

## CORPUS LINGUISTICS AND ITS ROLE IN TEACHING FOREIGN LANGUAGES IN TECHNICAL UNIVERSITIES OF UZBEKISTAN

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**Abstract:** This article examines corpus linguistics as an effective means of improving the quality of foreign language instruction in technical higher education institutions in Uzbekistan. It analyzes the potential of using language corpora to develop professionally oriented foreign language competence in engineering and technical students. Particular attention is paid to the use of corpus technologies in teaching professional vocabulary, the grammatical structures of scientific and technical discourse, and the development of independent student work skills. The feasibility of integrating a corpus-based approach into the educational process at technical universities is substantiated in the context of the digitalization of higher education.

**Key words:** corpus linguistics, foreign language teaching, technical universities, professionally oriented teaching, language corpora,

### Introduction

In the context of globalization and rapid scientific and technological progress, proficiency in foreign languages is critical for the training of technical specialists. Technical universities in Uzbekistan view foreign languages not only as a means of intercultural dialogue but also as an indispensable tool for accessing international scientific sources, technical documentation, and professional interaction. Modern requirements for the quality of foreign language training for students in technical fields dictate the need to implement innovative and scientifically proven methods. Corpus linguistics offers a promising solution here, enriching the educational process with authentic linguistic data.

### Theoretical Foundations of Corpus Linguistics

Within applied linguistics, the corpus approach relies on the computational analysis of extensive text data systematized into electronic corpora. A language corpus, in turn, is a representative sample of texts, annotated and structured according to linguistic criteria.

"The size of the text corpus being created, in accepted units, depends on the purpose of its creation. It can be small when studying the frequency of letters, letter combinations, sounds, and sound combinations. It should be much larger when studying vocabulary, morphological phenomena, and the syntactic and stylistic features of texts."<sup>1</sup>

**Table 1. Examples of a representative collection of texts for corpus-based teaching of foreign languages in technical universities of Uzbekistan**

#	Corpus type	Text composition	Specific text sources	Didactic purpose
1	Corpus of scientific and technical articles	Articles, reviews, annotations on engineering, IT, energy, mechanical engineering	IEEE Xplore, Elsevier (ScienceDirect), SpringerLink, MDPI, Taylor & Francis	Teaching academic writing, terminology analysis, and studying scientific grammar
2	Corpus of educational and	Textbooks, lectures, laboratory	Cambridge Engineering Series,	Development of professional

	methodological texts	instructions	Oxford English, Technical open courses of MIT OpenCourseWare, Coursera, edX	vocabulary, teaching reading and understanding of technical texts
3	Technical documentation body	User manuals, specifications, standards	Documentation of IBM, Microsoft, Oracle, стандарты ISO, IEEE Standards Association	Training in working with instructions, developing translation skills and analyzing functional grammar
4	Parallel Corpus (Foreign Language	Technical Texts and their Translations)	OPUS Corpus, translations of ISO standards, official websites of international companies	Development of translation skills, comparative analysis of terminology
5	Professional Communication Corps	Emails, reports, presentations	Corporate cases(Siemens, Bosch, Huawei), business correspondence templates(British Council)	Development of communicative and business competence
6	Educational corps of technical universities of Uzbekistan	Student work, reports, projects	Archives of technical universities of Uzbekistan, final qualification works, scientific conferences	Analysis of typical errors, adaptation of educational materials to the local context

The main characteristics of the corpus approach are its empirical focus, objectivity of analysis and the ability to identify patterns in the functioning of linguistic units in various types of discourse, including scientific and technical.

### **Specifics of Teaching Foreign Languages in Technical Universities of Uzbekistan**

Teaching foreign languages in technical universities of Uzbekistan faces a number of unique challenges. First, the number of hours allocated for classroom instruction is often insufficient. Second, the educational process is primarily focused on mastering vocabulary and terminology directly related to students' future professional activities. Third, students are required to actively work with scientific and technical texts, which requires a specialized approach. Finally, it is important to remember that students' levels of foreign language proficiency can vary significantly. In light of these conditions, teaching methods that are aimed at developing students' independence in learning and their ability to effectively process and use professionally significant information are becoming particularly relevant.

### **Using Corpus Linguistics in Professionally-Oriented Learning Teaching Professional Vocabulary and Terminology**

Using specialized and academic corpora allows students to analyze the frequency and context of technical terms, explore their collocations, and study translation options. Working

with corpora promotes a more conscious acquisition of professional vocabulary and reduces the number of lexical errors.

