

# Innovative Forms of Education in Technical Study Material

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**Abstract** – The author of the paper focuses on preparation and solution of Cultural and Educational Grant Agency. The project concerns innovative methods and forms of education for the needs and development of language communication skills in the Slovak technical study material and is intended for foreign students to overcome the initial problems at the beginning of their study. The aim of the project is to implement modern technologies and improve the quality of language teaching at the Faculty of Manufacturing Technologies in Prešov. It is intended to increase and improve the level of the educational process, the internationalization of teaching by applying Web Based Training. By transferring innovative approaches in Slovak language to support the teaching of technical subjects we will try to promote technically oriented subjects and professional practice, which is an important part not only of the Slovak industry.

**Keywords** – Slovak language teaching, foreign students, professional study material, e-learning.

## 1. Introduction

Many foreigners claim that Slovak language is the most difficult. Michaela Mošaťová argues that this is nonsense. She has been teaching Slovak language of foreigners almost 20 years.

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She is a co-author of the distance learning course Slovak as a Foreign Language as well as the tutor of an e-learning course. She asks herself, which is perfect language proficiency and whether the native speakers can also know their language perfectly? Native speaker may also come to another region within the country and it happens that he does not understand. According to her, the advantage in learning the Slovak language is for students with strong motivation, the motive force, the reason why they want to learn. Then such students watch television, read books, newspapers, learn the language not only from the textbook but absorb it everywhere. The author stresses that teaching the Slovak language must be based on the communication-pragmatic method. This is the goal to teach students to communicate as quickly as possible. According to her, beginners will first get acquainted with the basic phrases - greetings, gratitude, age, phrases such as Do you speak Slovak? I speak German. They do not practice writing, but they listen and repeat and then they are able to speak alone. Later they learn to read, write alphabet characters, and begin to deal with grammatical analysis. It is important that grammar is subordinated to communication topics in the next lesson. In order that the beginners do not feel Slovak full of surprises, it is necessary to show them a lot of words that the Slovak language has from Latin or other languages such as university, student, bank, hotel, film, sport, weekend, discussion, character, and so on. Foreign students will feel like they already know Slovak language. At present, with a lack of labour force in Slovakia, many Ukrainians, Russians and Serbs learn Slovak. Mošaťová adds that teaching Slovak to migrants and to children of foreigners is a large area that should be covered today in Slovakia [1].



Figure 1. Sample web page with KEGA projects at the Faculty of Manufacturing Technologies

## 2. Slovak language teaching for needs and development of language and communication skills

Not only on the labour market, but also the field of higher education and education in general shows the influx of international students. At present there is a need to prepare for their adaptation a course of Slovak language, which would help them overcome the first problems with adaptation to a new foreign environment. We are currently following a large wave of Ukrainian students at Slovak universities. The Technical University in Košice and the Faculty of Manufacturing Technologies in Prešov are not exceptions because of their geographical location. In the initial phase of the arrival of foreign students at our faculty, if there were two or three foreign students in one study group, we did not feel the necessity to do anything special about the preparation of professional terminology and specialized topics in Slovak language. However, in connection with the more massive arrival of foreign students at the Faculty of Manufacturing Technologies in Prešov, when in some study groups the Ukrainian students predominate the Slovak ones, gradually the idea was born by the professional assistants for language teaching [2],[3]. They try to prepare a comprehensive study material in cooperation with the teaching staff to help them overcome the initial

problems in the winter semester regarding the study in a foreign language, self-study, understanding the lecture, seminar work and life at all in a new foreign university environment. This comprehensive study material will be added to the EngerU platform, the Moodle system that assistants created under previous projects.

When learning the level of knowledge of the Slovak language, it has been shown that some of them have already completed courses in the Slovak language in their country. Topics related to common communication were known to students, such as: to greet, to talk about themselves or their family, to describe typical foods and beverages, orientation in shops and supermarkets, if necessary manage the doctor's visit, provide the necessary documents in the bank, at the post office, to arrange official matters. For those, who already have some basics of the Slovak language, there were not a big problem the next topics such as weather, knowledge of the human body and terminology associated with it. Students who do not have any basics of Slovak language have minor or greater problems and at the beginning of the semester after the first lectures there is a problem with understanding.



