

**FaR 2021****International Forum “Freedom and responsibility in pivotal times”****TEACHING ENGLISH FOR SPECIFIC PURPOSES IN THE  
MODERN TECHNICAL EDUCATION CONDITIONS**

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**Abstract**

The article deals with the description of the essence of English for specific purposes (ESP), characteristics and peculiarities of ESP teaching. The role of studying ESP for the students in the context of the future professional activity is defined. The features and difficulties of ESP teaching are explained. The article is focused on the description of the application of the developed course for teaching ESP to students at Nizhny Novgorod State Technical University named after R.E. Alekseev. The distinctive features, peculiar properties and content of the proposed course are considered, the advantages of its learning for the students who study biochemical, chemical and physical specialties are discussed. It is noted that students' difficulties in mastering ESP at technical university are related to the necessity of skillful combination and usage of deep knowledge in general English, technical knowledge and professional English terminology. Knowledge of the English language fundamentals is the basis for further mastering of professional terminology in English, which determines the formation of foreign language professional communicative competence. In ESP, English is presented in authentic contexts to introduce students to specific ways of using the language in the functions they will perform in their professional spheres. For the teacher of English it is of great significance to find out students' individual language needs, language skills that require special attention and intensive targeted work.

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*Keywords:* ESP teaching, foreign language education, technical university, professional English terminology, communication, professionally oriented materials



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## 1. Introduction

Designing a high-quality educational process at a university is a key task for the state in general and for teachers in particular. This fact is of particular importance and relevance for a technical university, since the engineering and technical development of the country and the world continues every day, discoveries and developments in various fields of science require appropriate knowledge and skills of a specialist. At the same time, it is important for students of a technical university to have thorough knowledge not only about the innovations made in a particular scientific field, but also about the previous experience and work of scientists, about those discoveries that marked the beginning of a more advanced stage of science. An important role in the education of a professionally competent specialist is played by the formation of the language personality of the future graduate. Therefore, it is safe to say that teachers who carry out teaching activities to teach students a foreign language are in a constant intellectual and creative search for appropriate forms, methods, strategies and means of organizing a productive and interesting process of foreign language education, appropriate to modern conditions of life, career and work. Teaching a foreign language is both interesting and challenging for the teacher. After all, teacher's activities are designed to provide students with knowledge that will serve as a tool for them, performing many functions from general, holistic education to the application of foreign language knowledge in professional fields. Each teacher strives to inspire, stimulate students' academic interest and activity in a foreign language, to take into account the individual characteristics, abilities, capabilities of students, the main subject studied by students, using special materials and tasks for this purpose (Pozdeeva & Obskov, 2015; Sobinova et al., 2015). The main subject studied by students at a technical university can serve as a means for the teacher in the sense that the students' interest in deep knowledge of the specialty allows them to use it as a motivation for students to learn professional knowledge in a foreign language.

## 2. Problem Statement

This article will address the issue of professionally oriented foreign language teaching. In particular, the attention of this article will be focused on providing high-quality and modern content for teaching ESP to students at Nizhny Novgorod State Technical University named after R.E. Alekseev. ESP is a course of English for specific purposes. The task of a technical university teacher in the course of teaching students English for specific purposes is to create and apply such developments that will be interesting to students, will meet the most important professional needs, and will contribute to the implementation of special skills of students that they already know in Russian. Thus, it is important to develop and apply such materials that are aimed at combining the student's scientific field and the process of English language learning. The most effective and organic combination of this sort is the ESP, the content of which includes English language authentic materials and tasks in the scientific specialty, focused on working with them in all types of speech activity.

### **3. Research Questions**

The research involves solving the following questions: 1. To conduct a theoretical review of the effective implementation of ESP teaching of students at university. 2. To develop a professionally oriented course, relevant materials and tasks for the holistic ESP teaching. 3. To organize students' productive work with this course in the process of studying ESP.

### **4. Purpose of the Study**

The aim of the study was to develop and apply a specific course for the ESP practical teaching. The developed course has a professionally oriented character. The work with the course is aimed at the development of foreign language professional communicative competence of masters of Nizhny Novgorod State Technical University named after R.E. Alekseev.

