

Зміст поняття «диференціал» і в фізиці і в математиці можна пояснити, спираючись на переклад слова «different» – різниця. У зв'язку з цим стає зрозумілим поняття «Різницева машина Чарлза Беббіджа», якщо взяти її англійський переклад – «Difference engine». Цей апарат був призначений «для автоматизації обчислень шляхом апроксимації функцій многочленами і обчислення скінченних різниць» [4], тобто для задач математичного аналізу (інтегралів і похідних).

Висновки:

1. Поєднання STEM-технологій з творчим підходом до вивчення іноземних мов, участь у міжнародних проектах – це шляхи до підвищення якості навчання і до активної інтеграції у європейський освітній простір.

Посилання

1. Проект «Наукові пікніки як засіб активізації пізнавальної діяльності в освітньому процесі. / С. О. Слабунов, О. В. Лико, Н. Б. Годована. // Матеріали ІХ Міжнародної конференції молодих вчених «Молоді вчені 2018 – від теорії до практики» – Дніпро, Україна. – 2018. – С. 288–290.
2. How it works or school laboratory from e-waste. / D. O. Korsakov, N. V. Hodovana, N. V. Slabunova. // Матеріали ІІ Міжнародної конференції «Інноваційні технології в науці та освіті. Європейський досвід» – Гельсінкі, Фінляндія. – 2018. – С. 124–127.
3. Фізична лабораторія з «електронного сміття». [Електронний ресурс] / Н. Б. Годована // Форум педагогічних ідей «Урок», каталог «Відкритий урок: розробки, технології, досвід». – 2016. – Режим доступу до ресурсу: http://osvita.ua/school/lessons_summary/physics/50237/.
4. Різницева_машина_Чарлза_Бebbіджа [Електронний ресурс] // Вікіпедія. – 2018. – Режим доступу до ресурсу: https://uk.wikipedia.org/wiki/Різницева_машина_Чарлза_Бebbіджа.

MECHANISMS OF INTERACTION OF VOCATIONAL (VOCATION-AND-TECHNICAL) TRAINING WITH EMPLOYERS

*Leading scientific worker, Ph.D. (Pedagogic), Assoc. Prof. L.M. Gren
National University of Civil Defense of Ukraine, Kharkiv, Ukraine*

The draft of the Cabinet of Ministers of Ukraine Decree “On approving the Standard regulation on the regional council of vocational (vocation-and-technical) education” published on April 17, 2019 on the site of the Ministry of science and education for public discussion is aimed at creating conditions to form efficient policies in the sphere of vocational (vocation-and-technical) education in the regions by means of coordination of the activities of local executive bodies, local self-governing bodies, enterprises, offices, and public organizations. The draft of the Decree fixates the status, forming procedure, and basic tasks that are delegated to

regional councils of vocational (vocation-and-technical) education, as well as their rights concerning forming and realization of regional policies in the sphere of vocational (vocation-and-technical) education. Realization of this draft Decree is expected to make a positive impact on development and modernizing of vocational (vocation-and-technical) education in regions on the principles of state-public partnership, accessibility, openness and transparency, orientation on needs and requirements of education aspirants and employers.

One of the main tasks of the Council is initiation of research of the state and tendencies in the regional labor market development; approval of planned indicators of need in qualified personnel in the regional labor market; development of proposals concerning formation of the regional order of training qualified workers and specialists; facilitating involvement of national and foreign investors, international projects for ensuring development of the regional vocational (vocation-and-technical) education; facilitating cooperation of the region's vocational (vocation-and-technical) training establishments with interested parties; facilitating adoption of the dual form of obtaining vocational (vocation-and-technical) education and training at workplace [4].

Besides, article 57 "Activities of trade associations, employers, their organizations and associations in the sphere of vocational (vocation-and-technical) education" of the draft of the Law of Ukraine "On vocational (vocation-and-technical) education" specifies the rights of trade associations, employers, their organizations and associations as to participation in realizing state policies in the sphere of vocational (vocation-and-technical) education; conducting of monitoring, analyzing and forecasting the needs in personnel possessing vocational (vocation-and-technical) education in the labor market; determining the volume and directions of vocational training in establishments of vocational (vocation-and-technical) education; creation and improvement of materiel-and-technical base of vocational (vocation-and-technical) education establishments, creating on their basis modern training-and-practical centers of industry branch specification, provision of financial aid to ensure operation and development of vocational (vocation-and-technical) education establishments; development of standards for vocational (vocation-and-technical) education; conducting evaluation of the vocational (vocation-and-technical) education establishments graduates' professional qualifications; maintaining public control on the quality of vocational (vocation-and-technical) education; provision of aspirants for vocational (vocation-and-technical) education with workplaces for production practice and production training; employment of vocational (vocation-and-technical) education establishments graduates; organization of training and qualification improvement for teaching staff of vocational (vocation-and-technical) education establishments [5].

