

заготовку грибов, сушку и их хранение, измельчение, экстракцию, отделение жидкой фракции, смешивание компонентов.

Ключевые слова: *грибы, измельчения, экстракция, микобиопрепарат, защита растений, хитин, глюканы, биофунгицид, биологическая эффективность*

Annotation. *Bases of developed technology of production of mikobiopreparat, are expounded from the fruit bodies of mushrooms (Fomes fomentarius (L. Fr.), Gill.). The developed technology includes the purveyance of mushrooms, drying and their storage, growing, extraction, separation of liquid faction, mixing of components.*

Key words: *mushrooms, growings, extraction, mikobiopreparat, defence of plants, chitin, glukans, biofungicide, biological efficiency shallow*

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ORGANIZATION OF INDEPENDENT AND EXTRAMURAL STUDY OF UNIVERSITY STUDENTS WHILE STUDYING "OCCUPATIONAL HEALTH AND SAFETY" SUBJECTS

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Annotation. *Organization of independent study of University students consisting of "Occupational Health and Safety" subjects is characterized by certain features due to the need to motivate students in order to shape OHS overlook. In addition to traditional forms, that kind of independent study should provide training to participate in business games; analysis of work situations, in particular the development of workplace passports; presentation of scientific research findings in order to attend the conference.*

Key words: *"Occupational Health and Safety" Course Unit, students independent study, shaping OHS overlook*

Introduction. Now, referring to the Bologna Declaration and the Regulations "On organization of educational process in higher educational institutions", approved by the Ministry of Education of Ukraine from 02.06.1993 g. № 161, Higher Education Institutions (HEIs) are paying great attention to the implementation of different types of

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independent study in the learning processes. Independent study is viewed as an important instrument of learning outside the classroom studies. It is found that when students work on their own tasks, ranging from awareness of the problem to the analysis of the results, the rate of assimilation of useful information close to 90% [1].

"Occupational Health and Safety" course units are focused not only on familiarization of students with scientific and practical bases of these subjects, but also on their acquisition of a high level of knowledge and skills concerning Occupational Health and Safety. This can be achieved by forming student's personality who will ensure compliance with occupational health and safety standards, guided by current legal documents, and understanding how to develop and implement them. We can prepare a student for such activities by carrying-out of his independent study. This will allow him develop the qualities of independent acquisition of new knowledge. And it is very essential for health and safety occupation, where legal and regulatory framework has changed significantly from year to year. Efficiently organized and systematic independent study during OHS subjects should become a basis and be one of the determining factors of forming identity of a modern agro-industry manager.

The main tasks of students' independent study concerning health and safety subjects are: to teach students to work independently with current legal documents; to form students' skills in finding OHS information in various documents and analysis; to show students the need to make real efforts towards understanding of OHS documents often used dry and formalized language without adequate explanation.

Outcome of recent research. Independent study as an important component of the educational process includes a combination of different types of individual and collective training in the classroom and outside of studies, without a teacher and under his guidance [2]. Now, at universities, independent study broadly covers review of classroom training steps: the gradual mastering of new material, its consolidation, the practical application, etc. [3]. The effectiveness of independent study depends on its organization, content, interaction and the nature of tasks, task results [4].

Business activity of a modern employer is characterized by the capacity to independently get all relevant information, quickly navigate in abnormal situations, and constantly improve his professional growth [1]. For that reason, university studies will not comply with modern requirements, if no attention is paid to mastering basic skills of information-retrieval system. Practice of production shows that only the knowledge the student independently obtained, through his own experience, searching and understanding, becomes his heritage [5].

The tasks of students independent study of OHS subjects – to broaden and consolidate their theoretical knowledge, intensify students creativity, develop skills of working with legal and normative acts and with reference books, learn how to make OHS decisions in project documents on their own, to gain experience in respect of engineering calculations based on OHS documents (in future they will be used in the graduation project, as well as in engineering degree field), to prepare for individual planning for creating safe and healthy working conditions in all industries [6–8].

Research objective – to identify modern approaches to the organization of independent study of students attending "Occupational Health and Safety" subjects and provide recommendations to prepare students for performing various tasks of OHS subjects.

Research findings. The nature of most business games, as well as practical laboratory works in " Basics of Occupationa Health and Safety at work", "Occupational Health and Safety in the industry", "Industrial hygiene", "Production Processes Safety" and others can be regarded as an inquiry-based learning, so students have to prepare before conducting business games. To start them a student has to produce a theoretical framework, issued for self-learning purposes, study the appropriate sections of the recommended literature, review OHS legal and normative acts.

