

- through the use of interdisciplinary and multidisciplinary approaches, **to develop the ability to “set a task” and interpret the results obtained;**
- **develop skills in methods of system engineering**, other than simply include elements of real engineering activity in the teaching and learning process. It also means the creation of professional context as an integral model of future professional activity, including teamwork;
- significantly enhance **the motivation and performance of students and teachers**, thanks to the focus on results and taking into account deadlines. It means the execution of Graduate Qualification Work at a high professional level within short deadlines and under existing conditions.

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## Foreign Language Teaching Within “Aircraft Engineering” Programme

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#### Abstract

The article discusses the issue of enhancing the quality of foreign language teaching at engineering university. Within the education programme “Aircraft Engineering”, this issue is of particular importance due to the current situation in this economy sector. The article examines the problems of foreign language teaching, describes and postulates the language teaching system developed at Samara University.

**Key words:** ESP, integrated course, project-based teaching approach, content-based instruction, competency-based approach, teaching principles.

The issues related to quality enhancement of foreign language teaching at engineering universities have retained their relevance and received close attention of faculty members and scholars over the years. It happens because, despite enormous efforts being made, the learning outcomes of education programmes and graduates’ knowledge do not completely satisfy the requirements of modern labor market, the level of international cooperation and up-to-date technologies and equipment. The issues of ensuring foreign language teaching quality at engineering universities, when there is a decline in the instructional time and increase in students’ independent work, are of particular importance. In addition, alongside education programmes such as “Computer and Information Sciences”, “Information Security”, etc. where the significance of foreign language (especially English) knowledge does not leave doubts in anybody, there are a number of programmes that train students for so-called closed industries. It means that employees who work within these industries are not free to travel abroad. This fact actually reduces students’ motivation to learn foreign languages as travelling abroad is one of the most obvious motifs for them to study a foreign language.

This trend is particularly pronounced in the education programmes related to aviation and rocket and space equipment. Low students’ motivation impedes enhancement of foreign language teaching quality and requires immediate attention from faculty members.

Let us examine the peculiarities of foreign language teaching within the education programme “Aircraft Engineering” 24.03.04. When formulating learning outcomes of the foreign language course, the Federal State Education Standards of Higher Education and employers’ requirements were considered. This analysis revealed a serious contradiction. On the one hand, the share of aircrafts produced abroad is significantly higher than that of domestic ones. It means that it is required to read technical papers in the original and, if necessary, to communicate with foreign partners. Therefore, knowledge of foreign language is rather important for students enrolled in this education programme, and the requirements for the level of foreign language knowledge are very stringent. On the other hand, according to the Federal State Education Standard approved on 21 March, 2016, a student “should demonstrate the knowledge of one of foreign languages at the level that is not lower than conversational



O.N. Martynova

one" (cross-cultural competency-10). The required level itself is not specified and is not compared with the Common European Framework of Reference for Languages. At the same time, universities have the right to define the amount of instructional time, the course content and curriculum at their discretion [1].

To resolve this contradiction, the goal and learning outcomes of a foreign language course delivered within the "Aircraft Engineering" programme were defined. In addition, a peculiar teaching system that includes the content, teaching formats and techniques was developed.

The goal of foreign language education is to develop the ability to and readiness for international communication, which secures communication-oriented language teaching. To attain this goal, the following purposes should be achieved:

- 1) to develop the ability to correlate language means with the certain communication purposes and situations;
- 2) to familiarize students with basic communication types;

3) to secure intellectual development of a student, familiarize him/her with cognitive tools that ensure cognitive activity and capability of social interaction.

To address these purposes, a peculiar system of foreign language teaching was developed (fig. 1).

It is worth noting that Samara University offers the bachelor's degree programme in "Aircraft Engineering" that incorporates the course "Introduction to Foreign Language for Specific Purposes" which focuses students on learning foreign language for specific purposes. When developing the content of the course "Introduction to Foreign Language for Specific Purposes", the Departments of Foreign Languages and Russian as a Foreign Language primarily used the content-based approach. According to this approach, the language being learned is taught within the context of future specialty, which facilitates students' communication in the international professional community.

Learning ESP suggests good command of General English which is a purpose of

school curriculum in foreign language. At the beginning of the course, students' knowledge of foreign language is tested. The research conducted over several years has shown a low level of first-year students' proficiency in foreign language (55% of level A1, 35% of level A2, 10% of level B1 and higher). It results in the need to correct and review the language competencies that are developed within the first term when learning general topics related to engineering education (for example, "My University", "S.P. Korolev" etc.), which provides the students' readiness for learning ESP.

