



UDC 378.147:811.111:371.3

[https://doi.org/10.52058/2786-5274-2025-2\(42\)-1088-1097](https://doi.org/10.52058/2786-5274-2025-2(42)-1088-1097)

Haieva Polina Oleksandrivna Teacher, Department of English language for Humanities #3, linguistics faculty, National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Kyiv, <https://orcid.org/0000-0002-2017-3430>

STRUCTURE AND PRACTICAL APPROACHES TO TEACHING TECHNICAL ENGLISH TO INTERNATIONAL STUDENTS IN HIGHER TECHNICAL EDUCATIONAL ESTABLISHMENTS OF UKRAINE

Abstract. Teaching technical English to international students in higher technical educational establishments of Ukraine is important in modern world in view of the process of globalization and integration of Ukraine into international educational and scientific structures. Possessing technical English skills for international students plays significant role in ensuring competitiveness in the world market place, especially in fields such as science, technology and engineering. Ukrainian Universities are being faced with the task of creating effective educational programs, which could help international students learn English at a proficient level. This involves not only studying of definitions and professional vocabulary, but also the development of writing and speaking skills in the scientific and technical context.

Having fluent technical English is a key factor in students' academic and professional success. Effective methods of teaching have to provide not only understanding language specifics, but also the progress of critical thinking and analytical skills, which help students to integrate into global technical societies.

The research of structure and practical approaches to teaching technical English international students is crucial for future improvement of education and science in Ukraine, which contributes deeper integration into global scientific society

The study was conducted on the effectiveness of methods, which included analysis of different techniques such as interactive classes, usage of modern technologies and practical tasks, video lessons, online resources and other digital instruments, defining their influence on the level of speaking competence of students and language acquisition.

It was also centered on the modern challenges that international students are faced, including cultural, speaking and learning aspects. Results of the research lead to development of recommendations and improving of educational programs for international student IT specialties in Ukraine.

Additionally, it's important to mention, that development of such programs requires active engagement of teachers to exchange the experience with foreign



colleagues, and using innovative methods of teaching. This would improve the level of education and integration of Ukrainian universities into the educational space.

Keywords: international students, methods of teaching, global society, cultural aspect, technical English skills

Гасва Поліна Олександрівна викладач, кафедра англійської мови гуманітарного спрямування #3, факультет лінгвістики, Національний технічний університет України «Київський політехнічний інститут імені Ігоря Сікорського», м. Київ, <https://orcid.org/0000-0002-2017-3430>

СТРУКТУРА ТА ПРАКТИЧНІ ПІДХОДИ ДО ВИКЛАДАННЯ ТЕХНІЧНОЇ АНГЛІЙСЬКОЇ МОВИ ІНОЗЕМНИМ СТУДЕНТАМ У ВИЩИХ ТЕХНІЧНИХ НАВЧАЛЬНИХ ЗАКЛАДАХ УКРАЇНИ

Анотація. Викладання технічної англійської мови для іноземних студентів у вищих технічних навчальних закладах України є актуальним у сучасному світі з огляду на процес глобалізації та інтеграції України в міжнародні освітні та наукові структури. Володіння технічними навичками англійської мови для іноземних студентів відіграє важливу роль у забезпеченні конкурентоспроможності на світовому ринку, особливо в таких сферах, як наука, технології та інженерія. Перед українськими університетами стоїть завдання створити ефективні освітні програми, які б могли допомогти іноземним студентам вивчати англійську мову на високому рівні. Це передбачає не лише вивчення визначень і професійної лексики, а й розвиток навичок письма та мовлення в науковому та технічному контексті.

Вільне володіння технічною англійською є ключовим фактором академічного та професійного успіху студентів. Ефективні методи навчання мають забезпечувати не лише розуміння мовної специфіки, а й розвиток критичного мислення та аналітичних навичок, які допомагають студентам інтегруватися у глобальні технічні суспільства.

Дослідження структури та практичних підходів до навчання іноземних студентів технічної англійської мови має вирішальне значення для майбутнього вдосконалення освіти і науки в Україні, що сприяє глибшій інтеграції у світове наукове суспільство.

Проведено дослідження ефективності методик, що включало аналіз різних прийомів, таких як інтерактивні заняття, використання сучасних технологій і практичних завдань, відеуроки, онлайн-ресурсів та інших цифрових інструментів, визначення їх впливу на рівень мовленнєвої компетенції студентів та засвоєння мови.

