

ENGLISH LANGUAGE TEACHING IN MECHANICAL ENGINEERING

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Abstract. *The paper deals with the issue of English Language Teaching at the Faculty of Mechanical Engineering in Niš, and with the importance and necessity of English for its students. The results of the survey conducted by the author at the Faculty of Mechanical Engineering concerning the students' opinions on the English language and their current courses are presented here, while the possible solutions to the emerging problems are stated and discussed in detail.*

Key words: *English Language Teaching, Mechanical Engineering, Lingua Franca, English for Specific Academic Purposes*

1. INTRODUCTION

1.1. The Aim

The aim of this research is to determine just how important and necessary the English language is for the students at the Faculty of Mechanical Engineering in Niš and what their takes on the language itself are. One of the vital questions is why the students choose English over other languages, in this case namely German, French and Russian. It is also highly relevant to find out if and why they think that English is necessary and what it stands for in their opinions. Among other things, some of the crucial issues that need be resolved are how much English the students need and what the right mixture of general and specific English is for the students of mechanical engineering.

1.2. English as a Lingua Franca

The English language has become by far the most prominent and relevant language in the world. In almost every kind of situation, English serves as the intermediary means of communication between persons not sharing a mother tongue, no matter what their

vernacular languages are. Therefore, it can rightfully be called the *lingua franca*¹ of the modern world and is systematically used in practically every aspect of life. (Muysken, 2008) Unlike with any other language in the world, non-native speakers of English outnumber almost 400 millions of native speakers, which only proves how widespread English has become today and how important it is for human interaction on the global scale. (Firth, 1996) Thus, it seems clear why, whenever two speakers of different languages meet each other and try to communicate, English will most probably be the language of choice no matter where the meeting takes place, and as long as they are in need for a third language, there is no doubt which language they will primarily reach for in order to understand and converse with each other.

English began its path to the title of the *lingua franca* with the rise of the British Empire and its far-reaching influence that spread over the four corners of the world. Yet, the main reason for such a dominance that English today enjoys over numerous other languages is the outcome of World War II and the ensuing influence of the Western countries with the United States at the forefront. An enormous expansion in scientific, economic and technical activity on the global scale led to the creation of the world dominated by technology and commerce, which soon generated a need for an international language. With the economic power of and cultural and technological exports from the USA, and the UK in a lesser degree, the English language slowly became the predominant language of international correspondence and communication. (Walters, 2002) Throughout the twentieth century technological inventions and developments such as the telephone, fax, and most importantly computers and the Internet, have brought closer people from every continent and helped spread English as the most convenient communicational tool. (Godwin Coury, 2001) As a consequence, English enjoys the prestige among other languages, which can easily be seen from the number of people of all ages studying English compared to those studying and taking interest in other languages. (Walters, 2002)

Nowadays, English is regarded as the *lingua franca* of international business, economy, science, technology and even sports, where language does not play such a significant role as in other facets of contemporary life. It is overwhelmingly dominant in scientific and technological communication with all relevant and ground-breaking information being primarily published, distributed and stored in English. (Crystal, 1997) As far as engineering disciplines are concerned, foremost with mechanical engineering in mind, the English language plays the same role as in other similar fields, being the most important language in conveying knowledge and new inventions on the international scale. Being constantly utilized in all aspects of such a broad discipline as mechanical engineering is, it is crucial for the students to understand and perform well in the language for variety of reasons, mainly those concerned with their career advancement and scientific development. Even though, only some time ago, German and Russian had been, and in some ways still are, very important for the students from this region, English holds the pole position, and it is the most chosen of language courses at the Faculty of Mechanical Engi-

¹ *Lingua franca* literally means Frankish language, that is the language of the Franks, the name that Arabic peoples used for all Europeans. It originated in the Mediterranean ports in the Middle Ages amongst traders and crusaders of different language backgrounds and it was composed mostly of the Italian language with numerous French, Greek, Persian, Spanish and Arabic words. It was used for communication as a diplomatic language in the Middle East, and the term has since become common for any language used by speakers of various different languages in order to communicate with each other. (Richards et al., 1996)

neering in Niš, beating both the aforementioned German and Russian, as well as French. By the by, the English language has been taught at the Faculty of Mechanical Engineering since its establishment in 1973, and has, meanwhile, grown in stature and become the most attended language course, due to the fact that during the last thirty five years of the faculty's working life, English has constantly evolved as the main means of communication in this field and finally gained a huge advantage over other languages being studied at the faculty when it comes to academic and scientific correspondence.

