

# Teaching ESP at a Technical University

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Teaching professional English at a technical university is a specific task not only from the point of methodology but especially the contents and syllabi of specific language courses. As I have been teaching future engineers for years, I have seen the specific professional variety to emerge, to constitute in academic settings where English is used as a foreign language. Therefore, I have analysed various electrotechnical texts and on the basis of my research I have classified specific features of the professional variety of English which is necessary to teach our undergraduates. My research results are published in my book *Parameters of Professional Discourse*.

Based on my research the Faculty of Electrical Engineering and Communication provides an accredited bachelor study English in Electrical Engineering and Informatics run by the Department of Foreign Languages since 2012.

The aim of the study programme is mastering of the interdisciplinary knowledge and skills provided by training not yet common on the market, though highly necessary in the view of the development and expansion of electro-technical fields in the present globalising world, and considering the position of the English language as the global communication tool, which is particularly true for electrical engineering and information technology. The aim of the study programme is to equip the students with fundamental knowledge of electro-technical disciplines and particularly with the competences in professional language at the level C1 of the Common European Reference Framework (SERR). (C1 level is a skilled and independent user of all skills in English).

The training is mainly focused on the characteristics of professional discourse as a specific communication tool used by the global discourse community. The graduates as the future members of this professional community are provided with the knowledge and skills of reception as well as production of this functional variety. English in electrical engineering and information technology as a specific professional variety is the lingua franca of electrical engineering. Included in the programme are subjects focused on managerial skills which together with professional English, socio-cultural approach to the environment of English-speaking countries and knowledge of the fundamentals of electrical engineering and management provide good qualifications for careers in industry, administration, government institutions and scientific institutions.

Teaching English at a technical university is undoubtedly a challenge. The perfect knowledge of the English language is not enough for the qualification of a good

teacher. It is necessary to be aware of the basic subjects of electrotechnical disciplines as well. Moreover, to understand this specific professional variety of English, the teacher has to use specific methodological approach to elucidate both the linguistic and extralinguistic qualities of the variety of English in Electrical Engineering and Informatics. The transfer of specific technical information cannot be successful without the professional knowledge of electrotechnical disciplines. This specific knowledge ensures the appropriate comprehension of the highly specific message.

Thus, besides the knowledge of the standard English language, the added meaning is rooted in the knowledge of a technical discipline (microelectronics, telecommunications, radioelectronics, automation, information technology, etc.) Therefore, it is necessary for students of our programme English in Electrical Engineering and Informatics to learn not only practical English including training of all skills (listening, writing, reading, and speaking) but also to learn the basic knowledge in electrical engineering (Mathematics, Physics, Digital circuits, Communication systems, Production and distribution of electrical energy, Electronic devices, etc.)

My research of the specific discourse, its discourse community, and approaches to them is used in this study programme and my lectures are focused on Language as Discourse in Science and Technology.

I give lectures on linguistic means, extralinguistic means, pragmatic aspects of professional variety of English (application of the Co-operative principle, Politeness Principle, Approaches to recipients), typical genres of technical varieties, the characteristic features of a professional discourse community in Electrical engineering and IT, and other important topics connected with the production and reception of a specific functional variety of English. It is definitely necessary to teach students not only linguistic means but also extralinguistic ones which ensure added meaning. Words and grammar i. e. linguistic means are not able to transmit the professional technical message thoroughly and thus the professional schemata of knowledge in receivers' heads enable the correct interpretation of the specific message. The knowledge structures are carried mostly by specific terms which provide and guarantee the coherence of the texts. Such a specific text is consequently comprehensive only to such a recipient who is well instructed not only in the standard English but also in technical disciplines concerned in texts.

