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Language learning of future food industry engineers in Ukraine

Introduction. The food industry is one of the largest and most important industries of Ukraine. Sustainability of the economy and its security, development of domestic and foreign markets, and the standard of living depend on the level of its development. To develop the food industry and to ensure its profitability a country requires quality trained professionals able to provide the growing needs of the consumer and producer industry.

Modern conditions of food enterprises' activity in the domestic and foreign markets impose high demands on the level of training of professionals for the food industry. Modern professionals must have profound knowledge of the subjects in humanitarian and social-economic, mathematical and natural sciences, vocational and practical training, have professional and practical skills, which will become an important basis for the professional solution of specific situations at work that are routinely resolved at various food industry companies in both Ukrainian and a foreign language.

Training food scientists and technologists (FSTs) to have appropriate skills begins with the identification of those skills most desired by employers.

In 2010 - 2011, under the project TRACK-FAST: Training Requirements and Careers for Knowledge-based Food Science and Technology in Europe 16 workshops in 16 EU countries had the participation of 315 local FST employers contributing with ideas of ideal skills for FSTs at their organizations. A year before, a questionnaire-based study had gathered information from 281 respondents on skills found in their currently employed FSTs, and this allowed a comparison of the current and ideal situations. According to the Food and Science and Technology Market Needs Report among the soft skills found in the currently employed average Food and Science and Technology Market *Communicating Skill is c*onsidered the number one, found in 94% employers. This skill category included writing, reading and presenting information, listening and understanding instructions and ability to speak other languages (specifically English). Communicating is the number one skill in each employment area and each geographical region and is found in over 90% of FSTs in all 4 regions, with the highest value for Central Europe, 98%. The high value for communication skills, particularly the knowledge of English (which can be regarded both as a business and science language), can be related to several phenomena. One is globalisation in food trends and market development and, consequently, an increasing number of business and industry contacts beyond national borders. Another can be the growth in technological challenges and structural complexity in the F&D workplace, accounting for an increased need for improved internal communications [1].

The aim of the article is to examine the current situation of training of future food industry engineers in Ukraine, programs of their study, and some techniques of language learning.

Materials and methods. We conducted our research on the base of the National University of Food Technologies. The National University of Food Technologies is a powerful educational complex, known and deeply respected not only in Ukraine but also abroad. It is Ukraine's only higher technical educational institution, which trains highly qualified specialists in different educational levels - from bachelor to PhD. It has 215 educational programs for the food, meat, dairy, confectionery, fat, pharmaceutical, perfumery and many other industries [2].

National University of Food Technologies(NUFT) is an educational complex, which consists of pre-university, university and postgraduate training and retraining. The complex consists of 20 faculties, 13 technical schools and colleges that are located in different cities of Ukraine.

About 30,000 students study in our educational sector. The training process involves more than 150 doctors and professors, more than 480 PhD. Among them there are 21 members of the National Academy of Sciences of Ukraine and branch academies, 15 laureates of the State Prize of Ukraine, 16 distinguished scientists and engineers, and educators.

In the field of knowledge 18 Production and Technology in specialty 181 Food Technologies NUFT trains masters in the full-time form (1.5 years) in the following specializations: Technologies of organic food products, Technologies of storage and processing of water, Technologies of drinking water and water treatment in food production, Technologies of vegetable oils, fat and cosmetic products, Technologies of storage and processing of grain, Technologies of storage, preservation and processing of meat Technologies of bread, confectionery, macaroni and food concentrates, Sugar and polysaccharide technologies, Technologies of storage, preservation and processing of fruits and vegetables, Technologies of storage, preservation and processing of milk, Technologies of fermentation and winemaking products, Technologies of food products for health and preventive purposes, Technologies of food concentrates based on fruit and vegetable raw materials, tea, coffee and spices, Quality, standardization and certification, Technological examination and food safety, Chemical technologies of food supplements and cosmetics.

In the process of learning students are expected to obtain integral, general and professional competencies.

The general competences acquired by future food technology specialists are the follows:

- ability to use information and communication technologies for the search and analysis of scientific and technical information, organization of scientific research, mathematical and statistical processing of the obtained results, introduction of innovations.
- ability to adapt to modern economic conditions.
- ability to work in the context of international integration.
- skills in the field of the legal protection of intellectual property.
- ability of abstract thinking, analysis and synthesis of information in technical sciences, generation of new ideas, formulation and substantiation of scientific hypotheses.
- ability to solve a wide range of tasks understanding their fundamentals and using both theoretical and experimental methods learned.
- ability for self-critique and critique.

- profound knowledge of state language and, at least, one of the foreign languages at the level of professional and everyday communication [4].