2. THEORETICAL BACKGROUND

2.1. English as an Academic Language

As far as English Language Teaching is concerned, before coming down to actual curriculums, it is of utmost importance to determine the position of English as an academic language and its role in the studies of mechanical engineering. It is obvious that today English is not learned only for the pleasure and prestige of knowing a foreign language, but also because of the fact that it has become the language of international currents in technology and commerce. The knowledge of any language used to be a sign of a well-rounded education, but with no clear reason as to why it was necessary. However, as English became the accepted lingua franca of modern technology and commerce, a number of learners with specific reasons for learning English came to the front: business people who wanted to sell their products, doctors and engineers who needed to stay in touch with the new developments in their respective fields, and most importantly for us, students who needed to use textbooks and journals available only in English, and who needed English in order to advance and succeed in their careers. That is how many different reasons for studying English sprang out all of a sudden. (Hutchinson and Waters, 2000)

2.2. English for Specific and Academic Purposes

Thus, if we take into consideration the generally accepted purposes for which the English language is needed and learned and the necessity of the basic language skills required (listening, speaking, reading and writing), we can divide its usage into those for general, specific and social purposes. English for General purposes, or as it is sometimes called "TENOR" ("the Teaching of English for No Obvious Reason"), is the type of English that usually young learners acquire and that is not specified by any identifiable need. English for Social Purposes, on the other hand, is mostly taught to adult learners and deals mainly with conversational purposes and communicative situations. Some of its aspects, such as letter-writing and the ability to operate functionally in an English-speaking environment, are often a part of English for Academic Purposes (EAP) courses in English-speaking countries. The third type is English for Specific Purposes (ESP), that is, the type of the English Language Teaching which we are most interested in. (Jordan, 1997)