ESP is characterized by terminology, prevalence of scientific style, specific grammar, hence, there are such topics as "Aircraft construction", "Aviation origin", "Planes of the future" etc. for which the texts are taken from the original sources, teachers develop exercises to develop and master the skills of using grammatical structures typical for engineering literature as well as various language and speech abilities. It is worth noting that there is a lack of textbooks intended for learning ESP, therefore, teachers have to design and update the manuals, develop electronic courses and modules.

When selecting the types and forms of work, we rely on integrated approach that allows us to combine profession-based content with the study of system and rules of foreign language, to make foreign language a purpose and means of fostering professional knowledge as well as unite the potentials and advantages of traditional teaching forms and new technologies in learning process [2]. It allows for solution of the most urgent problems in teaching foreign language at engineering university, namely, absence of a single initial level of students' language knowledge, students' focus on learning engineering subjects, lack of instructional time assigned in curriculum. Using distant courses to arrange independent work permits filling-in the possible gaps in language knowledge, gaining additional information and skills necessary for mastering the major course, which, in its turn, leads to reduction of instructional time necessary for developing communicative skills.

According to the curricula, the share of

independent work twice increases the share of classroom hours. Therefore, there is a demand for effective independent work and redistribution of students' learning efforts. Classroom hours are devoted to development and mastering communicative skills, first of all, speaking (monologue and dialogue) as well as listening as the most complicated form of communicative activity for students of non-linguistic specialties.

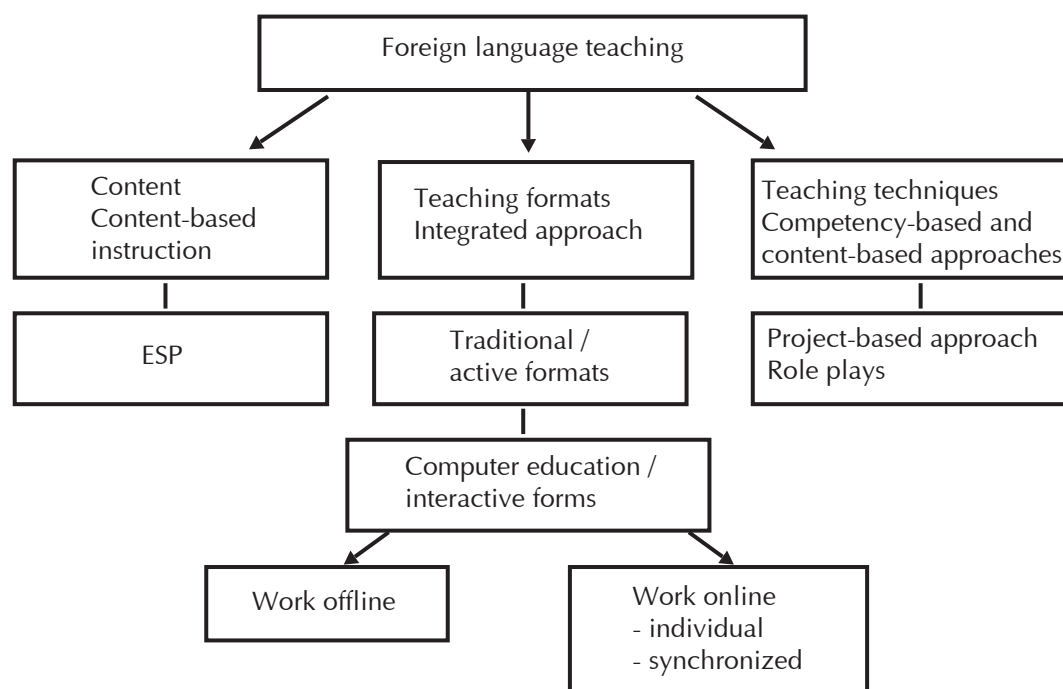
Drilling grammar, developing reading and writing skills are performed as independent activity, students do certain tasks to master grammar system (familiarization with grammar of the studied language assigned by the school curriculum) and read texts and fulfill the exercises to prepare them for classes.

When designing integrated foreign language course, the increased requirements for independent work based on computer are to be taken into account. The course is to include the tasks done online and offline.

Offline activity is aimed at mastering language skills and includes doing tasks by means of special software (for example, lexical driller), video- and audio-aids with subsequent discussion in the classroom or online. The online work is subdivided into individual (search for information, sending e-mail messages, blog posts, online-tests etc.) and synchronized, interactive (student – student, students – teacher) activities in chats and videoconferences. This structure enables development of communicative skills, students' motivation for learning foreign language using principles of adequate learning load, reasonable distribution of learning efforts, joint activity and interpersonal interaction in academic process.