Also, according to the European Language Education Recommendations and the English Language for Professional Communication Program, the current training of future specialists should be guided by the prospects of international cooperation, ensuring student mobility within the global educational and scientific space. Bringing this preparation in line with world standards of higher education increases the significance of its foreign-language communicative component [2, 3].

Results. The results of our survey and testing of future engineer-technologists-technologists of 1-4 years (from a sample of 679 students of the National University of Food Technologies) indicate that 10.8% of students have a high level of foreign-language professional competence, 51.4% of students - average level, 37.8% - insufficient level. A low level of development of pragmatic, strategic, linguistic, socio-cultural and intercultural competencies has been recorded. The results of the survey show an insufficient level of development of foreign language training at 71.8% (of 1569) students of the National University of Food Technologies. There was a low level of pragmatic, strategic, linguistic, socio-cultural and intercultural competences. The poor performance of foreign language training of future engineers of food industry necessitates a fundamental modernization of its achievements based on domestic and foreign pedagogy.

Currently, foreign language training of future engineers is carried out at all levels of education. The discipline English for Specific Purposes(ESP) at every level of the system is determined by the number of academic credits, which the students must get. Most of the national universities of Ukraine traditionally have in curricula discipline ESP within 5 credits ECTS or 180 hours of study, including self-study work. In general, students have two hours per week during the 1st year of studies with an exam in the end. 2 hours per week on average for a group of 15 students mean 6 minutes a week per one student. For 6 minutes a week, students have to learn to communicate foreign language provided a very low input school level.

When they enter the Master's level students must pass an entrance exam in ESP. The curricula of some universities contain 1-2 ECTS credits of ESP at the Master's level.

After graduation Master's level someone wishing to be engaged in postgraduate studies must also pass the exam in a foreign language.

Doctoral students study a foreign language during the first year of the studies and after that have a (candidate) examination.

So, we can see the lack of consistency in the foreign language training of future engineers in the food industry, as well as inconsistencies in the programs and plans of the universities that train such specialists.

That's why there is a need for fundamental research, which would contain theoretical and methodological guidelines for the development of foreign language professional competence of future engineers. It is necessary to create an integrated educational system that provides an optimal combination of traditional and innovative approaches for developing foreign language professional competence of future engineers, using innovation experience of interdisciplinary scientific research, specially-organized self-study work, quantitative and methodical intensification of the process of language learning.

We offer to implement the system of foreign language training into the educational process of future food industry engineers, which includes the following key concepts:

- to create the conditions for the purposeful process of language learning of future food industry engineers it is necessary to design educational system based on a set of philosophical, general, and scientific approaches and methods that are appropriate to the specifics of the problem;
- the pedagogical system should be based on the principles of continuity, additionality, the combination of heuristic and reproductive methods, interdisciplinary integration, socio-cultural and professional orientation, the variability of group interaction;the pedagogical system should be carried out within the framework of both formal and informal education (participation in language programs implemented in student camps, presentations at student conferences, participation in contests, competitions) and nonformal (preparation for participation in linguistic olympiads, writing essays, keeping a diary of a student and a language portfolio, etc.);
- the necessary condition for the effectiveness of the pedagogical system is the creation of a cultural and educational environment aimed at assimilating the system of values, norms of behavior, peculiarities of the culture of the countries which language is studied;
- the pedagogical system can function in a variety of forms such as mixed learning, dual training, team-laboratory form, Bell-

Lancaster mutual learning system, Manheim's form of selective learning using information technologies;

- the pedagogical system should be presented as an integrated system of continuous foreign language training, in which the student takes an active role and realizes himself as a subject of intercultural, interpersonal and communicative activities;
- the pedagogical system is effective provided that the following sequence of educational steps are following: from representations - to knowledge, from knowledge - to skills and then to competences.

The system of foreign language training of future food industry engineers is based on the integration of competence, systemic, synergetic, differential, personally oriented, activity-oriented approaches that outline the requirements for the organization of the process of formation of foreign-language professional competence of students, construction of the content of teaching a foreign language of specific purposes, the interaction of subjects of the educational environment, contribute to the optimization of the process of formation of foreign language professional competency.

Developing the theoretical model of the pedagogical system for students studying not only in the food industry but other technical universities, we, in addition to conceptual ideas, are guided by: first, the analysis of the experience of organizing and functioning of existing foreign language systems, available in the leading Ukrainian universities; secondly, personal experience in teaching a foreign language at the National University of Food Technology.

In the developed model, the main structural elements of the system, which interaction ensures its functioning and integrity, are motivational, knowledgeable, technological and productive components.

