



## A UNIFIED SCIENTIFIC AND METHODOLOGICAL APPROACH FOR INDEPENDENT WORK OF SAFETY DISCIPLINES

Khalilova R. Kh.

T.f.d., Prof, TSTU, Tashkent State Transport University

r-xalilova@mail.ru, +998946420525

Abduraimov S. B.

MD, TSTU, Tashkent State Transport University

markaev.botirovich@gmail.com, +998930028383

### Annotation

A unified scientific and methodological approach has been considered for independent work in the disciplines «Life safety» and «Ecology», which allows to obtain skills in investigating occupational accidents, organizing and eliminating the consequences of emergency situations and conducting environmental impact assessments.

The proposed teaching principle is included in the handbook «Ecology» and the training manual «Life Safety».

**Keywords:** life safety, occupational safety, environmental safety, emergency situation, independent work, scientific-methodical, teaching principle.

### Аннотация

Рассмотрен единый научно-методический подход к выполнению самостоятельных работ по дисциплинам «Безопасность жизнедеятельности» и «Экология», позволяющая получить навыки по расследованию несчастных случаев, организации и устранению последствий чрезвычайных ситуаций, проведению экологической экспертизы.

Предложенная педагогическая технология включена в учебник «Экология» и учебное пособие «Гражданская защита».

### Аннотация

«Хаёт хавфсизлиги» ва «Экология» фанлари бўйича мустақил ишларни амалга оширишда ягона илмий-услубий ёндашув кўриб чиқилди, бу жараён бахтсиз ҳодисаларни текшириш, фавқулодда вазиятларнинг оқибатларини бартараф этиш ҳамда экологик экспертиза ўтказиш кўникмаларини олишга имкон беради. Таклиф этилаётган ўқитиш услуги «Экология» дарслик ва «Фуқаро муҳофазаси» ўқув қўлламаларига киритилган.



**Ключивые слова:** безопасность жизнедеятельности, охрана труда, экологическая безопасность, чрезвычайная ситуация, самостоятельная работа, научно-методический, педагогическая технология.

**Калит сўзлар:** ҳаёт хавфсизлиги, меҳнатни муҳофаза қилиш, экологик хавфсизлик, фавқулодда вазият, мустақил иш, илмий-услубий, ўқитиш услуги.

## Introduction

The State program for the implementation of the Action Strategy of the Republic of Uzbekistan in the five priority areas of development includes a set of measures, including training of highly qualified personnel, ensuring the safety of objects of economic sectors [1].

Human beings play a special role in security. He is an object of protection, along with the natural environment and the social environment. People due to errors they make in the design, operation of machinery, psychophysiological state: fatigue, emotional instability, alcoholism, lack of stress resistance, etc. can be a source of dangers. Man, is a specialist who provides techno-sphere safety [2, 3].

Obtaining knowledge, skills and abilities on the organization and provision of safe working conditions, the system of prevention and elimination of emergency situations, to form an ecological worldview of future specialists are the main objectives of teaching in educational institutions disciplines "Life Safety" and "Ecology".

Along with classroom activities - lectures, practical classes and laboratory work, the curricula of the disciplines provide for extracurricular, independent education [4, 5, 6].

In order to improve the educational process, we have developed a unified scientific and methodological approach to the performance of independent works.

## Materials and methods

The objects of the study were the curriculum and programs of disciplines "Life Safety" and "Construction Ecology"\* direction of education 5340600 - Road Engineering (Railways) of Tashkent State Transport University.

## Results and Discussions

The curricula of the disciplines are interrelated. This can be seen in the example of the elimination of industrial dust in the workplace, in the area where people live during the production process and in the event of an emergency caused by a volley of dust emission, operated equipment.



If the dust is dispersed on the territory of the enterprise, then the working conditions worsen, labor productivity decreases and diseases of workers are possible. To eliminate the causes of dust formation and dispersion and thereby ensure healthy and safe working conditions for people in the work environment, it is necessary to solve problems related to the discipline of "Life Safety".

If the industrial dust "left" the territory of the enterprise and dispersed in the surrounding area, i.e. in the natural environment, then the issues of environmental quality are already within the competence of the discipline "Ecology"\*.

The state of the industrial and natural environment at the same time in emergency cases is the object of civil protection. For example, as a result of an accident, there was a volley release, and the dust dispersed on the territory of the enterprise and, adjacent to it, in an amount much higher than the normative. Then it is an emergency situation and it is necessary to carry out emergency and rescue work to ensure occupational, industrial and environmental safety.

