, mathematics, computer science, technical drawing. That is why a specialist must have a mathematical ability, propensity for technology and analytical thinking. Moreover, experts are fluent in modern means of communication, computer technology, the basics of economy, management and labor organizations. Research and development of new principles in work are an inherent part of the successful developer. So far as the

main task of the engineer – is the creation of new developments that will be required in various industries. It is a variety of drawings, diagrams, calculations which help to create projects and to solve production problems.

An important quality for an engineer today is the ability to be creative in solving work situations. Creativity and initiative of an engineer show his ability to learn independently, to find innovative solutions and to adapt quickly to changes in the modern economy. High qualified specialists are responsible for the fail-safe tasks. Thus, responsibility, attentiveness and accuracy are essential qualities for the engineers. They must treat their obligations attentively and watch carefully the effective completing of the job on time. Engineer must possess personal qualities such as: spatial imagination, perseverance, commitment. Consequently in modern conditions due to the formed market in the country at the first plan there is the problem of professional mobility. Therefore engineers are the specialist who not only have knowledge necessary for completing functions of engineer design, production, research and production management of operating but also who have communicative skills and foreign language skills. Engineering profile specialist should be oriented in a variety of communication situations, take into account the relationship with a partner, building a strategy to communicate with him adequately.

In our country, the profession of engineer is one of the most common: it represents more than a third of specialists with higher education. It is no mere chance, because the engineer is a specialist who has a high level of culture, who is familiar with modern equipment and technology, economy, organization of production. The engineering activity is to solve the problems arising in production and it consists of actions and interactions of experts. Specificity of engineering activity consists in the fact that on the one hand it is a subject-practical, on the other, it has a social character due to the development of industrial relations in society and subjective reflection of these relations by a person. The efficiency and

effectiveness of these activities depend on the degree of development of professional competence.

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