The proposed system is a holistic and open system, since each of its components, possessing certain properties, is only part of the integrity of the properties of the whole system of professional training of a specialist. Formation of foreign professional competence is possible only with the purpose-setting and forecasting of the result, the choice of a certain type of activity of the future specialist and the teacher when ensuring this activity by the appropriate technologies, and evaluating the result of this activity.

The idea of joint development of food science and foreign language education at higher institutions, the use of professional expertise as the basis for foreign language education permeates all activities announced in the Bologna Declaration. The purpose of this interaction is to preserve the cultural and linguistic wealth of Europe, which is based on inherited

traditions of diversity, promotes innovation potential, social and economic development through strengthening cooperation between the European non-linguistic universities.

To achieve the purpose of our research the system of language material selection was developed, communicative creative tasks and professionally focused role-play situations and case-studies were developed, the interaction of students during problem-solving tasks in the collective, pair and individual work was organized provided in terms of subject-subject relationship, first, between teacher and students, and, secondly, between the students.

The following techniques foster formation of foreign language competence of future food industry engineers:

• *creation of problem-solving situations*,

It is necessary to control the process of mastering new knowledge and skills in a problem-solving situation, to do this we must define the goal, perform problem-logical analysis and structural study material, to do the psychological-pedagogical analysis of defined problems and identify cognitive tasks (set of problems with the system should include professional training);

• *creation of high positive motivation to foreign language learning*;

Motivation plays a crucial role in the process of mastering a language. Instructors need to identify students' purposes and needs and to develop proper motivational strategies because learners have different purposes for studying a language. Students should understand why they need to make an effort, how long they must sustain an activity, how hard they should pursue it, and how motivated they feel toward their pursuits.

Motivation fluctuates, and it is challenging to keep language learners' motivation at a high level all the time. When designing a language course, teachers must take into consideration that each learner has different interests and expectations. The following strategies are effective ways to increase language learners' external motivation.

• *use of the following forms and methods of learning as*:
  - computer presentations;
  - work in the computer lab with a variety of electronic applications
  - Internet technology (testing online, work with Internet programs, chats, wikis, blogs);
  - case-study (case method), role-playing and simulation games;
  - project work
  - blended learning

• *combining of language learning to students' interests outside of class*

In today's high-tech learning environment encouraging students to relate their classroom experience to outside interests and activities makes developing language skills is more relevant than to limit students to traditional methods. For example, computer-assisted language learning can involve playing computer games, or be linked to computer programs that the students are interested in using. Listening to foreign language songs, watching foreign-language films or videos, and reading foreign language Web sites can lead students to broaden their perspective on their language learning process.

• *cross-cultural communication*

Learning a foreign language is an enriching experience. It encompasses much more than grammar and conversation exercises from textbooks. Not only is language a communication system, it is also a cultural code which transports complex information about cultural norms, values, traditions and rules of conduct. Foreign language competencies therefore enable deeper insights into other cultures and lifestyles.

Conclusion. Current requirements to training specialists in food science force them to take an active part in all processes of globalization, intercultural professionally-oriented communication, to develop communicative ability in the fields of professional and situational communication, oral and writing skills, practical skills of foreign language in various professional situations; and be able to master the latest professional information through foreign sources. All this increases the demand for qualified graduates who are fluent in two or more foreign languages, including the language of international communication through learning ESP.

Transliteration of References:

1. 1. TRACK FAST: Training Requirements and Careers for Knowledge-based Food Science and Technology in Europe. [Elektronnyi resurs]: https://www.trackfast.eu/sites/default/files/webfm/public_files/Open%20Symposium/Vision%20document%20final.pdf – Nazva z tutyl. ekrana.
2. National University of Food Technologies. URL: http://nuft.edu.ua/
3. Zahalnoievropeiski rekomendatsii z movnoi osvity : vyvchennia, vykladannia, otsiniuvannia / Nauk. red. S. Yu. Nikolaieva. K. : Lenvit, 2003. 273 c.
4. Osvitno-profesiini prohramy pidhotovky mahistriv haluzi znan 18 «Vyrobnytstvo ta tekhnolohii» za spetsialnistiu 181 «Kharchovi tekhnolohii» spetsializatsii «Tekhnolohii pytnoi vody ta vodopidhotovky kharchovykh vyrobnytstv», «Tekhnolohii roslynnykh olii, zhyrovykh ta kosmetychnykh produktiv»,

«Tekhnolohii zberihannia i pererobky zerna», «Tekhnolohii zberihannia, konservuvannia ta pererobky miasa». URL: https://nuft.edu.ua/studentu/osvtno-profesjn-programi/osvtno-profesjn-programi-magstri (data zvernennia: 29.03.2019).

