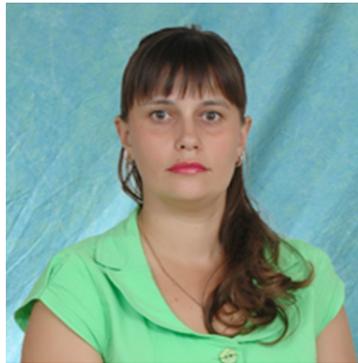


## Modern approaches in the study of engineering students



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### Abstract

The article defines that the usage of ICT nowadays during the study of professionally directed subjects by engineering students is relevant. Urgent task is training of future engineers with constructive, research approach to performance of the professional duties capable independently to develop engineering designs, to fulfill control at the high level. It allowed to define modern approaches to training of students of engineering specialties.

Keywords: MODERN ENGINEER, INFORMATIVE ACTIVITY, MOTIVATION, PROFESSIONAL ORIENTATION

Modern engineer is an expert who on the basis of combination of applied scientific knowledge, mathematics and inventions finds new modes of solution of technical problems [6, 7, 8]. ICT training at higher engineering school have to be directed on training of specialist with high level of professional competence, occupational mobility and ability to train during all life [4, 5]. The use of ICT is espe-

cially actual when studying of the professional directed disciplines by students of engineering specialties. An urgent task is training of future engineers with constructive, research approach to performance of the professional duties capable independently to develop engineering designs, to exercise control at the high level. It gives the chance to define the following approaches to training of students of engineering spe-

cialties: formation of motivation and activization of cognitive activity in educational process; professional orientation of educational process.

### 1. Formation of motivation and activization of cognitive activity in educational process

Motivation is the general name of process of inspiration of students for productive educational activity, for active assimilation of the content of training. The motivation as the impulse causing activity of the personality is especially necessary in the course of training. The motivation is the main means increasing the level of interest of students to educational activity. It is possible and necessary to control motivational processes in training of students: to create conditions for development of internal motives, to stimulate students.

In «The Russian pedagogical encyclopedia» activity of the personality is considered as the pragmatist relation to the world, ability of the person to make socially significant transformations of the material and mental environment on the basis of development of socio-historical experience [3]. Creative activity, strong-willed actions, communication are the modes of manifestation of activity. Concerning knowledge, activity is expressed as the presence of cognitive interests, mastering skills of obtaining data and their operation, formation of self-control of behavior. G. I. Schukina [1, p. 67] characterizes cognitive activity as integration of a search orientation in training, cognitive interest and its serving by means of various sources of knowledge, favorable conditions for activity.

In the course of training the motivation and activization of cognitive activity are especially important in the professional directed disciplines, because they demand special forms of the organization of educational activity and methods of training, takeoff of training material taking into account educational and professional interests of students.

### 2. Professional orientation of educational process

Achievement of steady cognitive interest requires professional focus of training of fundamental and special disciplines on formation of the competent expert. Professional competence is a sign of the real expert. Such organization of educational process is the training purpose at higher education institution, it provides transformation of one activity (educational) into another one (professional) with change of the purpose, motives, means, subject and results. The former student solves the problems arising in real situations of professional activity using the knowledge, skills, professional and life experience. This means that knowledge, abilities, skills, personal professional

qualities characterizing the readiness for professional activity enter the content of professional competence. Therefore the problem of improvement of quality of training of the expert in modern conditions is solved by introduction of a competence-based paradigm into engineering education.

The ICT give the opportunity of modeling of practical activities of future expert, promote formation of skills of adoption of optimum decisions in quickly changing conditions. In the research let us understand complex processes of acquirement of professional skills and abilities, formation of the steady positive relation to the future profession, process of entry of students into a circle of new daily duties, self-affirmation in the collective, active adaptation to new forms and methods of training, to working conditions, life, existing at higher education institutions, rise and deepening of interest in the specialty and perception of necessity of professional self-education as professional direction [2].

### Conclusions

There were defined modern approaches to training of students of engineering specialties: formation of motivation and activation of cognitive activity in educational process and professional direction of educational process

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## Learning Tree Network Based on Mutual Information

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