### **5. Research Methods**

The identified goals and objectives of the study allowed us to establish the following methods for problem solution: a theoretical analysis of the essence of the concept of ESP, the study of publications on this topic, a survey, a questionnaire, pedagogical observation. ESP teaching means that English is not taught as a subject that is disconnected from the real world of students. On the contrary, it is integrated into a subject area that is important to students. The purpose of ESP is to develop students' cognitive abilities and communication skills that are necessary for the participation in various areas of professional communication (Novoselov et al., 2017a; Tenieshvili, 2019). The purpose of ESP teaching is to form, develop and improve students' speech skills in all types of speech activity (reading, writing, listening, speech) in the field of professional communication. ESP teaching involves analyzing the needs of students and preparing them for effective communication in the areas prescribed by their main field of study or potential work situation (Dzugaeva, 2017). The presence of a sufficiently deep knowledge of the general course in English is a necessary basis for further mastering of professional terminology in English, the formation of the ability to read and understand coherent texts on the subject of the specialty being studied, to make oral and written monologues and dialogues, to perceive scientific English information by ear. Thus, it is possible to emphasize the unprecedented scale and complexity of ESP learning, which requires hard work of students interested in the use of English in the field of professional communication (Bezukladnikov et al., 2017; Kuznetsova & Kuznetsov, 2016).

For masters the ability to communicate in the field of professional communication has the key value, because professional communication is realized during the education. Since the professionalization of education shows proven effectiveness in the development of foreign language professional communicative competence, it is important to create the most realistic conditions for foreign language professional communication (Klimovich, 2014, 2018). These conditions may include writing articles in English with the results of the research (for example, research conducted by students under the supervision of a research supervisor in the framework of bachelor's, master's works, different projects), participation in scientific conferences and competitions in English, reading specialized literature in English.

The ability to use professional vocabulary and language structures that students study, as a result, allows them to achieve a significant improvement in speech skills and increase the motivation of learning English and ESP (Novoselov et al., 2017b).

When developing an ESP teaching program, it is important to take into account the skills of students that need improvement. The ESP program must meet the needs and motivation of students, since creating positive learning motivation is essential (Khamitova et al., 2019). Students' abilities in their subject areas, in turn, increase their ability and motivation to study English thoroughly. This has a logical explanation. Subject knowledge provides students with the context they need to combine English and the subject. Studying ESP allows students to understand how the subject content of the specialty is expressed in English. Thus, it can be concluded that the ESP performs two functions: teaching English language communication in the field of professional communication and improving the knowledge of the English language in general (Tokareva, 2017; Bezukladnikov, Novoselov et al., 2017a).

The teacher must also have the necessary knowledge and skills of effective programs and strategies for teaching students English for specific purposes. It is the teacher who is directly responsible for setting the goals of ESP teaching, organizing favorable conditions for students to study ESP, creating a positive, friendly learning atmosphere (a situation of success) during teaching. The teacher supports and motivates students' intellectual and creative activity, evaluates their activities, provides an individual approach, changes the teaching program in accordance with the specific features and problems of the group or individual students (Matienko, 2016; Mustafayeva, 2019).

## **6. Findings**

The study was conducted in groups of masters studying biochemical, chemical and physical specialties. The study involved 40 students. In the course of teaching ESP, it is concluded that it is quite difficult for students to engage in constant laborious activities in reading, translating, listening, performing written tasks in the process of working with deeply scientific authentic professional information. It was noticed that by about the middle of the semester, some students lose motivation, the study of foreign scientific materials seems monotonous and difficult to them. That is explained by the rich content of professional terminology and heavy load of future graduates. Therefore, it was decided to develop and implement a special course in the practice of ESP teaching, which should be practice-oriented, increase the motivation of students to mutual English language professional communication, since the materials of the topic have a popular scientific character, are related to the real life of students preparing to start their own career. The title and description of the types of activities within the framework of the students' study of this course will be given below. The course is called "Professional development. Accept challenge in your career". It is necessary to note that the English noun "challenge" means activities which are accepted by a person who decides to engage in complex, unusual, but interesting activities. The course includes the following sections and activities. I. Challenging opportunities in a wide range of fields and industries. In this section, students are offered two categories of texts: 1) Texts about the great discoveries of scientists in chemistry, biochemistry, and physics. The texts are dedicated to the discoveries of the past and the latest innovations. It is important to note that the texts are selected in such a way that they describe not only the immediate process of discovery, but also provide interesting, unusual facts about the personality and life of