5. Handbook. How to implement best practice in language learning. Retrieved from: http://www.yell-project.eu/uploads/documents/DEVELOPMENT%20WP/WP3/book_yell-ENG-22-08-2011.pdf

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Abstracts

CZEREDNYCZENKO HALINA. **Nauczanie języka obcego przyszłych inżynierów w przemyśle spożywczym w Ukrainie.** *Artykuł rozpatruje aktualną sytuację przygotowania przyszłych inżynierów w przemyśle spożywczym w Ukrainie, program nauczania, kompetencje, które muszą zdobyć, umiejętności. Umiejętności komunikacyjne są uważane za umiejętność numer jeden wśród 94% pracodawców na rynku żywności i technologii. Ta kategoria kompetencji obejmuje pisanie, czytanie i przedstawienie informacji, instrukcje do słuchania i rozumienia oraz umiejętności mówienia w innych językach (w szczególności angielskim). Autor proponuje wprowadzić innowacyjny system nauczania języka obcego do procesu kształcenia przyszłych inżynierów w przemyśle spożywczym. System pedagogiczny powinien opierać się na zasadach ciągłości, dodatkowości, połączenia metod heurystycznych i reprodukcyjnych, integracji interdyscyplinarnej, orientacji społeczno-kulturowej i zawodowej, zmienności interakcji grupowych. Oferowane są metody sprzyjające kształtowaniu kompetencji językowych przyszłych inżynierów przemysłu spożywczego.*

Słowa kluczowe: *przyszli inżynierowie przemysłu spożywczego, nauka języków obcych, Ukraina, umiejętności komunikacyjne.*

ЧЕРЕДНИЧЕНКО ГАЛИНА. **Навчання іноземної мови майбутніх інженерів харчової промисловості в Україні.** *У статті розглянуто поточну ситуацію підготовки майбутніх інженерів харчової промисловості в Україні, навчальних програм, компетенцій, які вони повинні отримати, навичок. Навички спілкування вважаються навичками номер один серед 94% роботодавців ринку харчових продуктів і технологій. Ця категорія компетенцій включає в себе написання, читання та подання інформації, інструкції для прослуховування та розуміння, а також вміння говорити іншими мовами (зокрема англійською). Автор пропонує впровадити інноваційну систему навчання іноземної мови в навчальний процес майбутніх інженерів харчової промисловості. Педагогічна система повинна базуватися на принципах безперервності, додатковості, поєднання евристичних і репродуктивних методів, міждисциплінарної інтеграції, соціокультурної та професійної орієнтації, мінливості групової взаємодії. Запропоновано методики, які сприяють формуванню іноземної мовної компетентності майбутніх інженерів харчової промисловості.*

Ключові слова: *майбутні інженери харчової промисловості, вивчення іноземних мов, Україна, комунікативні навички.*

ЧЕРЕДНИЧЕНКО ГАЛИНА. **Обучение иностранному языку будущих инженеров пищевой промышленности в Украине.** *В статье рассматривается текущая ситуация с подготовкой будущих инженеров пищевой промышленности в Украине, учебные планы, компетенции, которые они должны получить, навыки. Навыки общения считаются навыками номер один для 94% работодателей рынка продуктов питания и технологий. Эта категория навыков включает в себя написание, чтение и представление информации, инструкции по аудированию и пониманию, а также способность говорить на других языках (особенно на английском). Автор предлагает внедрить инновационную систему изучения иностранных языков в учебный процесс будущих инженеров пищевой промышленности. Педагогическая система должна основываться на принципах преемственности, дополнительности, сочетания эвристических и репродуктивных методов, междисциплинарной интеграции, социокультурной и профессиональной ориентации, изменчивости группового взаимодействия. Предложены методики, способствующие формированию иноязычной компетенции будущих инженеров пищевой промышленности.*

Ключевые слова: *будущие инженеры пищевой промышленности, изучение иностранных языков, Украина, коммуникативные навыки.*

CHEREDNICHENKO GALYNA. **Language learning of future food industry engineers in Ukraine.** *The article examines the current situation of training of future food industry engineers in Ukraine, syllabuses, competences they have to obtain, skills. Communicating skill is considered the number one skills by 94% of employers of Food and Technology market. This skill category includes writing, reading and presenting information, listening and understanding instructions and ability to speak other languages (specifically English). The author offers to implement the innovative system of foreign language learning into educational process of future food industry engineers. The pedagogical system should be based on the principles of continuity, additionality, the combination of heuristic and reproductive methods, interdisciplinary integration, socio-cultural and professional orientation, the variability of group interaction. The techniques which foster the formation of foreign language competence of future food industry engineers are proposed.*
Keywords: *future food industry engineers, foreign language learning, Ukraine, communicative skills.*