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ТЕЗИ

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Секція

«Іншомовна комунікація у сфері залізничного транспорту»

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Іншомовна комунікація у сфері залізничного транспорту [електронний ресурс]: збірник тез доповідей у рамках 80-ї Всеукраїнської науково-технічної конференції молодих учених, магістрантів та студентів «Наука і сталий розвиток транспорту» 23-27 березня 2020 р. – Дніпро: Дніпровський нац. ун-т залізн. трансп. ім. акад. В. Лазаряна, 2020. – 81 с.

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У збірнику тез доповідей подано результати досліджень здобувачів вищої освіти й молодих учених, які присвячено проблемам іншомовної комунікації у сфері залізничного транспорту. Тези доповідей подано в рамках 80-ї Всеукраїнської науково-технічної конференції молодих учених, магістрантів та студентів «Наука і сталий розвиток транспорту», яку проведено (заочно) 23-27 березня 2020 року у Дніпровському національному університеті залізничного транспорту імені академіка В. Лазаряна.

Збірник тез доповідей призначено для здобувачів вищої освіти і молодих учених.

Текст тез доповідей учасників конференції подано в авторській редакції.

Офіційна наукова конференція здобувачів вищої освіти та молодих учених:

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Секція «Іншомовна комунікація у сфері залізничного транспорту»

TRANSPORTATION MODES

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A Diversity of Modes Transport modes are designed to either carry passengers or freight, but most modes can carry **a combination of both**. Each mode is characterized by a set of technical, operational and commercial characteristics. Technical characteristics relate to attributes such as speed, capacity, and motive technology while operational characteristics involve the context in which modes operated, including speed limits, safety conditions or operating hours. The demand for transport and the ownership of modes are dominant commercial characteristics.

a. Road transportation Road infrastructures are large consumers of space with the lowest level of physical constraints among transportation modes. Road transportation has an average operational flexibility as vehicles can serve several purposes but are rarely able to operate outside roads. Road transport systems have high maintenance costs, both for the vehicles and infrastructures. They are mainly linked to light industries and freight distribution where rapid movements of freight in small batches are the norm. Yet, with containerization, road transportation has become a crucial link in freight distribution.

b. Rail transportation and pipelines Railways are composed of a traced path on which wheeled vehicles are bound. In light of recent technological developments, rail transportation also includes monorails and maglev. They have an average level of physical constraints and a low gradient is required, particularly for freight. Heavy industries are traditionally linked with rail transport systems, although containerization has improved the flexibility of rail transportation by linking it with road and maritime modes. Rail is by far the land transportation mode offering the highest capacity with a 23,000 tons fully loaded coal unit train being the heaviest load ever carried. Pipeline routes are practically unlimited as they can be laid on land or underwater. Their purpose is to move liquids such as petroleum products over long distances in a cost-effective fashion.

c. Maritime transportation With physical properties such as buoyancy and limited friction, maritime transportation is the most effective mode to move large quantities of cargo over long distances. Main maritime routes are composed of oceans, coasts, seas, lakes, rivers, and channels. However, due to the location of economic activities, maritime circulation takes place on specific parts of the maritime space, particularly over the North Atlantic and the North Pacific. The construction of channels, locks, and dredging are attempts to facilitate maritime circulation by reducing its discontinuity, but such endeavors are highly expensive. Maritime transportation has high terminal costs since port infrastructures are among the most expensive to build, maintain and operate. These high costs also relate to maritime shipping where the construction, operation, and maintenance of ships is capital intensive. More than any other mode, maritime transportation is linked to heavy industries, such as steel and petrochemical facilities adjacent to port sites. Yet, with containerization, maritime shipping has become the linchpin of globalization, allowing trading a wide range of goods and commodities.

d. Air transportation Air routes are practically unlimited, but they are denser over the North Atlantic, inside North America and Europe and over the North Pacific. Air transport constraints are multidimensional and include the site (a commercial plane needs about 3,300 meters of runway for landing and take-off), the climate, fog, and aerial currents.