Дослідження також було зосереджене на сучасних викликах, з якими стикаються іноземні студенти, зокрема культурних, мовних та навчальних аспектах. Результати дослідження сприяли розробці рекомендацій та покращенню освітніх програм для іноземних студентів ІТ-спеціальностей в Україні.



Важливо зазначити, що розвиток таких програм вимагає активного залучення викладачів до обміну досвідом з іноземними колегами та застосування інноваційних підходів у навчанні. Це сприятиме підвищенню рівня освіти та інтеграції українських університетів у світовий освітній простір.

Ключові слова: іноземні студенти, методи навчання, глобальне суспільство, культурний аспект, технічні навички англійської мови

The purpose of this research is to consider the structure and practical approaches to teaching technical English for foreign students in higher technical educational institutions of Ukraine with the aim of increasing the effectiveness of training and improving the quality of education in this area.

Statement of the problem.

International students, who study in Ukrainian technical Universities, often face various difficulties in obtaining skills in English technical language, which are compulsory for successful education and professional communication. These difficulties are caused by cultural, speaking and pedagogical differences, and also by the need of adaptation to multilingual environment and using e-learning.

Despite the increasing significance of technical English in a globalized education and industry, there is lack of structured methodology and practical approaches, which are focused on specific needs of non-native students in IT fields. This research is aimed to overcome these gaps by studying effective teaching methods, integration of modern technologies and developing pedagogical solutions, which correspond to linguistic and technical requirements of international students.

Analysis of the latest research and publications. Teaching technical English to international students has been actively evolved lately in the world context. Among outstanding authors can be highlighted Adam V. Agostinelli "Teaching International Students in Western Universities: A Literature Review" [1] who analyzes his experience in teaching English to foreign students in western universities. The significance of this work is defining key challenges, which teachers are faced, such as language barriers, cultural differences, and offering strategies in dealing with them. This approach helped my research to concentrate on the importance of cultural adaptation in teaching.

Article "Teaching Technical Communication in English to European Engineering Students" by G. Medina-Sánchez, Eloisa Torres-Jimenez, Pablo E. Romero, R. Dorado provides detailed analysis of teaching methods technical communication for students of engineering specialties. Authors focus on the importance of combining language and technical skills, pointing out that teaching programs should be adapted to the real demands of the modern job market.

Additionally, "Teaching English-Medium Instruction Courses in Higher Education: A Guide for Non-Native Speakers" by R. Breeze and Carmen Sancho Guinda focuses on the specifics of teaching English to non-native students, which



formed the basis for part of my research on student support in the educational process. [2]

Research on the integration of technology into the educational process also had a significant impact on my article. The work “Integrating Technology into English Learning in Higher Education” by Yan Wang and Muhamad Kamarul Kabilan, demonstrates how interactive tools can improve the quality of teaching technical English. [7]

“Teaching Technical Writing in Multilingual Contexts: A Meta-Analysis”, by Christine Winberg, Thea van der Geest, Barbara Lehman, and Joyce Nduna, focuses on multilingual environments and provide valuable ideas for teaching programs improvement and development. Their studies helped me to integrate innovative approaches to teaching technical English in international groups.

The article "Demand and Learning Environment to Provide English-Language Learning Among Ukrainian and International Students" by Konovalenko, Yu., Garkavenko, S., Derkach, T., & Morgulets, O. is focused on the e-learning environments in Ukraine, which we are having now. Especially how they are ready for improving English-language learning for Ukrainian and international students. The authors analyze how these environments meet the demands of students in terms of technological tools, content of the course, and the ability to support different learning needs. [4]

Presentation of the main material of the study.

Teaching technical English is a key part in higher education, because it lets students to master specific vocabulary and knowledge, that are necessary for successful career in technical fields. For international students, who study in Ukraine, technical English is a powerful tool for effective communication in academic environment, scientific researches, and working in international companies. This allows students not only understand basic concepts and use relevant vocabulary, but also helps to adapt to global working environment, which is becoming more and more important in modern technological conditions.

Integration of technologies in teaching English in Universities is a crucial aspect in modern world. Yan Wang and Muhamad Kamarul Kabilan [7] consider how different technical tools can be used to improve quality of education among students. Technologies give new opportunities for more effective learning and allow curriculum to be adapted to the students' needs, in particular international students, who study IT.

One of the key ideas is using interactive platforms, that enable students not only to consume information, and also interact with teaching material through video, tests, forum discussions, etc. This can create dynamic environment which improves speaking skills, that is essential for students who study English in the context of specific disciplines. Incorporating project-based learning, as suggested by Elliott (2018), can further enrich this approach, allowing students to work on real-world



technical tasks while improving their language skills in an applied context. [3] They highlighted the importance of adaptation of English language courses to real job market conditions and scientific demands. Using technologies helps students to study key vocabulary and concepts, which relate to their professional activity, that enables them to communicate effectively in international scientific environment. Flexible and accessible environment can be created using modern technologies, which is important for international students, who have limited access to traditional teaching resources.