Engineering and technical measures should be implemented to ensure sanitary and hygienic requirements for the air quality of the industrial environment and the surface layer of atmospheric air.

\* For the direction of railroad construction, the discipline "Ecology" is called "Construction Ecology", i.e., with emphasis on the direction of education.

The latter is achieved by improving production technology or installing special equipment to capture dust. Thanks to such measures, the production and environmental safety of the environment is ensured. And the correct operation of technological equipment will eliminate the causes of accidents. Training of personnel in the rules and technical requirements, is among the general tasks of the security disciplines "Life safety" and "Ecology".

The interrelation of disciplines served as the basis for the development of a unified scientific and methodological approach to the performance of independent works.

The objects of the study of independent works are enterprises of railway transport, sections of railroad track and area of residence of students.

When developing the topic: "Investigation of transport accidents" in accordance with the "Regulations on the investigation of accidents at work", each student at his discretion simulates an accident during the performance of any work, for example, unloading a car using a crane, displaying it graphically: the worker's workplace and the situation after his injury; states the rules and requirements for the safe conduct of this type of work; according to the "Regulations" student proposes the composition of the commission to investigate the accident; outlines the work of the commission to identify the cause of the



accident and fill "Act Form H-1"; calculates the economic damage from the accident; proposes measures to eliminate the causes of the accident.

Student independent work ends with the defense of the abstract "Investigation of an accident during the unloading of the car using a crane.

This individual work allows you to gain skills in investigating accidents.

Independent work on the topic "The environmental situation of my place of residence" allows the student to learn how to perform an environmental assessment.

The work includes the following: the student draws a diagram of the area adjacent to his house. The location of his house is taken as the center and graphically displays the surrounding area in the form of a circle with a radius of up to 3 km. In this circle, he schematically places objects, which are sources of pollution, in the form of rectangles. Then the student makes a qualitative analysis of certain sources of pollution, indicates what substances, i.e. environmental factors are formed during the work of these industries and how they affect components of the natural environment - soil, air, water, flora and fauna; from the identified data, in agreement with the teacher, selects one of the sources of pollution and according to the indicated factors of influence recommends measures for its elimination; in conclusion the student expresses his opinion about the environmental condition of his place of residence.

When performing independent work on the topic "Emergency situation on transport and organization of rescue work to eliminate it," the student also chooses an emergency situation, for example, the situation on the railway during an earthquake.

Then performs the work according to the following plan: draws a situational diagram on the railroad at the time of the natural phenomenon, shows in the diagram the damage caused to the track structure, cars, roadside infrastructure; gives general information about the natural phenomenon in question, i.e. earthquake; based on relevant data, explains what could be the consequences; recommends emergency rescue work to eliminate the effects of the earthquake on the railroad section when a passenger train is moving.

The student completes his independent work by defending an essay on the topic: "Elimination of the consequences of earthquakes on the railroad section of the movement of passenger trains.

## Conclusions and suggestions

A unified scientific and methodological approach to the performance of independent works on the subjects of "Life Safety" and "Ecology" forms the students, future production specialists the ability to graphically display the situation, to obtain knowledge of the correct action in this situation, to identify the causes and factors of



exposure, to obtain skills in developing measures to address them and link this with the economic costs.

The proposed pedagogical technology of independent work allows you to assimilate the lecture material, to be creative in the developed topic, to obtain the appropriate skills to solve practical problems in the industries, to bring students closer to the practical work in the workplace.

The proposed technology is included in the textbook "Ecology" and the textbook "Civil Protection" and programs of security disciplines [7, 8].

The executed work is one of measures on execution of the Decree of the President of the Republic of Uzbekistan from April 20, 2017 № PP-2909 "ABOUT measures on the further development of higher education system" regarding creation of educational literature of new generation.

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FULL NAME. RAKHIMA KHAMITOVNA KHALILOVA

Position, scientific degree, scientific title, name of the organization.

Professor, Department of Engineering Communications and Systems, Doctor of Technical Sciences, Tashkent State Transport University

FULL NAME. ABDURAIMOV SARVAR BOTIROVICH

Position, scientific degree, scientific title, name of the organization.

Master of Science in the Department of Engineering Communications and Systems, Tashkent State Transport University

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Phone: +998946420525; +998930028383

E-mail: r-xalilova@mail.ru, markaev.botirovich@gmail.com,

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