### **Developing skills for working with scientific and technical texts.**

Studying a corpus of texts allows us to identify grammatical structures characteristic of scientific and technical discourse, including passive voice, infinitive constructions, and nominalization. This approach is essential for developing reading and writing skills in scientific and technical literature.

### **Data-Driven Learning in Technical Education**

The data-driven learning approach involves students actively participating in language exploration using corpus data. In the context of technical universities in Uzbekistan, this approach promotes the development of analytical thinking, which is consistent with the professional focus of engineering education.

Below are examples of the implementation of the data-driven learning approach in technical universities in Uzbekistan.

#### **1. Researching the Use of Technical Terms**

##### **Task 1:**

Students are asked to independently research the use of key terms, such as "algorithm," "voltage," "network," and "efficiency," in a corpus of scientific and technical texts.

This work is divided into the following stages:

- searching for the term in the corpus (IEEE, scientific articles);
- analyzing the contexts of use;
- identifying typical collocations ("energy efficiency," "voltage drop").

As a result, students draw conclusions about the actual functioning of terms, rather than memorizing them from a dictionary.

Through this work, we develop analytical thinking skills and professional lexical competence.

#### **The next task involves independently identifying grammatical patterns.**

##### **Task 2:**

Using a corpus of scientific and technical texts, students analyze the use of the passive voice.

To do this, they are asked the question: ***In what cases is it preferable to use passive constructions in technical texts?***

This task is also divided into several stages:

- finding sentences with the passive voice;
- classifying examples;
- formulating their own rules.

As a result, students independently derive a grammatical rule based on the corpus data.

### 3. Analyzing the Structure of Scientific and Technical Texts

#### Task 3:

Students will examine the typical structure of abstracts of technical articles.

Steps:

- analyzing several dozen abstracts;
- identifying recurring elements (goal, method, result);
- creating an abstract template.

The result of this work will be the development of academic writing skills based on real-world examples.

### 4. Comparing Terminology in Parallel Corpora

#### Task 4:

Students analyze translations of technical terms from English into Uzbek.

The stages of the work include:

- searching for parallel texts;
- comparing translation variants;
- identifying the most frequent and correct equivalents.

“Corpus allow for the exploration of word meanings through the use of concordances. A start to the study of word meanings can be made by analyzing collocates—words with which the word being analyzed frequently co-occurs.”<sup>2</sup>

#### Searching for a term in the English corpus

Students find usage examples:

*The power supply provides stable voltage to the circuit.*

*An external power supply is required for the device.*

accumulation of power

coercive power

electrical power

potential power

The term is used as a technical designation for an electrical power source, not as a general term for "power."

#### Analysis of Translations in Uzbek

In the parallel corpus, students find the following translation options:

English Term	Uzbek Translation Options
<i>power supply</i>	<i>quvvat manbai</i>

**elektr ta'minoti**  
**tok manbai**

### **Corpus analysis of frequency and context**

Conclusion: Students compare contexts:

- **quvvat manbai** — more often used in electronics and circuit design
- **elektr ta'minoti** — typical for infrastructure and energy systems
- **tok manbai** — used in educational texts and laboratory work

The result of this work is the conscious use of terminology and the reduction of interference errors.

Thus, the data-driven learning approach is implemented through a system of research assignments, in which students independently analyze corpus data, identify lexical and grammatical patterns, and formulate conclusions. This fosters analytical thinking and is consistent with the professional focus of engineering education.

### **Benefits of Implementing a Corpus-Based Approach**

The main advantages of using corpus linguistics in technical universities in Uzbekistan include:

- working with authentic professional texts;
- increasing student motivation through practical training;
- developing independence and research skills;
- meeting the requirements of digitalization of education.

### **Challenges and Prospects for Application**

Despite its significant didactic potential, the implementation of corpus linguistics in the educational process at technical universities in Uzbekistan faces a number of challenges, including insufficient teacher training, limited access to specialized corpora, and a lack of methodological resources. A promising approach is the creation of national and specialized academic corpora tailored to the needs of technical education.

### **Conclusion**

Corpus linguistics is an effective tool for improving foreign language teaching in technical universities in Uzbekistan. The use of corpus technologies ensures professionally oriented learning, enhances students' foreign language proficiency, and prepares them for professional communication in the international scientific and technical environment.

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