Analysis of scientific research and publications on forming and development of social partnership in economically developed countries and its state in Ukraine is reflected in works of a number of Ukrainian and foreign researches like K. Guturiak, V. Zhukov, A. Kolot, V. Skurativskiy, S. Ukrainets, G. Osovyi, S. Bakumenko, A. Molchanova, et al. [1, p. 35]. The issue of social partnership interaction within the system of working, profile, and vocational training is the subject of considerable attention among researchers. Thus, in researches by V. Grygorieva [2], L. Sushentseva [6], O. Paschenko [4], ways of market labors and education services' interaction are

disclosed along with the ways of their realization in training process of vocation-and-technical training establishments on the basis of vocational education's content and renovation of vocational education's contents in accordance with employers' needs on the basis of interaction between vocational training establishments and enterprises and servicing sphere. In our previous publications, we viewed social partnership as one of aspects of state-social management of vocation-and-technical education [1].

We agree with the thought of L. Sushentsova that "at present, the issue of raising attractiveness of vocation-and-technical education system for potential investors and social partners and strengthening its ties with labor market gains topicality" [6, p. 271]. For satisfying needs of regional labor markets calls for a more flexible management structure of vocation-and-technical education, wherein the regional level is to be responsible for volumes and quality of working personnel training. This calls for reassignment of duties between the bodies controlling education and their partners: labor and social policy bodies, state employment service, industry branch offices at oblast state administrations, employers' associations, and trade unions. "The current need is formation of a new relationships system between vocational (vocation-and-technical) education establishments and general education schools and higher education institution; between vocational (vocation-and-technical) education establishments and enterprises, employers' associations, employment service, that is all who becomes not just a consumer of vocation-and-technical education system's "output", but also a source of its financial well-being" [6, p. 271].

According to the State employment center, employers prefer apprenticeship at workplace from types of vocational training. "This is about organizing on the basis of their own enterprise of apprenticeship for trained specialists of raising professional level of employees or future candidates for workplaces on the basis of training establishments of the state employment service". Scientists believe that employers are not prepared to assume the function of training employers according to their own requirements, shifting this task to the state of communal establishments [2].

Nevertheless, there exists a positive experience of active interaction between employers and higher technical education establishments. Thus, at the National technical university "Kharkiv polytechnic institute", there was opened the Career center in September 2018, the task of which is conducting Career Days, joint work with representatives of graduation departments on selecting vacancies for students, forming electronic database on employers data for a higher education establishment, cooperation with Kharkiv oblast employment center, organizing and conducting events to facilitate graduates' employment (meetings, presentations, "round tables", excursions to enterprises, organizations, companies, etc.). During the planned work period of the Career Center (spring semester of 2018 – 1019 academic year), students had a possibility to visit "AltBier" brewery, to meet the representatives of "Probka" brewery, representatives of "Procter&Gambel" company, representatives of "SunInBev" company, representatives of "Landstar Agent Ukraine" company. Students' meetings with these companies' management facilitated establishing cooperation: having apprenticeship practice and employment, conducting interviews, trainings, business games with the online testing winners; discussing possibilities for students' apprenticeship. The Career development center is planning not only

organizing the graduates' meetings with potential employers, but also training future specialists as to their independent job-hunting. Realization of this task supposes the following events: conducting trainings titled "Efficient employment", "Pre-diploma apprenticeship is ...", conducting trainings connected with development of graduates' career ("Individual job-hunting technologies", "Career growth development"), consulting students on issues of employment, CV writing, interviews, conducting of a "round table" titled "Graduates' employment in modern labor market". On the Career Center's results there is maintained monitoring of the NTU "KhPI" graduates' employment rates, creating the "Best 2019 Graduates" database. Of personal communication with the graduates who are going to have their first workplace on graduating from the education establishment at prestigious companies thanks to assistance from the Career Center, there were the following answers to the question, "Why it was they who were chosen for cooperation?": "A high index of professional knowledge", "Ability to work at a company", "Well-developed communicating skills", "Knowledge of the company's activities in the goods and services markets", "Ability to adapt to new requirements". So, one of the priority directions in professional education's development is provision of social partnership development, consolidation of efforts of central and local executive power bodies along with local self-governing bodies, training educating establishments, employers, scientists, and public associations in order to satisfy the labor market with qualified workers.

