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Substantiation of the practical training content for students ecologists preparation in Ukraine

Statement of the problem. The main focus of environmental education is given to the preparation of highly competitive and competitive graduates in the professional environment, the achievement is not possible without effective practical training in the educational training of students. Practical training increases students' capacity for complex problem solving under uncertainty, which is essential for the development of research capacity in environmental sciences.

Analysis of recent research and publications.

Issues of theory, methodology, organization and content of practical agricultural training have been highlighted in the scientific research of K. Ivanovych, Z. Reshetova, E. Korushkin, L. Ostrovskyy, P. Karavayev, P. Luzan, T. Ishchenko, and others. Practical training environmentalists do practical training, development teaching software I. Bendera, G. Bilyavskyy, V. Bogoliubov, B. Borysiuk, R. Burda, I. Gudkov, M. Klymenko, V. Kopilevych, M. Ladyka, S. Pavluk, Y. Pylypenko, N. Ridey, M. Slobodeniuk, B. Chaika, B. Yakubenko and others [Рідей 2011].

Analysis of the psychological and educational literature of the problem shows that the practical training of students ecologists, nowadays, did not get the full scientific highlight, was not the subject of special research in various aspects. That is way, practical training in the structure of practical training for ecologists is important.

Goals and objectives of the article. The purpose of the article is to substantiate the content of educational practices. The task was to involve the figure forms, means and methods for the practical training, the basic task of teaching practices of general environmental and landscape-ecological directions.

The main material. The main purpose of practical training for students environmentalists are acquiring professional abilities and skills and training are able to solve manufacturing challenges in today's market conditions and have the methods and techniques that are part of the newest technologies.

Teaching practice of students environmentalists are divided into two areas: general environmental (first and second courses of study), including the practice in geology with the basics of geomorphology, biology I–III, meteorology and

climatology, soil science, general environmental, chemical analysis, hydrology, informatics and systemology, landscape and environmental (second and third courses of study) include practice in landscape ecology, topography with the basics of cartography, radiobiology and radiology, the foundations of agricultural ecology, ecology of agro-sphere. Content of educational practices determines the curriculum for students in the direction of 6.040106 „Ecology, Environmental Protection and Sustainable Use of Natural Resources”. The scope, structure and practices are set by reveals continuous program of practical training. 324 hours (9 credits) of the total number of hours of educational process are given on the practical training.

The practical training of students, direction 6.040106 „Ecology, Environmental Protection and Sustainable Use of Natural Resources” includes forming their knowledge about the task, structure and knowledge of science for sustainable development of agricultural sphere, especially the functioning of agro ecosystems and methods of management to ensure high performance, energy and economic efficiency and ecological balance in agricultural production. Be able to design measures to ensure landscapes environmental sustainability as a basis for sustainability of agro ecosystems, to conduct agro ecological analysis facilities of agricultural sphere, to make management decisions to improve agro ecological state of agro ecosystems to carry out environmental and agrochemical certification of land and determine the environmental risks of agricultural production.

Students of Ecology and Sustainable development faculty, National University of Life and Environmental Sciences of Ukraine (Kyiv) (NUBiP Ukraine) do their educational practices in subdivisions of NUBiP Ukraine „Muzychenko Velykosnitynske teaching and research farm” (Kyiv region., Fastiv district), „Agronomic Research Station” (Kyiv region. Vasylkivs district), „teaching and research farm Vorzel” (Kyiv region., Kyiv Sviatoshyno district), „Boyarka Forest Research Station” (Kyiv Sviatoshyno district), Kyiv territorial center (Kyiv) and other territorial objects of research. Organization and training practices are realized in accordance with the order of the rector of the university.