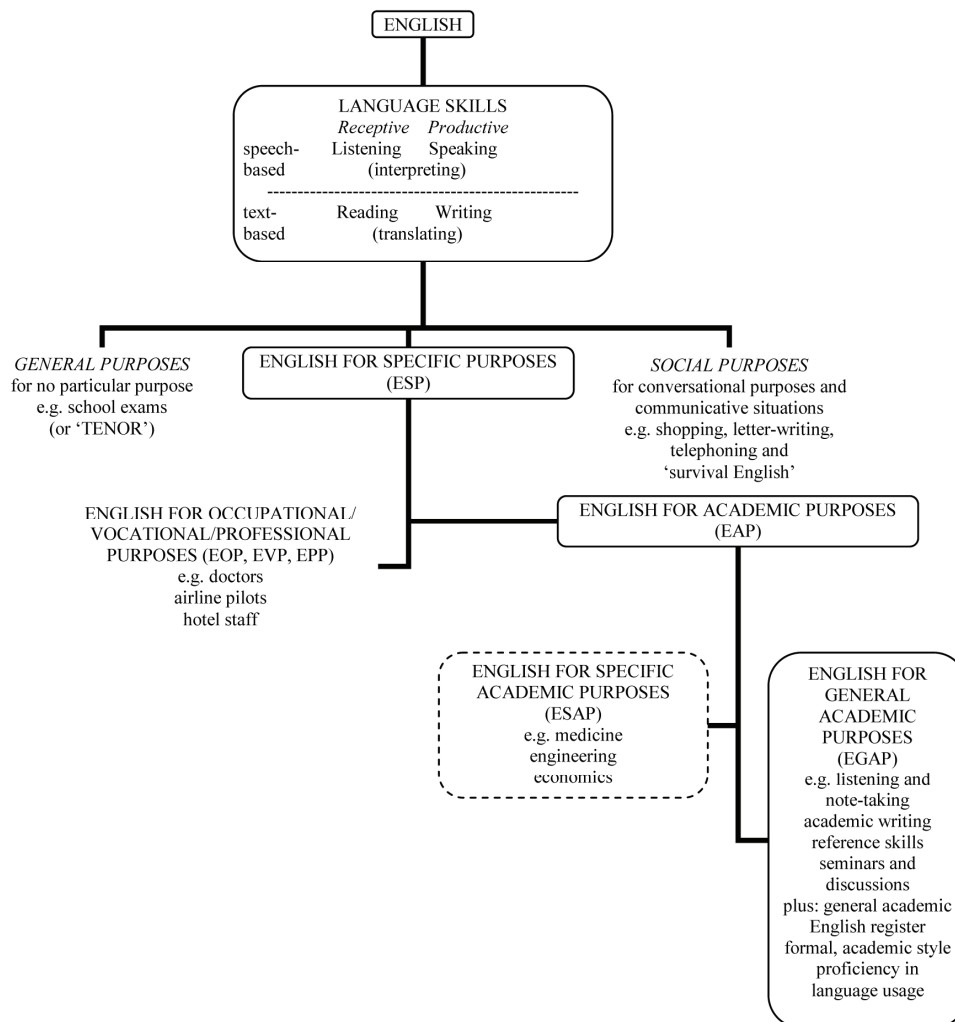


Fig. 1. The Purposes for Learning English (Jordan, 1997:3)

To make a clear distinction between ESP and EAP, apart from the fact that EAP is a strand of ESP, we should first try and define English for Specific Purposes. In a few words, it can be described as the teaching of English for any purpose that could be specified. (Anthony, 1997) Yet, if we try to be more precise, we can describe it, and thereat divide it, into the teaching of English used in academic studies or the teaching of English for occupational, vocational or professional purposes (EOP/EVP/EPP). Therefore, ESP is defined to meet specific needs of the learners and it should make use of underlying methodology and activities of the discipline it serves. English for Specific Purposes should also be concentrated on the language appropriate to these activities in terms of grammar, lexis, register, study skills and discourse. That gets us closer to understanding what EAP is and to making an important difference between EOP/EVP/EPP and it, which clearly

separates it from a more general ESP. We can best show the difference between these two fields by comparing a doctor to a medical student, or in our case, an engineer to a student of engineering, because that is where the disambiguation lies. Under EOP/EVP/EPP, a doctor or an engineer will be practicing English for purposes such as doctor-patient interaction or engineering etiquette, while students attending an EAP course will be paying more attention to reading textbooks, listening to lectures and proficiency in language use. Thus, we eventually come to English for Academic Purposes. EAP can be divided into two subgroups, those being English for General Academic Purposes (EGAP) and English for Specific Academic Purposes (ESAP). EGAP deals mostly with study skills, that is, abilities, techniques and strategies needed by university students studying a foreign language. It can include listening and note-taking, using the dictionary, guessing word meanings from context and so forth. ESAP is the language needed for particular academic studies, for example, mechanical engineering and its disciplinary culture, which can contain the language structure, vocabulary and the appropriate academic conventions among other things. (Jordan, 1997)

2.3. ELT at the Faculty of Mechanical Engineering

With this stated, we can now finally focus on the English Language Teaching for the students of mechanical engineering and try to highlight the most necessary and adequate language skills they might require. The most crucial of all decisions is the one concerning the exact dosage of many ingredients needed for a successful language course. Just how much General English and ESAP get into the curriculum depends on many various conditions. As far as General English is concerned, it is important to know how many years prior to this course the students studied English. It is usually the case that the students are at many different levels, when it comes to the English language knowledge, and there are often situations where students are studying English for the first time, since they can choose the language they wish to study only at the university level. Therefore, it is necessary to cover all the basic grammar units and language skills before proceeding to English for Specific Academic Purposes. This will often include having to work with students primarily on their listening and reading skills, and slowly moving toward what is often much more difficult and frightening for them, that is, speaking and writing. Raising the proficiency of language use, and sometimes even creating it, will, thus, lead to more specific aspects of the English language necessary for their academic studies and future careers. Going in this direction, from general to specific, will in the end lead to what can easily be described as the aforementioned ESAP, which will here constitute of scientific terminology, basic mathematical, physical and chemical principles and laws, and a majority of mechanical engineering aspects, ranging from fundamental mechanics to cutting-edge computer science.

However, apart from all this, it is also vital to understand the students' needs and to find out what they think about English, and just how important it is for them. Another thing worth taking into consideration are the reasons for which they choose to study English over other languages and what it stands for in their own opinions. Whether it is success and better material status, or a wish for broadening their views on their profession and life in general, English is obviously very attractive to mechanical engineering students, and it is important to find an answer to this question, which will probably be an amalgam of various reasons and motives. It is also interesting to discover how a good

language course might look like in the eyes of the students, and what their takes are on how much general compared to specific English is needed. The survey is conducted with an intention to find out which of the two aspects of the language is more helpful to the students, and what can perhaps be done in order to facilitate their English language course. Finally, it is very significant to conclude whether the students finish their course successfully, having learnt what they need for their professional careers, or not.