A MULTILINGUAL SOCIAL IDENTITY FOR ACHIEVING AN ADEQUATE LEVEL OF SOCIAL COMPETENCE

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Multilingualism as a sociocultural phenomenon poses the challenges of education for preparing young people for life in a multinational and multicultural environment, developing communication and cooperation skills with representatives of different nationalities. The integration of the world community, the development of a planetary worldview include taking into account national traditions in the education of students; creating conditions for the formation of cultural identity for students; the formation of a multidimensional and complex cultural environment for development

At the same time, multilingualism is not only the ability to speak several languages. Multilingualism is also a special type of thinking, a special model of worldview in which the cultural values of several civilizations organically coexist. This type of person is open to intercultural dialogue. In its turn, multilingualism as a modern socio-cultural phenomenon develops under the influence of the following factors:

- strengthening the role of the sociocultural component – studying the culture of other countries and a deeper awareness of their own culture, participation in the “dialogue of cultures”;
- the creation of a single educational space and, as a result, the desire of people to achieve a pan-European level of knowledge of foreign languages and the development of academic mobility of students and teachers;
- the need for multilingual education as a means of training, provides future specialists with the opportunity to realize their potential and actively work in the global market;
- the development of the global information space, the rapid spread of such modern information and communication technologies as television and the Internet, various media;
- the use of new information and communication technologies, the development of distance learning, on-line training, etc. [1].

Multilingualism is a true linguosocial fact, prevalent among the vast majority of the world's population, due to the growing interaction of economic, scientific, cultural and political interests of mankind. Multilingualism is a means of socialization; it helps to formulate the basic norms of understanding, empathy and tolerance through socio-communicative processes. It is specially organized and implemented in bilingual models of education. The social significance of the phenomenon of multilingualism is that it does not lead to loss, but to the expansion of cultural identity. It promotes a conscious and respectful attitude to the achievements of the native culture, is achieved due to the general cultural enrichment of the individual and the opportunity to participate in intercultural dialogue. A multilingual social identity in a multicultural context is a prerequisite for achieving an adequate level of social competence. It helps maintain one's own cultural identity and enhance the ability for social mobility within the existing cultural environment. Multilingualism improves the level of adaptation to new sociocultural environments, allowing to overcome the effect of “cultural shock” and to avoid a marginal sociocultural position.

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PLANNING A BUSINESS TRIP

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Travelers success on the road is directly connected to how well their trip was planned and prepared. Planning a business trip should always prioritize keeping your business traveler as productive and stress-free as possible requires carefully considered, clever planning. As a travel manager, the best thing you can do is to be as organized as humanly possible beforehand so that you can be free to solve problems if and when they arise. How can you do that? Planning a business trip

Make note of their usual preferences When planning a business trip for your boss, you want to get faster and better at it every time. Don't rely on your memory (hate to break it to you, but sometimes it's wrong). Instead, take notes on your boss's usual preferences, such as rushing for flight connections versus having layovers with plenty of cushion. That way, you can reduce some of the back and forth communication required for each trip.

Help them prioritize the most important parts of their trip When your boss is traveling, there are likely just a few very key things they need to accomplish. Understand what are the goals for this trip, whether that's attending a single meeting or staffing a new office in a different country.

Take care of any extras Aside from the key purpose of the business trip, your boss might also have some extra goals that they want to accomplish. Maybe they want to stick to their exercise routine while away. Maybe they want to finish a slide deck for an upcoming presentation. Or maybe they want to bring their spouse along for the trip and have a day to sight see. Ask your boss about the things they'd like to do or accomplish during the trip, so you can help organize these things, provide recommendations, or at the very least keep their calendar clear.

Create a business trip itinerary The last document in this section is a business trip itinerary, or a summary of all of the trip's details in one place. This will save both you and your traveler the time and frustration of going through multiple documents and emails to find the information that matters. When creating these documents, it helps to think chronologically so that you can put yourself in your traveler's shoes and think clearly about what information is needed. And when you're done, create not only electronic copies, but also hard copies. This cuts out any possibility that a dead smartphone or absence of internet throws your traveler off.

Put everything in one place There are a lot of details when it comes to planning a business trip. You should do your best to put everything in one place. When booking with one approved company travel management software, travelers can login and see all of their upcoming itineraries.

Purchase any needed supplies in advance of the trip Think of your traveler as a mobile office representing your company domestically and abroad. As such, make sure to top up their tools: business cards, batteries, basic supplies, and other necessary consumables.

Give the traveler a trip checklist Create a traveler checklist to hand to your traveler before the trip. This will ensure your traveler doesn't forget all the essential cords, adapters, flash drives, devices — anything they'll possibly need!