Students were united in groups of 8-10 persons for the effectiveness of educational practices. Purpose and object of ecological research were depended upon the division into groups. The main forms of practice were individual scientific and practical tasks (provided the scientific and practical work of individual character as a prediction model of environmental objects of agro sphere, Development Programme of the environment, the ecological state of the environment, strategies for planning environmentally oriented development), micro groups laboratory and practical (provided laboratory and practical work in the form of measurement, analysis, comparison of figures) and collective research (involving implementation of research with an environmental certification agro sphere areas, environmental assessment technologies of growing crops), by place – lab

(training, educational research and production, problem), field areas (accounting, temporary), research plots (collection and research areas, teaching and research land). Graphics (daily distribution charts of the radiation balance of water and land resources; table evaluation of indicators for agro sphere socioecological development, complex posters classification of plants, the structure of bacterial cells, tissues, bacteria), technical (GIS mapping and objects analysis of the environment, mathematical modeling and forecasting, prediction of the dynamics of geosystems), laboratory (lab equipment and inventory – pH meter, monomers, photometers, cameras for testing), laboratory glassware (crucibles, funnels, flasks, tubes; field facilities), teaching and methodological (textbooks, manuals, workshops on ecology, environment and sustainable natural resources, workbooks and journals from each practice) have been used among the means of practical training.

During the practical training of general environmental and landscape-ecological use Such methods of practical training, including problem-search (aimed at the development of autonomy, initiative, independence, include criteria for determining environmental assessment agro sphere areas, indices of species diversity), laboratory and practical (organization of practical work using laboratory equipment), research and experimental (predicted a teacher search task, project, which involved individualization), the method of scenarios (development scenario for solving environmental problems), situational methods (allowed to develop in students the ability to analyze a particular situation, consistently and purposefully to environmental research and solve situational problems) have been used during the practical training of general environmental and landscape-ecological directions.

Possible areas of students' research during the practical training: development of a rational system of eco toxicological, biological, radiological and socio-ecological environment monitoring local agro-ecosystems, the overall environmental impact assessment of agricultural objects within a specific area (region, area) and the formation of environmental situation, the use of methods of soil, plant diagnostics and quality control, forming a database of qualitative assessment agro sphere objects, forming concepts of farms subject to environmental, biological, radiological security of all technological processes based on modeling and forecasting of the environment.

Conducting work in mixed groups helps students acquire skills and habits of cooperation in a team to address issues related to environmental protection. They can use acquired skills when writing the final (qualifying) works by categories: agri-environmental assessment of land for crop production, environmental and agrochemical certification of agricultural land; agro ecological analysis of fertilization and plant protection in agriculture, ecological assessment of water sources, environmental study forecast pest of crops agro lands cape, environ-

mental impact assessment technology crop production, environmental assessment of soil degradation processes in agroecosystems of various types.

Conclusions. Practical training with theoretical forms is the leading part of all student vocational ecological education. Development of practical training should conduct in accordance with current requirements of the labor market and include: training content, principles, methods, forms and means of practical training. Methods, means and forms of practical training in the implementation of educational practices helped students to solve complex tasks systematically by combining various methods of ecological research, simulate and predict the behavior of ecosystems as a whole, correctly select the optimal and environmentally adopted strategy options and environmental protection, apply a systematic – structural approach to environmental research, and successfully combine educational, analytical and search, research and educational activities. Everything is very active and effective in the preparation of highly skilled modern ecologists, competitive on the labor market.

Literature

Рідей Н.М. (2011), *Ступенева підготовка майбутніх екологів: теорія і практика: Монографія* / за заг. ред. академіка Д.О. Мельничука. – Херсон: Видавництво Олдіплюс, 2-ге вид. перероблене і доповнене. – 650 с.

Abstract

The article shows the content of educational practices, the methods, forms and means of practical training, determines the main directions of students research in the structure of general environmental and landscape and environmental education practices.

Key words: Study, practical training, students.

Анотация

У статті показано, зміст освітніх практик, методів, форм і засобів практичного навчання, визначає основні напрями наукових досліджень студентів в структурі загальних екологічних та практики ландшафту і екологічної освіти.

Ключові слова: дослідження, практичних занять, студенти.

Uzasadnienie treści praktyk dla studentów ekologii kształcących się na Ukrainie

Streszczenie

W artykule przedstawiono treść praktyk edukacyjnych, metod, form i sposobów kształcenia praktycznego. Określono główne kierunki badań struktury ogólnej, przyrodniczej, krajobrazowej i ekologicznej treści studenckich praktyk edukacyjnych.

Słowa kluczowe: studia, kształcenie praktyczne, studenci.