3. METHODOLOGICAL FRAMEWORK

3.1. The Problem of the Research

The problem of the research could be defined as an attempt at determining just how important and necessary the English language is to the students at the Faculty of Mechanical Engineering in Niš and what their opinions on the language itself are. One of the crucial issues being examined is why the students choose English over other languages, in this case namely German, French and Russian. It is also significant to find out if and why they think that English is necessary. Among other things, some of the more important questions to be answered are how much English the students need and what the right mixture of general and specific English is for the students of mechanical engineering.

3.2. The Sample

The research sample is comprised of 50 male and female students of the second, third and fourth year at the Faculty of Mechanical Engineering in Niš. All of the questioned students are currently attending the English language course, albeit on two different curriculums. The second year students are attending a new two-semester course, while the third and fourth year students are attending the old four-semester course. The sample is not gender balanced, and since it is the case of the traditionally male predominant Faculty of Mechanical Engineering, there are more male (N=44) than female (N=6) students in the sample. The obvious imbalance of the sample is the reason why the results are not primarily treated based on gender. However, such an analysis shows no relevant disparity between male and female students.

3.3. The Instrument

In order to gain the relevant data, the method of surveying is used, with the basic instrument being the survey questionnaire. The questionnaire consists mainly of closed questions with only one possible answer, although the students are left with an option of multiple answers to some of the most important questions. The acquired data from the empirical research is processed by applying SPSS computer program for statistical data analysis. The analysis of the data is accompanied by adequate tabular display.

4. RESEARCH RESULTS

Out of the 50 questioned students, only 4 of them have not studied English before coming to the faculty, while the majority of them (64%) have studied it for 5-8 years, that is, from elementary school, prior to the English language course they are attending at the

moment. More than half of the students (54%) have also studied other languages before coming to the faculty, mainly German, French or Russian. However, only 4% are currently studying some other language apart from English, while only 10% are taking additional English courses outside of the faculty. Now let us proceed to the tabular representation and the discussion of the results.

Table 1. The Reasons for Choosing English over Other Languages (%)

Reasons	Yes	No
For easier use of scientific literature	36.0	64.0
For career advancement and better material status	58.0	42.0
Because I have learned other languages before	16.0	84.0
Because I want to leave the country after I complete my studies	14.0	86.0
Because it is "stupid" not to know English nowadays	28.0	72.0
Because of the Internet	18.0	82.0
Without any specific reason	0.0	100.0

This was one of the questions where students had the option to circle multiple answers, yet it still remains interesting to see that none of the examinees circled the last answer, that is, "without any specific reasons", which proves that all of them are completely aware of the importance of English, and its privileged status among other world languages. Most of the students choose English over other languages because they think that knowing the language can help them progress in their careers and secure them a better material status. The next answer that garnered most attention was "for easier use of scientific literature", which together with the previous answer show that the students choose English primarily having in mind their professional and scientific careers and financial well-being, which proves that the English language is indeed the lingua franca of international business and technology and that the students do think of it that way.

Table 2. The Necessity of English

Is the knowledge of English necessary for your profession no matter where you start your career?	%
Yes	82.0
It is important, but not necessary	16.0
No	2.0

Table 3. The Importance of English in Comparison to Other Languages

How important is the knowledge of English in comparison to other languages?	%
English is far more important in comparison to other languages	32.0
English is important, but it is also vital to know other languages	68.0
It makes no difference whatever language you know	0.0

When it comes to how necessary and important English is deemed by the students, it is obvious that the majority of them think that the language is of utmost importance for their professional careers, yet they, generally, do not think that English is far more im-

portant than other world languages. 68% of the examinees consider other languages studied at the faculty to be at least as important as English, yet none of them think that it makes no difference whatever language you know, which shows that all of the students think of English as one of the most important foreign languages, if not *the* most important.

The following part of the questionnaire is concerned with the academic studies of English at the Faculty of Mechanical Engineering in Niš, and the results show what the students' opinions on the current courses of English are, what they would change or rearrange to make them more suitable, and how much time they spend on actually studying the language.