Modern platforms of e-learning have revolutionized how technical English is taught to international students, that offers a diverse and adaptive solution to fulfill their varying needs. These platforms help teachers to create courses designed to specific technical fields, such as engineering or IT, focusing on relevant vocabulary and communication skills. With the help of interactive multimedia tools students can obtain complex technical concepts and improve their language proficiency.

Moreover, platforms of electronic education offer flexibility and accessibility, which have the significance for international students who may face language barriers or different levels of English. Courses for self-education allow students to go over complicated content, practice technical writing, and improve their own speed. Features such as real-time communication tools, like chat rooms and forums, foster collaboration between peers and instructors, creating opportunities for cross-cultural interaction. Additionally, built-in assessment systems provide immediate feedback, helping students identify areas for improvement and track their progress. By integrating these technologies, e-learning platforms not only support the acquisition of technical English but also prepare international students for globalized academic and professional environments.

Konovalenko, Yu., Garkavenko, S., Derkach, T., & Morgulets, O. [4] in their article "Demand and educational environment for ensuring English language learning among Ukrainian and foreign students" stress on the importance of the readiness existing platforms for effective learning English language. They analyze Ukrainian educational platforms, such as

"National Distance Learning Platform" and Moodle, highlighting their ability to adjust to the demand of different students. For instance, Moodle allows to integrate various resources, such as video-lectures, interactive tasks, and forums for discussions, that provides interactivity of the learning process.

They also compare Ukrainian platforms to international ones, such as Coursera, EdX and Duolingo. These platforms offer wide variety of English courses emphasising technical terminology, interactive activities and automated feedback. For example, Coursera allows students to learn technical English in courses like "English for Science, Technology, Engineering, and Mathematics". Such global examples can inspire Ukrainian educational establishments to implement new technologies and approaches in the curriculum. Thus, readiness of Ukrainian and international platforms demonstrates the potential for improving quality of teaching



English, particularly technical English, providing students access to modern tools and adapting them to real demands.

Integration of technologies into learning English opens new opportunities for students and teachers, making education more effective and interesting. These tools enable creation of interactive environments, where students can practice speaking skills through multimedia resources, online platforms and mobile apps. For instance, podcasts, video lessons, interactive tests – all of them contribute to the development of listening skills, writing and speaking. Thanks to adaptive systems of education, students can learn material on their own pace, concentrating on their individual needs. The important advantage of these technologies is an access to authentic resources, such as articles, news, educational videos, that help students to immerse into real language environment. Using artificial intelligence in the way of assessing systems, make the process of education and evaluation much easier. Distance learning using platforms such as ZOOM, Google Meet or Microsoft Teams is an essential tool, especially in pandemic conditions, ensuring flexibility of the educational process.

But despite all of these advantages, there are some challenges. A lot of teachers need extra preparation for using these tools in their job. Not all universities have sufficient technical base or stable Internet connection, that could limit effectiveness of implementing these technologies. Moreover, students sometimes can face difficulties of self-organisation, especially in online-format.

For Ukraine integration of the technologies in higher education is the important step towards strengthening its position in global educational area. The development of digital infrastructure, investing in educational platforms, and professional development of teachers can be key priorities. Modern technologies provide unique opportunities for improving quality of education, but their effective implementation requires complex approach.

Teaching international students requires clear structure that takes into account diversity of cultural and language experience of students. Based on literature review and my own experience I have made the following recommendations:

1) Identification of students' needs. It is essential to test students' level of English and their aims, so it helps to create a personalized approach to teaching and adapt the curriculum to group needs.

2) Gradual complication of tasks. Material should be structured from basic technical vocabulary to complicated tasks, such as analysis of technical texts, or professional, business writing. This approach is reducing students' anxiety and stress, and they can be ready for more difficult tasks (Breeze & Sancho Guinda, 2017)

3) Visualization of teaching material. Using diagrams, pictures, videos, and other visual materials can simplify understanding of complicated topics, especially technical subjects. For example, when we explain how LAN or WAN work we can use interactive schemes to make it more clear. Using visuals not only increase



students' interest, but also helps to remember information better, connecting technical vocabulary to pictures (Wang & Kaliban, 2023).