Save traveler's contact information A traveler contact sheet is essential. It's a single document that include all of the employee's home and professional contact information along with standard details like name, title, ID number, etc. Additional items like airline and hotel preferences, meal requests and passport details will all make this document much stronger.

MULTILINGUALISM AS A TENDENCY OF LANGUAGE DEVELOPMENT

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International relations, which are very quickly and rapidly developing, lead to close interaction of representatives of different cultures. The media, the Internet, television penetrate everywhere, and with them foreign forms of communication penetrate our lifestyle as well. As a result, in the modern world there are very few corners where people have only one (native) language. As a result of the globalization process, the requirements for foreign language education have changed. A striking example of the diversity of languages and cultures, as well as innovations in higher education is modern Europe. The list of priority problems of education in Europe includes the development of key competencies that can be obtained by each representative of society throughout life.

The Lifelong Learning program provides for the mobility of subjects of education. The main goal of this mobility is to help better understand the diversity of cultures, and this process is impossible without proper knowledge of foreign languages. One of the key competencies that a modern specialist should possess is knowledge of two or more foreign languages. In linguistic literature, this phenomenon is called the term “multilingualism.” This idea has been central to the educational policy of Europe since the beginning of the European Union, but the first official institutions of multilingualism were not covered by the European Commission until 2005.

Vishnevskaya under multilingual education understands “a purposeful process of familiarizing oneself with world culture using the means of one’s native and foreign languages, when a foreign language acts as a way of knowing the world of special knowledge, assimilating the cultural, historical and social experience of various countries and peoples” [1]. An important factor in the development of multilingualism in higher educational institutions of Ukraine is the accession of Ukraine to the Bologna process, the purpose of which is to create a strong unified European education system, and therefore to prepare a competitive specialist, ready to constantly develop personal skills and gain new knowledge.

The importance of multilingual education as a means of obtaining special and professional knowledge, as a component of advanced language education is determined, first of all, by the general worldwide trend towards European integration in the economic, cultural and political spheres. In the educational sphere, this trend determines the desire for the integration of subject knowledge, focus on the knowledge of the holistic picture of the world. Thus, the significance of multilingualism as a sociocultural phenomenon of modern society is actually outstanding, because the development of multilingualism contributes to the rapprochement of peoples, the peaceful resolution of issues of coexistence, the development of skills to respect the culture and language, traditions and customs of other peoples, the formation of common tasks and goals in the process of integration. In this context, multilingualism as a trend in the linguistic development of modern society gives a person the opportunity to realize his or her place and his or her culture in the dialogue of cultures and civilizations in the process of cooperation with other people. That is why the problem of the study of multilingualism in teaching a foreign language is extremely relevant.

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ORGANISING AN EXCELLENT BUSINESS TRIP

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In order to avoid the stress while you are away, to reduce the risk of problems with flight schedules and also to enjoy them, below we share some tips to consider before you start organizing your next business trip.

Flights: Before confirming your reservation, verify that you have all the documents, visas and vaccines necessary to enter your destination. Most airlines offer frequent-flyer promotions so remember to take your point card with you; in the future, you may benefit from free tickets or upgrade your seat to a higher class.

Accommodation: The key to choosing the location depends on the length of the trip. If you will only be staying for a few hours, the best option is to choose accommodation between the place of business and the airport. Some hotels even offer short-stay rates for resting a couple of hours during the day. If you know that you will have some free time, a downtown hotel will offer more tourist or gastronomical attractions. If the hotel is going to be your operating base for meetings and work, make sure it includes special features such as conference rooms, mini bar, coffee and bar service throughout the day and a safety box to keep your valuables. Remember to ask if Wi-Fi connection is included in the rates and if your room has access.

Luggage: When confirming your reservation, check the baggage weight restrictions since these may vary depending on the destination or the company. When choosing luggage, consider size and material. If you will be carrying delicate items, a sturdy suitcase is best but if you will only be carrying clothes, then a lightweight suitcase made of soft material will be more suitable and easier to carry.

Transfers: Hiring transportation before arriving to your place of destination is always a good idea since it will help you save time, gain comfort and in certain destinations, it is even safer. There are several taxi, shuttle bus or limo services that in many cities may even be cheaper than regular taxis. Renting a car is also a good option in certain destinations.

Travel insurance: Travel insurance is often included with your health coverage or credit cards; otherwise the travel agency can assist you with your medical coverage abroad. In some countries this is even an entry requirement.