Table 4. The Significance of English Courses at the Faculty

Is English receiving the adequate attention at the Faculty of Mechanical Engineering?	%
Yes	34.0
It receives too much attention	2.0
It does not receive enough attention	64.0

Table 5. The Duration of English Courses

How many semesters should the English language course last?	%
1	8.0
2	26.0
4	38.0
More	28.0

Table 6. How Much English Is Studied

How much time do you spend studying English?	%
A lot	0.0
Enough, having in mind other courses	20.0
A little	52.0
Not at all	26.0
I will do it later, when I graduate	2.0

We can see from Tables 4 and 5 that the students are not satisfied with the current study program, and that 64% of them think that English does not receive appropriate attention in their academic studies. What is even more evident of this is that only 2% think that English receives too much attention, thus it is certain that the majority of students believe that they should have more English during the course of their studies and be more competent in the language once they complete the program. As far as the duration of such a course is concerned, the vast majority of the examinees opine that it should last at least two semesters, as long as the current course, while 66% of them think that it should last 4 or even more semesters. This also shows that the students find English very significant and that they would opt for longer, richer courses.

On the other hand, if we take a look at Table 6, we can notice that students are not spending much time studying English and that their opinions on the length of English courses have something to do with that fact, too. A year of studying English at a Faculty, where classes are held usually once a week, is not enough for mastering any language if a student does not spend any time studying it at home and working on it all the time. It is particularly difficult for students of different kinds of engineering to get a good grip on a language, since the majority of their courses is conducted in a completely opposite manner, with less professor-student and, especially, student-student interaction, and more hermetic, one-way communication from the professor to the students.

Table 7. Scientific Terminology vs. General English

Is it important to know the scientific terminology only or should a student have a general knowledge of English?	%
Only scientific terminology	0.0
Both	100.0
It does not really matter	0.0

The results here speak for themselves. The students are obviously completely aware of the fact that today, a young professional needs to be able to use English appropriately on any given occasion, no matter whether in a scientific convention or everyday conversation. This also shows that teaching English for Academic Purposes has to be a well-balanced, well-thought out process, where a perfect combination of general and specific English must be reached in order to prepare the students for the possible future linguistic challenges.

Table 8. Current vs. Ideal Courses

What should there be more in English Courses in your opinion?	%
General grammar units	2.0
Speaking and writing exercises	52.0
Scientific terminology and texts	46.0
Texts on the culture of Anglo-Saxon people	0.0

As we can see from Table 8, the students' opinions on what there should be more in an ideal English course are divided between speaking and writing exercises and scientific terminology and texts. Only 2% think that they need more grammar units, which is understandable since students traditionally tend to shy away from grammar without even knowing what it actually is. However, the fact that none of the examinees believe that they need to learn something more about the culture whose mother tongue they are studying is a bit surprising and shows that they either really know enough or are, in fact, not interested in such topics at all. If the latter is the case (which might just as well be so), it is unfortunate to see the lack of interest in what is perhaps the most important and rewarding aspect of learning a different language from one's own.

Table 9. How Often Is English Needed

How often, during your studies, do you find yourself in a situation where knowing English is necessary?	%
Every day	14.0
Very often	40.0
From time to time	42.0
Rarely	4.0
Hardly ever	0.0

If we set aside the use of computers and the Internet, which automatically demands the "every day" answer to this question, and which students are not aware of any more as something that they need English for, we see that the majority of the examinees find themselves often in situations where they absolutely need their knowledge of English, which leads us to the following question about the purposes for which they need it and use it. This was also a question to which multiple answers were possible.

Table 10. The Purposes for Using English (%)

Purposes	Yes	No
Correspondence	22.0	78.0
Understanding scientific literature	48.0	52.0
Translation	50.0	50.0
Following the curriculum	8.0	92.0
Things not directly connected with the faculty	82.0	18.0

Apart from following the curriculum, which is understandable due to the fact that the English course is the only place where they need the language for such a purpose, all of the other purposes draw some respectful attention. Starting with correspondence at 22% and ending with things not obviously connected with the faculty at, astonishing, 82%, we see that students use English for various purposes, which reinstates the necessity of a complete knowledge of the language and its importance in every aspect of modern life. It also shows again how much an academic course of English has to offer to the students and how varied it needs to be so that it can provide everything that is necessary.