Figure 2. Sample of listening exercise-video presenting the Faculty of Manufacturing technologies

International students have come to the environment where it was necessary to understand the terms and facts of the lectures and seminars. Lecturers for language teaching at the Department of Natural Sciences and Humanities have a lot of experiences from previous projects [4] in solving projects with similar problems. The current need for the preparation of a new project arose: *Innovative methods and forms of education for the needs and development of language and communication skills in technical professional foreign language study material*. This is very closely related to the arrival of foreign students at the faculty. We want to help them to successfully complete the study of specialized subjects in the Slovak language. We would help to prepare foreign students for professional communication in Slovak language, because they need to acquire and develop communication skills. Moodle b-learning study materials also need to be prepared [5],[6]. It can be used in the future by foreign students from other faculties of Technical university in Košice as well as in the scientific field, in professional international cooperation, or in order to be better prepared for the Slovak labour market.

We have therefore decided to prepare a new study material for e-learning portal for foreign students to improve Slovak language. This will build on previous experience and knowledge. Besides lectures and seminars, students are advised to focus not only on common communication with Slovak classmates but to listen to Slovak television as much as possible,

listen to the radio, read Slovak magazines, mainly from their study branches, study programmes and orientation so that they can absorb sufficient professional terminology. In this context, they should be guided how to make the most effective use of online dictionaries to help them navigate the Internet in the amount of information they can use at university during their studies.

When using online Slovak dictionaries, students need to explain the individual abbreviations and markings used to clarify the meaning of the word and at all for its better understanding. Furthermore, we teach them to distinguish between nouns and adjectives, as we create new words by means of suffixes and prefixes, as we denote fall suffixes and declension of nouns. Students must understand the rules of Slovak spelling, the multiplicity of words and accordingly decide to choose the correct meaning of the words resulting from the sentence and the overall context of the technical text especially when working with professional terminology. We apply all of this to appropriate professional texts, which we selected with teachers of technical subjects at the Faculty of Manufacturing Technologies.

When working with online dictionaries, they can also hear sound recordings of some words. They can read the phrases of the parallel corpus. In the online synonym dictionary, they have the option of studying synonymous terms, so they should also focus on the multiplicity of words and synonyms to make the best synonym for that term.



Figure 3. Use of different online Slovak dictionaries

Knowledge of Slovak is an important factor for international students especially when looking for work in Slovak companies, which is also the goal of many current students. As long as they are studying, they try to find a suitable job, which should also help them to improve in Slovak and acquire communication skills. At present, students as well as professional assistants are enthusiastic about using and practicing e-learning language teaching during seminars. By introducing new, modern, innovative and more effective methods of language learning, students get used to achieve better study results.

The prepared e-learning study material, which will deal with and solve the tasks that are set during the next period, includes the following topics: acquaintance with the student and faculty environment and the city in which they decided to study; pointing to the Ukrainian-Slovak context through cultural and social activities; a study at the Technical University in Košice and the Faculty of Manufacturing Technologies in Prešov. At the beginning of the class, many facts will need to be explained and address issues related to their study. In this initial phase of their study, many international students are confused and often "unhappy" by the amount of new information, which due to the lack of knowledge of the Slovak language they often do not understand. Similarly, they need to clarify the MAIS system, because this is also a novelty for them, with which they had no experience: how to enrol in the system and find new information. The timetable of

the study, which is placed on the faculty website, is as important to them as to know how long the semester lasts, when they will have time for exams, holidays, and so on. After familiarizing themselves with the study programme for the winter semester they will learn what lectures and seminars they will have in the next period. Various schemes, abbreviations, and many other characters and symbols that are only in the Slovak language must be explained to foreign students for proper orientation in new information.