In choice of teaching methods, we rely on competence- and content-based approaches. The competence-based approach provides students' development of competences assigned by HE FSES, namely, apart from the mentioned above CC-10, ability to possess thinking culture, perceive and analyze information, set goals and select the ways of their achievements (CC-1), ability to logically build oral and written speech (CC-2) [1]. These competencies reflect three main situations of using language identified in psychology, namely, as a tool of social

**Fig. 1. Foreign language teaching within the course "Introduction to Foreign Language for Specific Purposes"**



perception, individual perception, personal socialization [3], attracting students' attention to cognitive and communicative language functions. When learning foreign language, these functions are given close attention as language is both object of study and means of perceiving and communication. Cognitive function provides formation of linguistic world view, influences the intellectual sphere of a speaker's personality [4], which is necessary for development of new technology in the condition of high-tech production and global ecological problems. Communicative competence formation is the goal of teaching foreign language at any level in any course of foreign language. Nowadays, ability to effectively communicate is one of the requirements for engineers, which is imposed in different countries [5, 6]. Thus, according to [www.career.ru](http://www.career.ru) site, Russian employers distinguish among the principle qualities of a young specialist along with initiative, result-orientedness, high responsibility, as well as sufficient level of communicative competence, correct oral and written speech and presentation skills.

The content-based approach is aimed at applying the teaching methods, relevant for future professional activity, particularly for design-and-engineering (aggregation, analysis and systematization of background information), experimental and research (survey description, report on the task fulfilled), organizational and management (organization of small groups work) [1]. The project-based approach, role plays and business games are the most efficient in terms of competency-based and content-based approaches. The project-based approach draws attention of teachers of different courses in technical universities as the project work supposes determination of the existing problems and development the ways of their solving. Methodological literature describes in detail the application of the project-based approach at English language classes, different project types are singled out and their peculiarities and differences are indicated [7]. It should be emphasized that a project is implemented in several stages. The project requires a large amount of individual work on implementing the purposes along with the classroom team

work when the students guided by the teacher analyze the problem and determine the stages of its solution. The work results are presented in a classroom as well that encourages the formation of public speaking skills, audience interaction, expression of interest and personal opinion, the integral part of communicative competence. The project work at foreign language classes requires different tests, and sometimes surveys and questionnaires – in this way the communicative skills and passive and active skills in working with different types of texts, information analysis are formed. The project-based approach allows implementing the principle of accounting the educational subject labor intensity and optimal planning of individual work, rational distribution of work content over the types, as the project efforts exceed considerably the volume of work in determining the problem and presenting the results and the individual work according to the curriculum, as it was mentioned above, exceeds significantly the classroom hours.

The content-based approach determines the combination of the project-based approach with role plays and business games when teaching foreign language at "Aircraft Engineering" education programme. In common projects the students develop the problem topics on their own, in games they act certain parts simulating quasiprofessional activity. For example, "At the design department" game project shows the structure and specific nature of aircraft design departments. Then the students work on the project (for example, development and presentation of cost-efficient aircrafts for low population regions) according the parts. In this way the principle of sequential simulation of content, form and conditions of professional activities in students' learning is implemented.

It is worth noting that development of relevant technical and scientific issues in the course "Introduction to Foreign Language for Specific Purposes" provides the continuity of educational levels, as the students get acquainted with the methods of science activity which is the main one in master's degree programme. The project-based work increases students' learning motivation. The students who have achieved the best results at game conferences have the opportunity to

speak at university, inter-university, Russian and International conferences. Such speeches not only increase inner motivation, give self-satisfaction but also can result in scholarships increase that is the significant factor of external motivation – the principle of a student personal involvement into learning activity is achieved.

Thus, the course "Introduction to Foreign Language for Specific Purposes" is aimed at learning goal achievement and address the outcomes related to the goal. Subject nomenclature, being the education content, encourages formation of communicative skills within professional context and the ability to correlate language means with certain goals. The integrated course with efficient distribution of students' efforts in classroom and individual

work allows mastering the required language skills, covering possible gaps in starting language proficiency, focusing on the most challenging communication aspects. Use of the project-based approach, role plays and business games encourages implementation of the content-based approach principles, organization of quasiprofessional activity at the English language classes, formation of cognitive skills and ability to interpersonal communication. The system developed ensures education motivation, continuity of professional training stages and encourages the increase in quality of language training at the "Aircraft Engineering" education programme.

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