For good performance of students` independent study, an instructor must ensure certain creteria:

- maintain a balance of classroom and independent studies;
- support a methodically well-structured study in the classroom and outside of studies; provide students with the necessary teaching materials, which involve certain independent study. Independent study procedure includes imaginative and analytical touches;
- monitoring the study performance and its results in order to encourage students to execute their work of high quality etc.

Special attention shall be paid to a courseware availability for students independent study through the use of information technologies. In particular, the use of existing OHS computer resources can be proposed so as to achieve the maximum possible benefits. The development of computerized work places of OHS engineer is now very relevant, where, besides reference materials they need to place educational OHS materials, taking into account pedagogical and didactic requirements.

Students independent study of OHS subjects may include: the preparation of scientific papers, settlement operations etc, training for participation in a business game; analysis of work situations where there are violations of OHS guidelines; presentation of the results of performed

scientific research in order to participate in the scientific conferences and seminars; training for participation in academic competitions etc.

It was extremely necessary to develop and implement the Model Curricula of basic OHS subjects, and after all it became a powerful instrument for keeping the content teaching of these subjects at an adequate level, optimal distribution ratio of lectures, laboratory and practical studies. So, it has tasked universities to add OHS sections to graduate work (projects). However, these programs pay little attention to the performance of independent study and industry internship.

As an example of independent study, students may be offered to develop documents covering OHS issues within a company: instructions, briefing texts, lists, letters, reports etc. In this regard, students need to provide standard forms of documents in computer form. It typifies a work-site arrangement of an OHS specialist, PC-based and with the appropriate documentary filling.

Future in terms of Occupational Health and Safety – operational accounting and rapid finding of OHS information, so the work of OHS specialist without a PC is now perceived as archaism. Upgrading of OHS outlook on an information computer platform should be the basis of students independent study.

Students OHS independent study should include: information visualization (methodological guidelines for independent study, OHS document sheets document, viewing presentations and educational films, etc.), interactivity (preparation for business games, performance of test tasks regarded to analysis of the actions of officials and employees in case of problematic situations at an enterprise). This structure would enhance the efficiency of students OHS independent study.

For example, in preparation for a business game "Fire safety inspection at the enterprise" students should familiarize themselves with the list of OHS documents, which should be developed and implemented at the enterprise. The aim of the game is to acquire business skills in informed decision-making to improve industrial fire safety. The task of the game is to simulate the elements of industrial activity of fire safety officers and company officials. Students, as members of the business game should simulate the functional responsibilities of company officials within the subordination of safety management system (SMS) and prepare lists of all necessary fire safety documents.

Fig. 1 shows an example of a test job for students` independent study on "Occupational Health and Safety in the industry." They need to arrange OHS specialist's activity in the correct order in case of work place certification under working conditions (certain items in the above list of actions are specifically written incorrect).

*A test job for students` independent work on
"Occupational Health and Safety in the industry."
Arrange OHS specialist's activity in the correct order in case of work place
certification under working conditions*

1. Work out an agreement with the regional sanitary-epidemiological station on instrumental surveying of working environment.
2. Determine whether the regional sanitary-epidemiological station is licensed by the Ministry of Health of Ukraine for the work place certification under working conditions
3. Submit a list of members of the Commission for approval to the Head of the company for the work place certification under working conditions
4. Fill worksheets of working environment (sanitary condition of workplaces), where the certification was held.
5. Make a list of workplaces where the work place certification must be held.
6. Verify the regional sanitary-epidemiological station for availability of current certificate of devices used for measuring working environment.
7. Write out standart (permissible, optimal) values of working environment from OHS documents (reference books), where the work place certification will be held.
8. Obtain approval of the list of members of the Commission from an Inspector of The State Service of Mining Supervision and Industrial Safety.
9. Establish benefits and workers`compensation on the results of the certification for those who work in hazardous or arduous conditions.
10. Organize Equipment Location Plan, where the work place certification will be held.
11. Make a list of workplaces, processes, professions and positions with poor working environment
12. Clarify existing benefits, make proposals for setting new benefits and compensation depending on working environment, determine expenditure budget for these items
13. Demarcate workplaces (workspaces) where the work place certification will be held.
14. Elaborate measures to improve working environment.

Fig. 1. Test job for students independent study on "Occupational Health and Safety in the industry."

To perform the test task, students have to draw up a text NPAOP 0.00-6.23-92 "On the procedure of workplace certification under working conditions" on their own and develop an algorithm of procedure of workplace certification on working conditions listing the duties of officials.

Study of health and safety matters during their internships should be considered as performance of students independent study led by both with or without teacher. Before sent to a training place, students should be oriented towards identification of harmful and hazardous occupational factors at work and developing measures to prevent dangers and harmful factors. These questions should be issued as a separate paragraph in the implementation report of practical training.