Time Management: Typically, business travelers have very tight agendas. Planning extra time is always a good idea, especially around your flight schedule in the event of traffic problems or meetings that go beyond the scheduled time. Also, keep in mind the time difference in the country of destination with respect to where you departed from to avoid any confusion. Also remember to check business days and hours in other countries.

Technology and Electronic devices: Use apps and websites to organize your stay and learn more about your destination. Telephone, laptop, tablet, camera, music player, etc. Although modern devices around us are designed to make our lives easier, organizing a trip with digital devices implies certain complications. It is important not to exaggerate and carry only what need and do without some for a couple of days. If you are traveling abroad, you should take a universal power adapter that works with outlets in most countries. Smartphones are a good alternative for accessing the Internet. Remember to go to your settings and turn off long distance roaming in order to avoid the high costs and make use of available Wi-Fi instead.

BINARY NEURAL NETWORKS

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While a huge number of laws, formulas, theorems are used to solve simple problems, more complex tasks such as pattern recognition, optimization, forecasting require an alternative approach to solving them. This alternative approach is neural networks, one of the most promising approaches of artificial intelligence.

The idea is to simulate as closely as possible the work of the human nervous system, its ability to learn and correct mistakes. The main characteristic of any neural network - its capability of independently learning as well as acting based on previous experience. A neural network imitates not only activity, but also the structure of the human nervous system. Such a network consists of many individual computing elements of neurons. All neurons refer to a particular network layer and the input data is processed consistently on every network layer. On the example of photos facial recognition: the first layer will look for basic features (black circles, white circles, white rectangles, skin color), the second layer of the eyes and mouths, the next layer two eyes with the mouth and skin around. Then, every part of the picture is assigned an estimate of the probability of the particular feature presence on the desired segment of the image. After combining all the probabilities, if sufficient number of considers that the wanted sign is present in the photo, then the network makes the conclusion that the face is portrayed in the picture.

The issue is that in the search for the highest possible accuracy it is required to deal with very detailed delimited levels of probability, and for these mathematical calculations serious resources are required. Due to the use of floating point numbers for segment analysis, neural networks require relatively much computing power, memory, and time to work. It is not possible to use neural networks that work with floating point numbers on end devices, so this is where binary neural networks manifest themselves.

If neural networks assign each segment an accurately calculated probability, then binary neural networks, as their name implies, reduce the probable values to a black and white version, that is, either to -1 (if the network considers that there is no sign in this fragment), or +1 (if any). This approach sacrifices a certain degree of accuracy, but we can compensate for the losses by slightly increasing the network. Binary networks are inherently much simpler.

Compared to their floating-point counterparts, they need thirty-two times less space to store the quantity and hundreds of times less energy, so they are much more suitable for "extreme programs" when the devices themselves can process information without involving cloud computing.

Such simplicity opens up a wide field for commercial use in an environment where efficiency is everything. On a built-in microchip, the coefficient of a binary network is faster than that of a network with floating point coefficients. Processor manufacturers will need to adopt this technology and provide support for binary networks.

2020 is likely to be the year of binary networks. Companies are actively working on the introduction of this technology, and the software necessary for training binary networks is developing rapidly. We are likely to see the first real application of this technology, and low-power and low-power microcircuits that can classify images or other data will appear on peripheral devices.

WHO ARE LEVEL DESIGNERS AND WHY THEY ARE NEEDED

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We all play games. From birth to death. Why? Because we love solving problems. I know that may sound strange but we really do. That's what the game is – solving a problem. And somebody has to create it.

Today I will talk about some people who participate in this creation, the people we can name the architects of the game – level designers.

Who is a level designer? The simple answer is a person who creates levels for games. Some of you imagined big detailed levels for such games as Witcher or Assassin's creed but these people also create levels for match3 and other mobile products.

Let's make the difference between people who are commonly mistaken for level designers: the "general" game designer and the level artist. Game designer decide how the game is supposed to be played, he creates mechanics and rules of the game. Level artist is type of artist who make the level look "attractive" and beautiful(aesthetics). Level designer unites space and mechanics, he is something like the bridge between the game design and the art. He makes the level playable(so that the player can interact with the space the way it was meant to by game designer) and doesn't let the level artist to destroy the gameplay making level looking to "attractive".