Table 11. Further Improvement

Will you opt for further improvement of your English language knowledge after completing graduate studies?	%
Yes, certainly	42.0
Maybe, if need be	54.0
No	4.0

The last question in the survey deals with the future plans for further improvement concerning the knowledge of English, and here we can also see that the vast majority of the students believe that they will take some extra classes if need be, while only 4% think that they do not need any further studying of the language. This final result shows that either the students have in mind their constant bettering in every field needed for their profession, or they are not satisfied with the current course.

5. CONCLUSION

If we take into consideration the fact that more than 90% of the students at the Faculty of Mechanical Engineering choose English over other existing language courses, namely German, French and Russian, we can easily conclude that they think of English as the most significant and necessary foreign language, whatever the reason for that might be. We have, thus, set out on this research in order to find out exactly what those reasons are, and acquire enough data to create a relevant picture of what students' opinions are on their first choice language course. Bearing in mind the results of the survey conducted at the Faculty of Mechanical Engineering in Niš, we can safely say that the students are fully aware of the status of English among other languages and that none of the choices of the students who are currently attending the English courses have been made without a specific reason which endorses the theory of English as the lingua franca of the modern world. What is also important to state here is that the majority of the students see English as the means for reaching better professional and material position, that is, an important asset in their future careers. Even though many of the students think that English is absolutely necessary for their professional careers no matter where they start them, they do not generally put English far in front of other languages, but believe that by knowing any of the more important languages a person acquires a crucial facilitating tool for a successful career. Yet, English is still their primary concern when it comes to knowing foreign languages, and they acknowledge its pole position in the business.

One of the other crucial issues also discussed here deals with the current English courses at the Faculty of Mechanical Engineering in Niš. As we have previously seen, English for Specific Academic Purposes (ESAP) is still taught in two different courses: the old four-semester one and the new two-semester course in accordance with the Bologna initiative. The results of the survey show that the students are mostly dissatisfied with the changes and that they believe that more attention should be paid to English, with longer and richer courses that can provide them with all the necessary knowledge and information. The opinions are divided between those who think that they need more speaking and writing exercises in their lectures and those who believe that what they lack are more scientific texts and terminology. However, it is unfortunate to see that none of the students is interested in getting to know something about the culture of English-speaking peoples, and that their concern is limited to only those aspects of life and language strictly needed for their profession and everyday communication. Another alarming thing is the fact that, even though they think they need more English at their faculty, most of the students spend little time studying English outside of the classroom and working on their language competence. This might just as well be the reason for wanting longer courses in order to study more under pressure from having to pass the exam and being obliged to attend more lecture and exercise classes. Still, almost all of the examinees have stated that they will most likely take extra classes after they complete the studies in order to improve their knowledge of English.

The survey also shows that it is very important to find the right dosage of general and specific English for a successful course, since the students identify many various purposes for which they use the language. The main problem here lies in the fact that there is no opportunity to determine the level of knowledge of all students prior to the beginning of the course, and that students who have never learned English attend the same courses along with the students who have excellent language skills. Therefore, the

introduction of General English into such ESAP courses is absolutely necessary, although it often leads to better students losing interest in them. Nevertheless, before the course sails into more specific waters, students should handle their English with relative ease, otherwise, they will not be able to follow the more complex lesson units. It remains only to be stated that a two-semester course may not be long enough to master all that is expected from a future mechanical engineer to know.

Finally, we can round up our discussion by saying that today English is something of a primary concern for every individual and especially academic citizens who are at the forefront of contemporary civilization. No matter what the occasion might be, it is becoming more and more important and necessary to know and speak the English language well, and to be capable of using it appropriately. The modern world has searched for a new lingua franca that would expedite the ever-growing means of communication and interaction among people in every aspect of life, and has found it, due to numerous circumstances, in English. The students at the Faculty of Mechanical Engineering in Niš are conscious of this fact and it is up to everyone concerned to make it possible for them to reach the desired level.

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NASTAVA ENGLESKOG JEZIKA U MAŠINSTVU

Miloš Tasić

Ovaj rad se bavi pitanjem nastave engleskog jezika na Mašinskom fakultetu u Nišu i važnošću i neophodnošću poznavanja engleskog jezika za studente ovog fakulteta. Rezultati ankete sprovedene od strane autora na Mašinskom fakultetu o mišljenjima studenata o engleskom jeziku i trenutnim kursevima su prikazani ovde, dok su moguća rešenja otkrivenih problema predstavljena i detaljno razmotrena.

Ključne reči: Nastava engleskog jezika, mašinstvo, lingva franka, engleski za specifične akademske potrebe.