The above reasons led us to collaboration with our colleagues-engineers when preparing the study programme. After eleven years of running our programme, the collaboration is still functioning and successful. Our colleagues, engineers, are aware of that mastering English is an important way how to learn new information in their disciplines and how to present their own research internationally. The bachelor study programme "English in Electrical Engineering and IT" was accredited by the Czech Ministry of Education in 2012 and has been running

successfully since. Since 2015, when the first graduates finished their bachelor studies, more than 180 students passed their final state examinations. They either continue their master studies or their bachelor's degree can be applied in electrotechnical companies either the local ones or most frequently the international ones, many of which have placed their factories in Brno. Our graduates work there as local managers who are able to communicate the objectives of international headquarters to local workers. They are also able to represent their companies internationally and to translate technical documents into English appropriately. They work as writers of software or international spokesmen of Czech companies.

The typical linguistic features of English in science and technology are well known (passive constructions, long and complicated sentences, terminology). In my research I focus mainly on pragmatic aspects of the functional variety of English used in electrotechnical disciplines in academic surrounding. The typical pragmatic aspects can be classified in the following way:

## **Pragmatic aspects**

- coherence of texts is based on terminology
- shared mental schemata of knowledge
- professional schemata function globally and are not culture-dependent
- users produce the discourse with specific approaches to its discourse community

The specific texts in electrotechnical disciplines are comprehensible to receivers who are instructed in their core at least. Thus, the professional knowledge creates schemata in both producers' and receivers' brains and enable them to appropriately decode the specific message. The advantage is the discourse community functions globally due to their own invention i. e. the Internet. As the specific profession deals with highly specific and technical topics, the cultural dependence of the meaning interpretation is negligible.

## **Sociolinguistic features**

The global discourse community treats and cultivates their discourse on the professional and international basis and cultural and national aspects are not important in this field of science. The approaches of the discourse community seal the discourse with its unique parameters that, in reverse, give its discourse community its unmistakable identity. Their discourse sets the borderline between its professional users and those who are non-professional i. e. outsiders of the community. At the same time the discourse ensures a special societal value for its users, prestige and consequently the power and ideological approach to its

receivers. The approach to production and perception of the discourse is based on objectivity, logics and the use of professional knowledge.

## Some data ...

The team of 18 professionals teaches about 4,700 students p. a. of three faculties and harbours the above-mentioned programme of English in Electrical Engineering, which currently holds the amount of extra 121 students. Even though 121 does not sound a lot, the main difference between these students and the others is that these students are taught by the Department of Foreign Languages in thirty-one language, linguistic and cultural courses a year. Factoring in these data, the overall result states that this program alone accounts for 21% of the teaching of the Department.

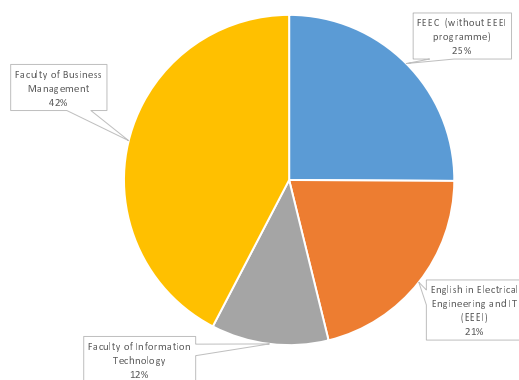


Fig. 1: Number of students in % taught by Dept. of Foreign Languages in 2018/19 (factoring in number of lessons per head)

Source: Internal database of The Brno University of Technology

The interest of the students in the above-mentioned program slightly fluctuated during the years, yet, unfortunately, it was mostly affected by the unfavourable trend in the demographic curve of the Czech population. Natality hit its minimal values in 1998 and 1999 resulting in the weakest interest in the program from Czech students in 2017/18 (see Fig. 2). Fortunately, since this program has been international from the very beginning, and the interest of foreign students prevails, the numbers have not dropped under the critical level.