As an example of independent study, students may be offered to develop workplace passports in training places in training and research farms (TRF) of Agricultural Universities. Such passports can serve as a cautionary tale concerning students' participation in the production process where there are uneliminated dangers. A passport excerpt for one of the most common training places in training and research farms (TRF) of Agricultural University is shown in Fig. 2.

<p><i>A Passport of OHS requirements at training workplaces in TRF of Agricultural University</i></p> <p><u>Workplace of Internship:</u> <i>Machine and Tractor Park</i></p> <p><u>Brief description of the performed work:</u> <i>Setting up and control of farm equipment.</i></p> <p><u>Potential dangerous production factors:</u> <i>moving machines; unhedged rotating (moving) parts of agricultural machinery; sharp tools and sharp edges of machine parts; work at height (1.3 meters above the work platform).</i></p> <p><u>Potential harmful production factors:</u> <i>fuels, lubricating oils, oil, deposited directly on unprotected body parts; adverse weather conditions or solar radiation when working outdoor; dirt and dust on machine parts; noise and vibration while the machine is running; the need to lift and carry heavy objects.</i></p> <p><u>The list of activities necessary to eliminate the existing (potential) dangers:</u> <i>Provide students with special clothes, gloves and (if necessary) personal protective equipment; do not exceed the norms of lifting and carrying loads by students; restrict work deadlines under adverse weather conditions; avoid start work if dust and hazardous materials are in the breathing zone of workers (if the concentrations are exceeded MPCs (maximum permissible concentrations)); don't allow students to stay in the danger zone near agricultural units, that move during launch operations; adjustment and repair work is necessary to be performed after aggregate has been switched off and after tractor`s pto disconnection.</i></p>

Fig. 2. Passport of student's workplace in TRF of Agricultural University.

Passports should be approved by the responsible person of TRF and Agricultural Faculty Internship Supervisor in order to ensure the health and safety in the training place.

Conclusions. Organization of independent study of university students consisting of "Occupational Health and Safety" subjects is characterized by certain features due to the need to motivate students in order to shape OHS overlook. In addition to traditional forms, that kind of independent study should provide training to participate in business

games; analysis of work situations, in particular the development of workplace passports; presentation of scientific research finding in order to attend the conference.

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Анотація. *Організація самостійної роботи студентів вnz, що вивчають "охорону праці та безпеку життєдіяльності", як суб'єктів характеризується певними особливостями у зв'язку з необхідністю мотивувати студентів для того, щоб сформувати належні навички і вміння. На додаток до традиційних форм запропоновано вид самостійного вивчення, який повинен забезпечити підготовку для участі в ділових іграх через аналіз виробничих ситуацій, зокрема, розвиток паспортів робочих місць, презентацію наукових досліджень для того, щоб взяти участь у конференціях.*

Ключові слова: *"Охорона праці та безпеки життєдіяльності", блок курс, незалежне навчання студентів, формування навичок і вмінь*

Аннотация. Организация самостоятельной работы студентов вузов, изучающих "охрану труда и безопасность жизнедеятельности", как субъектов характеризуется определенными особенностями в связи с необходимостью мотивировать студентов для того, чтобы сформировать соответствующие навыки и умения. В дополнение к традиционным формам предложено вид самостоятельного изучения, который должен обеспечить подготовку для участия в деловых играх через анализ производственных ситуаций, в частности, развитие паспортов рабочих мест, презентацию научных исследований для того, чтобы принять участие в конференциях.

Ключевые слова: "Охрана труда и безопасности жизнедеятельности", блок курс, независимое обучение студентов, формирование навыков и умений

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АКТИВІЗАЦІЯ ПІЗНАВАЛЬНОЇ ДІЯЛЬНОСТІ СТУДЕНТІВ В УМОВАХ ПРАКТИЧНОЇ ПІДГОТОВКИ

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Анотація. В статті розглядаються проблеми навчального процесу аграрного вишу, що пов'язані з неоднаковою готовністю студентів до вивчення предмету "Сільськогосподарські машини та їх використання". Запропоновані дійові шляхи їх вирішення за рахунок диференціації підходів в управлінні пізнавальною діяльністю студентів.

Ключові слова: пізнавальна діяльність, сприймання, вправи, мотив, понятійно-логічна сфера мислення, образна сфера мислення, емоційна сфера мислення, практичні завдання

Постановка проблеми. Успіх соціально-економічного розвитку країни в умовах ринкової економіки значною мірою забезпечується рівнем професійної і загальної підготовки випускників вищих навчальних закладів. Підготовка сучасних фахівців аграрного сектору повинна орієнтуватися на формування кваліфікованих ефективних господарів землі, які мають необхідний запас фахових

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