The experience of previous academic years and after discussions with foreign students, we learned that some new technical subjects and terminology associated with them makes them the biggest problems [7]. This knowledge is the basis for selecting expert topics, which we will be discussing in the KEGA project. These are the following subjects: Economy (economy, market, types of markets, enterprise and business, gross domestic product); Automotive industry in Slovakia; Technical materials (material classification, crystal lattices and grid defects, equilibrium diagrams, material structure survey); Technical documentation (product technical documentation, types of technical standards, geometric bodies); Physics and mathematics (kinematics, dynamics, energy, types of energy, power, labour, mechanical work, gravitational field, electric field, electric current, magnetic field) and the like.

Študijný odbor: 2305 Výrobné technológie Študijný program: MANAŽMENT VÝROBY																			
I. rok štúdia						1. semester													
Kód	Predmet	Katedra	Typ	Kredity	Ukončenie	Hodinové dotácie													
						P	S	C N	C L	PP	A	ST	E	OP	Vyučujúci				
	Matematika	KPHV	P	5	ZS	2	-	2	-	-	-	-	-	-	-	Knežo			
	Základy priemyselných technológií	KNMTS	P	5	ZS	2	-	2	-	-	-	-	-	-	-	Hal'ko			
	Technické materiály I	KAVT	P	5	ZS	2	-	-	2	-	-	-	-	-	-	Parilák			
	Manažérska ekonomika	KPII	P	5	ZS	2	-	2	-	-	-	-	-	-	-	Modrák			
	Počítačové modelovanie I	KPPVT	P	4	KZ	1	-	-	3	-	-	-	-	-	-	Kočiško			
	Technika štúdia a rétorika	KPHV	PV	2	KZ	-	2	-	-	-	-	-	-	-	-	Navrátilová			
	Počítačová podpora štúdia	KPII	PV	2	KZ	-	-	-	2	-	-	-	-	-	-	Hrehová			
	Vývoj techniky	KAVT	PV	2	KZ	2	-	-	-	-	-	-	-	-	-	Vasilko			
	Svetový jazyk I - <i>Anglický jazyk</i>	KPHV	PV	2	KZ	-	2	-	-	-	-	-	-	-	-	Bielousová Gluchmanová			
	Svetový jazyk I - <i>Nemecký jazyk</i>					-	2	-	-	-	-	-	-	-	-	-	-	-	Gluchmanová
	Svetový jazyk I - <i>Ruský jazyk</i>					-	2	-	-	-	-	-	-	-	-	-	-	-	Bielousová
	Cvičenia z matematiky	KPHV	V	1	Z	-	-	2	-	-	-	-	-	-	-	Vagaská			
	Cvičenia z chémie	KPT	V	1	Z	-	-	-	2	-	-	-	-	-	-	Oravec			

Počet kreditov za povinné predmety: 24  
Minimálny počet kreditov za povinne voliteľné predmety: 6

Figure 4. Example of the study programme

Within these thematic units we prepare various grammar exercises, explaining them to the appropriate grammar of the Slovak language. We practice listening exercises from MP3 and MP4 recordings, or we use appropriate videos in Slovak language. We also work with various online Slovak dictionaries to gain the skill and the experience to choose the appropriate terms. The submitted technical subjects and their related issues are attended by bachelor students in the first year of the following study programmes: Computer Aided Manufacturing Technologies, Manufacturing Management, Manufacturing Technologies, Technical Design Systems, Automotive Production, Process Technology, Industrial Production Management, Renewable Energy Sources, Industrial Management and the others.

### 3. Conclusion

I expect that the changes in the coming years will be more than in recent years. This is also claimed by futurist Gerd Leonhard in his latest book, Technology versus Humanity [8]. He also thinks about the humanity we want, and we should preserve it at a time when technology is starting to grow overhead [9]. In the coming years, we will be able to use technology much more than we have done so far, practically in everything. By forming a creative interactive learning environment with the use of modern information technologies to acquire language competencies we will allow to carry out the multi-purpose and interdisciplinary training of graduates of the Faculty of Manufacturing Technologies for the needs of economic as well as social practices. The

prepared study material will be created in Moodle and placed on an existing functional website <http://web.tuke.sk/fvt-engeru/>, and it allows students to engage in the process of e-learning at the faculty.

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