4) Individual approach. It is critical for supporting, motivating and involvement of students. If we offer a task that comes along with students' interests we can make educational process more interesting and engaging. For instance, students can choose any device they use every day (smartphone, laptop, computer, etc) and create a presentation or speech about its history, functions, interesting features, etc. This creates a deep connection with curriculum, and becomes more significant for students.

5) Role games for development of speaking skills. That is really effective method, which improved communication skills among students. We can imitate different situations, such as technical support, dialogue in a computer store, fixing problems with internets connection, etc. In this way students can practice IT and technical vocabulary, soft skills in real world. This helps them to be more confident and develops their basic speaking skills.

6) Interactivity. Interactive methods of education, such as common projects, discussions, simulations, role plays, dialogues significantly increase the engagement of students. In offline studying we can do it through interactive tasks, where students can analyze real problems or scenarios, the same can be performed in online studying through Zoom, Microsoft Teams, and other platforms. This allows students to understand better how theoretical knowledge can be implemented in real world (Ravenscroft, 2011).

For teaching international students it is also necessary to combine linguistic skills with technical knowledge. Integration of these two aspects is an essential part of teaching process, because it is necessary for student to have profound skills in IT vocabulary and using English for professional communication. There are several strategies that can bridge the gap between students' linguistic and technical skills. One of the most important strategies is using technical contexts for development speaking skills. Teaching IT vocabulary can be combined with analysis of real technical documents, such as instruction, specifications, scientific articles, and projects' documentation. Students can translate instructions to different devices or assess the compliance of technical reports with international standards. This helps to practice English in real conditions and helps student to be more oriented in technical terminology.

Furthermore, project education is another effective strategy for integration of these competences. Working on the projects, students can implement their speaking skills for solving technical tasks. For example, they can work on the technical documentation for imaginary device and creating operating instructions for technical equipment. This approach is useful not only for enriching vocabulary, but also for development of critical thinking, creativity and ability for team work. For development communication skills in technical context it is also necessary to use situational tasks, where students, for instance, can look for mistakes in technical



texts, or troubleshooting while using some devices. This can also improve grammar and speaking skills.

A lot of Ukrainian universities actively implement e-learning for teaching English, especially IT. For instance Kyiv Polytechnic Institute (KPI) uses the platform Moodle for creating courses, which combine theoretical lectures with practical tasks and tests. They actively integrate video and multimedia content, which lets students to study IT English on their own with the help of interfaces which are adapted to the specifics of engineering specialties. The course “English for Engineering” allows students not only to learn basic vocabulary and grammar, but also practice them, doing tasks which require writing technical reports, creating presentations and participating in discussions. Moodle gives the opportunity to integrate video and multimedia content, which enables students to watch video lectures with explanation of specific technical topics, and taking tests, which can be automatically evaluated. It is very convenient for students due to their different level of English, because they can take their time and work in their own pace.

Moodle also provides various forums for discussions and group projects, where students can develop their speaking skills which are necessary for working in international companies. They can discuss any topic which related to engineering or computer science, or create a presentation and then talk it over. Another significant aspect and really interesting activity are elements of gamifications, where student can play some games, take quizzes, thus getting extra points to their overall grade.

In this way KPI is an example of a modern university that actively uses technology for improving the quality of education and adapts curriculum to them real world and market demands. Using Moodle makes the process of studying more flexible and accessible.

Cardiff University also successfully implemented a blended learning model, which combines traditional lectures with online courses. For IT students university offers platforms for creating and editing of technical texts, such as Coursera and EdX. Courses as “English for Technical Communication” or “Business Communication for Engineers” help students from all around the world to study specific vocabulary, grammar and writing skills, which are so necessary for their future job.

Conclusion. Teaching IT English to international students in Ukrainian universities is a complicated and essential process that requires individual approach to every student. International students are being faced a great amount of challenges, particularly language barriers, cultural differences and necessity of studying specific technical and IT vocabulary. It is essential to take into account all these aspects, because it provides successful adaptation of students to new environment. Moreover, teachers have to be ready to work with multicultural groups, that significantly increases the effectiveness of teaching process.

A lot of attention in my research was paid to the use of technology in education. It was explored how e-platforms, interactive instruments and blended



learning can help international students learn English more effectively. It was conducted that such approaches allow to personalize learning process making it accessible to students with different level of English.

In addition, successful cases of technology implementation in education in Ukraine and abroad were researched. For example, platforms which are used in universities such as KPI became a key instrument in ensuring the availability of materials and student support. Blended learning provides flexibility, interactivity and ability of combining online and offline formats.