the concrete scientist, about the unusual peculiarities and randomness of the discovery made. In the process of studying these texts and working with them, an interesting fact was noticed: the students had a deep knowledge of the main subject. But it was in the English classes that they learned amazing facts about the biography, behavior of scientists and some striking circumstances of the discoveries. For example, students become aware of the information about the discovery details of the antibiotic “penicillin” by A. Fleming. A brilliant medical researcher, Alexander Fleming, who worked at St Mary’s Hospital in London, was a sloppy man, and his laboratory was often untidy. In 1928, when he returned from vacation, he noticed that some kind of mold was growing on the laboratory vessel he had left (which had the shape of a low, flat cylinder used for microbiological and chemical research). The scientist analyzed this substance and its effect on bacteria, which led to the discovery of penicillin. This discovery paved the way for the beginning of the treatment of infectious diseases.

Before reading and translating the text, students perform pre-text exercises. Students discuss the following questions in pairs: 1. What do you consider to be the most significant achievement in this field (chemical/biochemical/physical) and why? 2. What other (chemical/biochemical/physical) inventions do you consider important for all of humanity? Give reasonable and informative arguments to explain your answer.

In the process of performing post-text exercises, students make notes about the described achievements. In groups, students discuss issues of a problem-solving nature. The questions are divided into two categories: the first category contains questions of the following order: Speak about the achievements and breakthroughs in science using the questions below. – Who was the inventor? What did the scientist invent? When? Where? How? What are the results and benefits of the achievement? What problems did the scientist plan to solve?

Questions of the second category are more specific and are aimed at working with specific information of the text, as well as at stimulating deeper reflection on the topic. The following is an example of questions to discuss the text about the antibiotic discovery.

– Do people have to pay for medical care? – Do you think that the work of researchers working in the field of medicine, doctors, and nurses is adequately paid in your country? Why? – Advances in medicine allow people to live to a very old age. Do you consider this desirable? Explain your answer. Try to cover all aspects of the question in your answer. – Should new drugs be tested on both animals and humans before they are prescribed by doctors?

The purpose of working with texts of the first category is to promote the development of free communication in the field of professional communication, the emergence of a sense of freedom, ease of psychological and linguistic character.

The content of the texts is aimed not only at the development of cognitive abilities of students; it is addressed to their emotional sphere. Reading information about life and work of scientists inspires, causes positive emotions, and contributes to the emergence of personal motivation for hard work, self-development, and professional self-improvement. The activity of working with these texts stimulates the interaction of students, the expression of emotional comments, discussions.

2) The second category of texts includes specific texts dealing with professional scientific issues. The texts of the second category are more complex in scientific and linguistic aspects. Working with them

is aimed at developing the ability to consciously retell the information of the text, to assimilate the necessary terminology. Working with such texts is a preparatory stage for the formation of students' skills for oral and written composing of their own reports on scientific topics. Examples of text topics: – Electrical steel is the high-tech core material of the future with outstanding efficiency. – Reducing the loss of magnetization reversal in the transmission and distribution of electrical energy to a minimum. – Electromagnetism, solid state physics and nuclear physics (latest achievements). – Biological wastewater treatment. – Discovery and detailed analysis of cell molecules and metabolic pathways, such as glycolysis and the Krebs cycle (citric acid cycle). – Mechanisms used by cells to use energy from the environment through chemical reactions.