The international character of the program plays an important role in mutual communication and interaction among the students and makes it unique in the Czech Republic, where classes are usually monolingual and ethnically homogeneous. Majority of foreign students in the programme come from Ukraine and

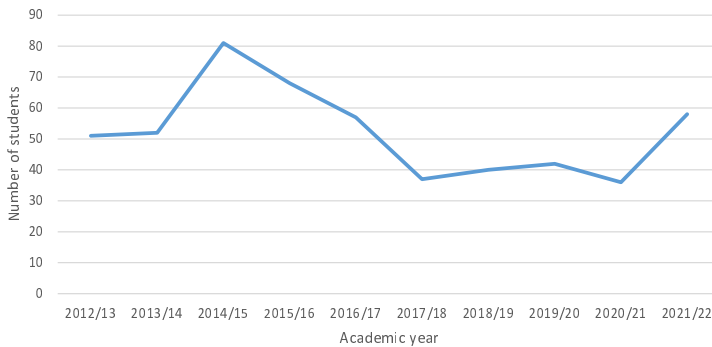


Fig. 2: *Nr. of first year students in IEEE programme*  
 Source: *Internal database of The Brno University of Technology*

the Russian Federation, which may indicate that the programme became merely a bicultural one. Moreover, students from neighbouring Slovakia, who are often not even counted among foreigners due to their cultural closeness, may appear to lower the international ‘flavour’ even more. That being said, the programme has become also quite popular in ethnically significantly different countries of Kazakhstan and Turkmenistan and students from Serbia and Croatia are on the rise. The international character is further deepened by occasional students from the Americas.

Electrical engineers are a specific discourse community, with specific patterns of thinking and their minds focused on mathematical equation, used to working with empirical hard data, and adjusted to critical, logical, and analytical thinking. On the other hand, the experience from the Czech Republic shows electrical engineers have significant deficiencies in soft skills, language abilities and often social skills which correlate with their unique perception of the surrounding world. Taking into consideration the job opportunities and positions of the future graduates of the programme i. e., mainly jobs in transnational corporations, the program is designed to incorporate (apart from the electro-technical courses, of course) not just ESP and the most important fields of linguistics, but also cultural studies. The main purpose was to mitigate future inter-cultural misunderstandings in the increasingly globalized world and ease their communication in future jobs and to get them acquainted with the specifics of inter-cultural communication around the world. A two-semester course was introduced to cover a wide variety of topics, acquainting students with the main realia of (not only) the Anglophone world, explaining specifics of political systems, cuisine, communications specifics and body language, including also phonetics some historical events and other data necessary to correctly assess and navigate through international and intercultural

communication, i. e. soft skills necessary to work in multicultural environment of transnational companies.

During the eleven-year existence of the bachelor study programme the public in the Czech Republic and also other countries has confirmed and acknowledged our notion of the necessity to provide graduates with such specific interdisciplinary knowledge.

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### **doc. PhDr. Milena Krhutová, Ph.D.**

The author is a graduate of the Faculty of Arts MU majoring in English, minor in Russian. She achieved a Ph.D. in philology – English language in 2003, then habilitated in the field of linguistics of Germanic languages – English language in 2011 at the Faculty of Arts, Masaryk University.

She was the head of the Department of Languages of the Faculty of Electrical Engineering and Communication Technologies Brno University of Technology for twenty-eight years. At present she is the guarantor of the bachelor's study program English in Electrical Engineering and Informatics, which was accredited based on her own research on professional English in science and technology in 2011 and is still ongoing. Her main focus is on the pragmatic aspects of professional English, the style of science and technology and the functions of professional language. She is the author of publications both abroad and in the Czech Republic, presented her research at many conferences in Europe, the USA and Canada, managed several language education projects for students and teachers. She was awarded the Brno University of Technology commemorative medal for teaching activities in 2018.

### **Mgr. Pavel Sedláček**

The author is a lecturer with twenty plus years of experience. He was trained in geography, namely regional geography an urban development, and English studies with accent in cultural studies, especially North America studies. His career started at the Department of Geography, Faculty of Science at Masaryk University in Brno, where he focused on a comparative study of Canadian and Czech cities. Fifteen years ago, he transferred to the Department of Foreign Languages at the Faculty of Electrical Engineering, Brno University of Technology with the aim to promote cultural studies there. Since 2010 he has been actively lecturing several courses in Department's own study program called English in Electrical Engineering and Informatics, then the first philological program at a technical university in the Czech Republic. Currently he is participating in launching a new program called English for Practice in Electrical Engineering and Communication Technologies.