

Thus, for the formation of key competencies we need modern methods and techniques of the organization the educational process. Including the lessons job competence-oriented nature of the job, involving a student's ability to be creative activities, we form the competences of the younger students. Pupils increase creative activity, internal motivation, intellectual development, level of independence, the cohesion of the team, all this can improve the efficiency, quality training and education of the younger students. Work with the use of new forms and methods, which aimed at forming key competences of pupils, allows the teachers to improve and increase their competence.

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ABOUT INFLUENCE OF GEOLOGICAL FACTORS ON HEALTH OF SCHOOLCHILDREN AND HEALTH-SAVING TECHNOLOGIES

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Formation of different geo-ecological situations as a result of action of geological processes and technogenic factors happens in the urbanized territories in the cities where lives the main population [1-4]. Complex influence of geodynamic active zones and geochemical anomalies on environment and incidence (especially – children of primary school age) is established in the territory of the city of Perm by the medico-geoecological analysis. Integrated geodynamic active area (high density of tectonic lineaments) and geochemical anomaly (Pb, Ni, Zn, Mn, Cr – in soil, groundwater, snow cover, bioenvironment children) placed in the center of the Industrial District. The school building is located within this zone has experienced subsidence, cracks on the walls; local

geopathic plots (biological discomfort zones) were marked inside the building. It was important to establish the most adverse health abnormal points and avoid being in their children for a long time.

The Program «Healthy Kids» was designed (teacher T.A. Kopylova and author) to positive change in the school environment through a special system of measures. The main goal of the program – the creation of the educational process of primary school (grades 1-4) conditions for the preservation and strengthening of the physical, mental, and spiritual health of children, prevention of disease and the acquisition of skills for a healthy lifestyle conducive to the formation of children attitude to their own health. New technologies aimed at improving the health of schoolchildren have been developed. The program includes four areas: 1) building and maintaining emotional state (through success), 2) the inclusion of health-saving technologies in the educational process, and 3) vitageny training (accumulation of life experience) and 4) work with parents to ensure the continued health of children. Positive experience of the program for 12 years on the examples of three entire issues of primary school was obtained. Physical and mental health of all children in the period of study has not deteriorated, the momentum of improvement in visual acuity and posture, as well as resistance to various diseases has been established.

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PRACTICAL ASPECTS OF COMPETENCE-BASED TEACHING APPROACH REALIZATION IN HIGHER EDUCATIONAL ESTABLISHMENTS

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This paper presents the analysis of the competence-based teaching approach to scientific cycle disciplines, as well as methodology of competences forming.

Basic idea of the Bologna process is a competence-based teaching approach. Transition to this type of educational process due to controversial concepts and ambiguous categories of competences requires systematization [1]. European project "Tuning Educational Structures" (TUNING) offered 30 competences in three categories: instrumental, interpersonal and systemic [2]. The structure of the competences is complemented with one more component, which is general scientific competence, in the programs developed by the federal component of the natural and scientific cycle for the State Educational Standards (SES) of the third generation [3]:

1. General scientific competences:

- ability to scientifically analyse problems, processes and phenomena, ability to use basic knowledge and research methods in practice;
- ability to acquire new knowledge, including the use of modern educational and information technologies;
- ability to use the knowledge of the modern physical world view and evolution of the Universe, space and time patterns, structure of matter in order to understand processes and phenomena of the nature;
- understanding the role of physical laws for the environmental protection, environmental management, development and preservation of the civilization.

2. Instrumental competences:

- ability to apply the knowledge about objects and phenomena in practice, including making hypotheses, theoretical models, analysing the limits of their applicability;
- ability to use the fundamental physical theories knowledge to solve emerging fundamental and practical problems, self-learning;
- readiness to apply analytical and numerical methods of problems solving using programming languages and systems, computer modelling tools.

3. Social, individual and general cultural competences:

- mathematical and scientific literacy as a part of professional and human culture;
- ability to prove allegations, as well as performance of other cognitive and communicative functions;
- ability to define and realize perspective directions of intellectual, cultural, moral, physical and professional self-development and self-improvement;
- persistence in achievement of purposes, endurance, ability to critically reconsider the accumulated experience, if necessary to modify their professional activity profile;
- ability to comply with ethical and legal standards, tolerance, social adaptability, ability to work in teams, manage people and to obey management instructions;

- possession of socially significant ideas about healthy life style, ability to written and oral communication in the mother tongue, knowledge of a foreign language.

4. Professional competences:

- to understand the difference between empirical and theoretical methods of investigation of processes and phenomena, necessity to verify theoretical conclusions, analysis of their application field;
- to show the ability to abstract thinking, to manifest and develop intuition;
- to have the ability to read and analyse educational and scientific literature, including the one in foreign language;
- ability to make representations, provide evidence, issues, research findings clearly and accurately using terms understandable to the professional audience both in written and oral form.

