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Section 16

Physical and mathematical principles of technological processes

Секція 16

Фізико-математичні основи технологічних процесів

16.1.

Physics and occupational safety

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Фізика та професійна безпека

Analysis of injuries among students and employees of educational institutions

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Introduction. The purpose of studying injuries in the field of education is to determine the patterns of accident occurrence, develop measures for their prevention, and promote the prophylaxis of injuries, which necessitates a systematic analysis and generalization of the causes of such incidents.

Materials and methods. The study was conducted using the method of statistical analysis of accidents that occurred in the field of education during the period from 2019 to 2024.

Results and discussion. Nearly 25.6 thousand state and communal educational institutions fall under the management of the Ministry of Education and Science, serving over 6 million students and employing 1.014 million staff members (Letter of the MES "On the state of injuries among students and employees of educational institutions for 2024"). Official data provided by the State Statistics Service of Ukraine regarding the level of occupational injuries indicate that 834 employees in the education sector sustained injuries between 2019 and 2024, 48 of which were fatal (Statistical bulletin: Occupational injuries in Ukraine in 2019-2024).

An analysis of the distribution of accidents by main causes, types of activities, and professional groups was carried out. It was established that organizational factors lead to 60% of injuries among participants in the educational process. The primary cause of injuries among employees is identified as deficiencies and omissions in the organization of occupational safety, as well as the neglect of personal safety.

It has been proven that in 82.5% of cases, the cause of injury is the behavior of the student themselves, while only 17.5% of cases result from a hazardous situational environment.

Cases of non-occupational injuries among participants in the educational process that occurred in everyday life were also analyzed. According to statistical data on non-occupational (domestic) injuries between 2019 and 2024, 2,677 participants in the educational process died, including 111 individuals in the higher education sector: 34 in 2019, 16 in 2020, 27 in 2021, 27 in 2022, 7 in 2023, and 22 in 2024.

According to the analysis of non-occupational fatal injuries in 2024, transport accidents rank first in prevalence (22.05%), in second place accidental drowning and submersion in water (19.42%), in third place – consequences of external causes of morbidity and mortality (13.65%), and in fourth place – intentional self-harm (11.29%). It is noted that the scale, damage, and complexity of resolving issues related to non-occupational fatal injuries make it a socially dangerous phenomenon. This requires a systemic approach to the prevention of domestic injuries at all levels, awareness of the priority of protecting life and health over other interests, strengthening control over the implementation of injury prevention measures, and planning fire safety measures.

Conclusion. Thus, a statistical analysis of injuries among participants in the educational process and employees of state and communal educational institutions, enterprises, and organizations under the management of the Ministry of Education and Science was conducted for the period from 2019 to 2024. It is recommended to use these research results during occupational health and safety briefings for both employees and students.