Conclusions:

1. Social partnership in vocational training sphere enables to delegate enterprises the responsibility for determining the need in qualified personnel; to strengthen ties of education establishments with labor markets through involving employers and other social partners in qualification requirements development, knowledge evaluation procedures, professional skills and abilities; strengthen the role of enterprise in obtaining by pupils and students the competencies that correspond to precise demands of the production.

2. There arises the problem of strengthening interaction between local executive power bodies and local self-governing bodies, social partners, employers and vocation-and-technical education institutions as to solving the problem of graduates' employment, their getting their first workplace, and further professional growth.

References

1. Gren L.N. Social partnership as one of aspects of the state vocation-and-technical training management / L.N. Gren // XXIst century Leaders: Forming a charismatic leader's personality on the basis of humanity technologies: Science-and-practical conference materials of the basis of humanitarian technology: Materials of science-and-practical conference of September 21 – 22, 2017 / gen. ed. by Romanovskiy O.G.: NTU "KhPI", 2017. – 156 p. – pp. 34 – 37.
2. Grygorieva V. Main scientific results in research of social partnership problem / V. Grygorieva // Modernizing of professional training and learning: problems, search, and perspectives: collection of scientific works. / editorial board: V.O. Radkevich (the head), et al. K.: IPTO NAPNU, 2012. – pp. 5 – 16. [online resource]. Access mode:

http://www.ipto.kiev.ua/files/zbirnik_naukovix_ptaz/modernizaciya/zbirnik_27_02_2012.pdf/.

3. Paschenko O.V. Search for interaction mechanisms between vocation-and-technical education establishments and employers at current labor market / O.V. Paschenko //Scientific notes [of Nizhyn state university after N.V. Gogol]. "Psychology-pedagogic sciences" series. – 2012. – No. 5. – pp. 66 – 69. Access mode: http://nbuv.gov.ua/UJRN/Nzspp_2012_5_14.
4. Draft of the Decree of the Cabinet of Ministers of Ukraine "On approving the Standard regulation on the regional council of vocational (vocation-and-technical) education". – 2019. – Access mode: <https://mon.gov.ua/ua/news/mon-proponuye-dlya-gromadskogo-obgovorennya-proekt-postanovi-kmu-pro-zatverdzhennya-tipovogo-polozhennya-pro-regionalnu-radu-profsijnoyi-osvitt>.
5. Draft of the Law of Ukraine "On vocational (vocation-and-technical) education". – 2018. – Access mode: <https://mon.org.ua/napogodjeni/6689-proekt-zakonu-pro-profesiynu-profesiyno-technichnu-osvitu.html>.
6. Sushentseva L.L. To the problem of social partnership within the system of working, profile, and vocational training / L.L. Sushentseva //Scientific almanac of NPU after M.P. Dragomanov. – 2015. – No. 51. – pp. 271 – 276.

ДЕЯКІ ПІДХОДИ ПРИ ВИКЛАДАННІ МАТЕМАТИЧНОГО АНАЛІЗУ СТУДЕНТАМ ІНЖЕНЕРНИХ СПЕЦІАЛЬНОСТЕЙ

Доц., канд.. фіз.-мат. наук О.Ю. Дюженкова

*Національний університет біоресурсів і природокористування
м. Київ, Україна*

Вивчення математичного аналізу (можливо, як розділу вищої математики) має не тільки загальноосвітнє значення, але й створює необхідну базу для професійної діяльності майбутніх фахівців. Очевидно, що специфіка цієї діяльності повинна впливати на зміст та методику викладання вказаного курсу. Підготовка студентів інженерних спеціальностей неможлива без глибокого розуміння теоретичного матеріалу, що сприяє вмінню аналізувати та досліджувати процеси в сучасному світі, використовувати математичні методи при розв'язуванні прикладних задач.

Викладаючи матеріал, слід дотримуватись принципів професійної спрямованості, науковості та доступності, що сприяє аргументації та якісному засвоєнню математичних понять.

Одним із основних розділів у курсі математичного аналізу є розділ «Диференціальне числення функцій однієї змінної». Поняття похідної дає широкі можливості для дослідження функцій, що описують різноманітні процеси повсякденного життя. Реалізувати вказані принципи можна, скориставшись такою схемою викладення матеріалу.