Teaching techniques enabling formation of a specialist's professional competence are not revolutionary. Some techniques have existed for a long time and are widely recognized in pedagogy and teaching methodology of academic disciplines. But nowadays the approach to the well-known techniques is different, it requires a new combination of them, optimization with the purpose of their use (i.e. development and forming specific competences, and even better - the integrated competence, as they are difficult, and perhaps unnecessary to differentiate). Analysing the contents of the competences as a set of skills, we can draw a conclusion that the new term "building competences" reflects the eternal and the old: education is knowledge plus upbringing. Another question is: what kind of upbringing? But any kind of upbringing is important, which means that "building competences" should be carried out not only during the student's study period, but much earlier, i.e. during their school or even pre-school period. Methods and techniques of building competences vary depending on the stage of learning and goals in life. It is widely known that results of the Unified State Exam, at best, only show "knowledge" component, while a considerable set of abilities required from university applicants is not determined. Good results at Unified State Exam allow to enter a higher educational establishment, but not always allow to study there successfully. "Concepts of modern natural science" course like no other subject, having certain structure and teaching technique, is a course which allows to develop both a number of skills among junior students, increasing the overall level of their spiritual education, and background knowledge, that constitute intellectual integrity of the person gaining higher education. "Concepts of modern natural science" course cannot be turned into a list of encyclopaedic information on the subjects of natural and scientific cycle of school curriculum. This course should be built with the idea of a systematic transdisciplinary approach, finding similarities in different [4-5].

The systematic approach is one of the most important ways to address methodological and theoretical teaching ways. The systematic approach should penetrate deep into the sense of pedagogical events. The main advantages of this approach in the field of pedagogical events are in the fact that due to them new problems, new challenges, search directions are born to improve the quality of teaching. The authors have developed a methodological handbook with the program of "Concepts of modern natural science" course and teaching methods which comprises two cycles:

I Cycle - lectures, reflecting a new concept of evolutionary development of any systems including the achievements of modern science, highlighting universal, fundamental laws of their development. These laws operate and manage the processes in physical, biological, chemical, economic and other complex systems. The complex systems being various according to their nature, consisting of a large number of interacting subsystems, are capable of self-organization (synergetic processes) and evolving under certain conditions.

II Cycle - seminars held in the form of a conference after the full course of lectures. Prior to the conferences, each student hands in the report on 25-35 pages, designed according to all contemporary requirements for publication: 1) title page; 2) abstract at least in two languages (Russian and English, or Russian and German are compulsory); 3) contents of the report; 4) introduction where it is necessary to present the connection between the topic being studied and the theory of the chosen system evolution; 5) contents of the chapters with illustrations; 6) conclusion; 7) references; 8) tests on the report topic designed by the author; 9) glossary of terms used in the report.

At the conferences students make presentations on the topic of their reports, using various means of illustrations: mathematical conclusions, drawings, diagrams and flow charts, both on the board and using modern means for presentations, colourful posters, and even movies. Much attention is attracted by the reports presented in the form of a dialogue in the problematic style with co-authors of the report. The reports made in foreign language are of great interest too. The translation shall be distributed beforehand or read aloud by a co-author during the presentation. Such form of seminars encourages students' mental activity and develops competences in all four directions.

The exclusion of "Concepts of modern natural science" course out of the Bachelor's degree curriculum in specialty "Mathematics" with the supposed reference to the presence of a natural and scientific discipline component within the course "Theoretical Mechanics" is unjustified. Knowledge of the world cannot be limited by the same kind of matter – "substance". Mechanics does not deal with "substance-field". Modern civilization development is based on use of the field form of sub-

stance: electromagnetic field, gravitational field. All forms and types of information links on the Earth and in the Space are based on the latest information and innovative technologies that will evolve and grow. Modern biotechnology is being created at the intersection of sciences. Energy technologies require different specialists having high mathematical literacy, and mathematicians in their turn are required to have knowledge about processes of nature. The exclusion of "Concepts of modern natural science" course from the curriculum may result in the increasing the gap between knowledge itself and its application. "Concepts of modern natural science" course improves the quality of educational technologies, and as a result, increases the level of mastering cognitive processes in all cognitive areas, including intellectual processes: algorithmic, heuristic, etc. In other words, the dynamics of interiorization increases, i.e. formation of mental actions and interior consciousness concept through a student's mastering of external links with objects and processes in technology and nature, forming competences in practice, that are necessary for a graduate in his practical activities.

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METHOD OF FORMING THE RECEPTION OF EDUCATIONAL ACTIVITIES OF STUDENTS

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Wielding methods of students of academic work depends on the methods used in the three levels of training. The first level corresponds to the explanatory and illustrative method of learning, a second - reproductive, finally, the third level corresponds to