It should be noted that the combination of these texts categories was made specifically to make it possible to alternate work with texts containing amazing information and details about the greatest discoveries in science, with scientific texts in which the information is presented at a high professional level and has a more complex design in terms of language. The use of two categories of texts ensures the complementarity of both categories, reinforcing the value of each other. An easier and more vital description of scientific discoveries allows students to switch to another type of activity, enjoy emotional involvement in real history and communication, and feel their own success by completing various language tasks and participating in language communication with their groupmates. Consequently, students then proceed with greater willingness and perseverance to master more informative professionally oriented texts.

II. Career. Develop rational solutions and become experienced talented specialists. This section includes detailed English language descriptions of the professions that students study. Students are offered to study the processes, tasks performed by specialists, as well as students perceive by ear interviews with different specialists working in the areas of the specialty studied by students. The interviews contain various information about the work of some companies: the characteristics and the type of activity of the company, personal impressions of the employees. Students read and translate the proposed materials, and then the teacher organizes and directs the discussion (in various forms) in the group about the studied information. Students study the work peculiarities of the following professions: engineer, mechanical engineer, technologist, chemist, chemical engineer, biochemist, biotechnologist, microbiologist, physicist, biophysicist, etc.

At a more advanced stage, students make monologic and dialogic statements and comments on the activities of specialists of these professions on topics. – Comparison of the organization of production and methods of performing various professional tasks in Russia and abroad. Comparison of conditions and opportunities is offered to specialists in Russia and in international or foreign companies. A detailed description of the professional activities of several Russian and foreign companies is according to the plan. The plan includes various aspects of the work of an enterprise, can be supplemented with clarifying information, and depending on the functions performed by the company.

III. The third section is a coherent continuation of the previous one. This section is aimed at the following work. Students get acquainted with the activities of the company, study its production, features, research, prospects so that to develop and create a dialogue about designing a website for the company. Students perform the following roles: a professional website designer and a company representative. The purpose of the dialogue is to conduct negotiations on the following points: 1. terms of setting up the website;

2. website functions; 3. information blocks of the website, their content; 4. options for website users; 5. payment for the work of the website designer. Thus, the creation of a dialogue involves a close connection between business communication and communication directly in the scientific field. This, in turn, contributes to the productive development of foreign language communicative competence and foreign language professional communicative competence.

All sections are interconnected; activities and exercises are characterized by a gradual complication, which ultimately allows students to achieve good results. The study of the course involves a combination of different information content of texts and activities, one of which is aimed at providing motivated communication of students in the business and professional fields, the second – in-depth study of special materials. Due to this combination and alternation, it is possible to fully implement the ESP teaching tasks, i.e. improve the speech skills of students in a special (professional) field.

Next, the indicators obtained in the course of this work will be presented. Before starting work on the proposed course, 40 % of students were active in developing dialogues on various topics. Since the dialogue is made up in pairs, a more linguistically competent student worked on its creation, while the second participant simply followed the process, which was explained by insufficient motivation to develop their speech skills and abilities to perform such types of tasks. In the process of working with the course, it was possible to evoke an emotional response from students, engage them in communication, help students master the missing skills, and as a result, 80 % of students enthusiastically participated in the joint process of creating dialogues (an improvement of 40 %). Prior to the beginning of the work with the above-described alternation of activities, students practically did not show due diligence, working with texts and materials characterized by deep scientific, terminological and informational saturation. Only 25 % of students studied all the materials offered conscientiously and efficiently. The introduction of elements in professional texts that describe the real life, hobbies, character of scientists; as well as the alternation of different texts led to an improvement in the situation. Having the opportunity to participate in communication with classmates, mastering the missing language skills in the process of communication, 60 % of students began to show diligence and actively work with scientific materials (an improvement of 35 %).

## **7. Conclusion**

Thus, it can be safely concluded that the application of the proposed course in the holistic process of teaching ESP led to students' motivation increase. This motivation increase is explained by students' participation in the process of communication of a business and professional nature, productive work with scientific special materials. Consequently, this work favours the acquisition by students of deep knowledge in the English language terminology in the professional sphere. The alternation of different types of activities contributes to a harmonious combination of communication oriented activities and purely scientific work with special materials (laborious study of English texts, resources, terminological analysis, etc.), balances the efforts of students, which leads to better learning.

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