Effective teaching of technical English requires a comprehensive approach that incorporates adaptation to the individual needs of students, integration of modern technologies, development and practical speaking skills and a profound understanding of IT vocabulary. It is confirmed that the growth of student mobility and the demand for technical specialists from around the world requires innovations in pedagogy that Ukrainian universities can provide.

References:

1. Agostinelli, A. V. (2019). *Teaching international students in Western universities: A literature review*. Journal of Comparative and International Higher Education, 11(Winter), 8–15. Retrieved from: <https://oed.org/jcihe/article/view/1846/1582>
2. Breeze, R., & Sancho Guinda, C. (Eds.). (2017). *Teaching English-medium instruction courses in higher education: A guide for non-native speakers*. Springer International Publishing. https://www.researchgate.net/publication/267325503_Teaching_Technical_Communication_in_English_to_European_Engineering_Students
3. Elliott, J. (2018). *Project-based learning in technical English education*. Journal of Technical Education and Training, 10(2), 45–58.
4. Konovalenko, Yu., Garkavenko, S., Derkach, T., & Morgulets, O. (2020). *Vymohy ta navchalne seredovyshche dlia zabezpechennia vyvchennia anhliiskoi movy u tekhnichnykh universytetakh [Demand and learning environment to provide English-language learning at technical universities in Ukraine]*. CEUR Workshop Proceedings, 2732, 996-1004. Retrieved from: https://ceur-ws.org/Vol-2732/20200996.pdf?utm_source [in Ukrainian].
5. Ravenscroft, A. (2011). *Interactive learning environments in technical English education*. Computers & Education, 56(2), 409-417.
6. Wang, M.-T., & Kabilan, M. K. (2023). *Visual aids in technical English instruction: Enhancing comprehension and retention*. Journal of Educational Technology & Society, 26(4), 112-125.
7. Wang, Y., & Kabilan, M. K. (2023). *Integrating technology into English learning in higher education: A bibliometric analysis*. Education and Information Technologies, 28, 11789-11807. https://www.tandfonline.com/doi/full/10.1080/2331186X.2024.2404201?utm_source
8. Winberg, C., van der Geest, T., Lehman, B., & Nduna, J. (2013). *Teaching technical writing in multilingual contexts: A meta-analysis*. Journal of Technical Writing and Communication, 43(1), 27–57. https://www.researchgate.net/publication/239789205_Teaching_technical_writing_in_multilingual_contexts_A_meta-analysis

Література:

1. Agostinelli, A. V. *Teaching international students in Western universities: A literature review*. / A.V. Agostinelli.- Journal of Comparative and International Higher Education, 11(Winter), 8–15. Retrieved from: <https://oed.org/jcihe/article/view/1846/1582>



2. Breeze, R. Teaching English-medium instruction courses in higher education: A guide for non-native speakers. /R. Breeze, C. Sancho Guinda.- Springer International Publishing. https://www.researchgate.net/publication/267325503_Teaching_Technical_Communication_in_English_to_European_Engineering_Students
3. Elliott, J. Project-based learning in technical English education. / J. Elliott.- Journal of Technical Education and Training, 10(2), 45–58.
4. Коноваленко Ю. Вимоги та навчальне середовище для забезпечення вивчення англійської мови у технічних університетах України. / Ю. Коноваленко, С. Гаркавенко, Т. Деркач, О. Моргулець.- CEUR Workshop Proceedings, том 2732, с. 996-1004 <https://ceur-ws.org/Vol-2732/20200996.pdf>.
5. Ravenscroft, A. *Interactive learning environments in technical English education*. / A. Ravenscroft.- Computers & Education, 56(2), 409-417.
6. Wang, M.-T. *Visual aids in technical English instruction: Enhancing comprehension and retention*. / M-T. Wang, M. K. Kabilan.- M. K Journal of Educational Technology & Society, 26(4), 112-125.
7. Wang, M.-T. *Integrating technology into English learning in higher education: A bibliometric analysis*. / M-T. Wang, M. K. Kabilan.- Education and Information Technologies, 28, 11789-11807. https://www.tandfonline.com/doi/full/10.1080/2331186X.2024.2404201?utm_source
8. Winberg, C., van der Geest, T., Lehman, B., & Nduna, J. *Teaching technical writing in multilingual contexts: A meta-analysis*. / C. Winberg, B. Lehman, J. Nduna.- Journal of Technical Writing and Communication, 43(1), 27–57. https://www.researchgate.net/publication/239789205_Teaching_technical_writing_in_multilingual_contexts_A_meta-analysis