The main problem is that there is no right way to do level design, that's why it is called design. Of course, there is some pieces of advice for different genres, but that's not enough. In their work level designers may need to ask such questions as "What size should the door be", "Can the player open the door, how can he do this or maybe we shouldn't make doors at all", "How can I attract the player's attention in this moment without taking control over his actions", "How can I help the player travel in our game world without using a map" and many others. Briefly I will show you the pipeline of level designer's work(how he do what he does). At first, we decide what level we are going to create (purpose, plot, scheme of level interaction and everything about our level) and make a sketch. Then we find references(examples of elements of the level in real life or others types of art). Also level designer with game designer create metrics("how high player can jump", "what the size of the building or this door should be"). Then we build block-outs: designer block-out or grey box and art block-out or white box. Grey box is a level in which there are only necessary things for gameplay (grey blocks and other primitive figures), it is used to make sure the game is playable. White box is a level where artists work out the visual part of the level(they apply color and change primitives on models). Sometimes after white box level become unplayable and level designer need to make some changes to repair it(for example, model of a tree block the exit). Then the assembly of the final level starts. All models are replaced by its final versions, all the effects are added. Here the cycle of development ends.

THE PROBLEMS WHILE USING TRAIN TICKET MACHINES

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One of the most common and important problems people often face while travelling abroad is that jargon is widely used by train operators' ticket machines at Britain's railway

stations. Consequently, there are a lot of needs to be done to eradicate confusing terminology when passengers are buying tickets.

Phrases highlighted for concern by the Office of Rail and Road (ORR) included ‘London terminals’, ‘any permitted’ and abbreviated text such as ‘Anytime R’ meaning ‘Anytime Return’.

The operators found to be using jargon included Abellio Greater Anglia, East Midlands Trains, Govia Thameslink Railway, ScotRail and Southeastern.

While millions of tickets are purchased using ticket vending machines without obvious problems being encountered, it is equally clear that further improvements in the information provided by such machines – such as clearer information on ticket restrictions and less use of industry terminology or jargon – would assist passengers in making the best decision when buying tickets.

Fortunately, passengers can now easily find all the information on the Internet. The ‘jargon buster’ aims to give simple, plain English explanations of typical words and phrases used in the rail industry – to help us all understand what we read or hear day-to-day.

The study found that some passengers have to wait several minutes after the last peak service has left the station before they can buy off-peak tickets from machines. Cheaper tickets are available ‘generally within five minutes’, but Northern Rail customers have to wait up to a quarter of an hour, the ORR said.

The report also published a survey showing that passengers believe operators are ‘generally poor’ at dealing with disruption on the network, with twice as many negative ratings as positive. Just over a quarter (26%) feel that delays and cancellations are handled very or fairly well, compared with more than half (54%) who feel the response is very or fairly poor.

David Sidebottom, passenger director at independent watchdog Transport Focus, said that they had called for the industry to build trust by making more information available to passengers, so they would welcome this. However, operators still had work to do to show that they were truly on the side of the passenger.

A spokesman for the Rail Delivery Group, representing Network Rail and train operators, said steps were being taken to remove jargon from machines but accepted that more needed to be done. It is said that independent research carried out on behalf of the rail industry shows 19 out of 20 people using self-service machines get the right ticket for their journey, which is comparable to customers buying online.

To sum up, operators have to strike a balance between making ticket machines quick and easy to use while offering passengers a comprehensive range of fares. Some changes have already been done, the operators of Britain’s railway stations have recently rolled out clearer language on machines to do away with jargon and to make clearer any ticket restrictions, but still there are more to do.

Literature

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NEW TRENDS IN ENGLISH LEARNING AND TEACHING

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In modern world technologies have a big effect on our life. Nowadays we cannot imagine spending a day without them. And by the way using these modern devices can improve our learning process, especially language learning and teaching. So in this article we would like describe which one can do it and how it can be seen.

Using new technologies during lessons is not a big surprise. This approach is called blended teaching or learning. It contains not only special videos or clips, but also special programs using which students can practice conversational skills, read authentic articles or magazines, watch films in English with subtitles and so on. And based on this, many IT companies are working on creating special software which combine verbal and visual learning. According to researchers, using such software students are more motivated and more interested in learning process. In addition, on the Internet students can find many videos on YouTube, other online courses (even free), and special applications which can help them to learn foreign languages. There are programs in which students can see their progress, where they mostly make mistakes, and so on. Students can evaluate their knowledge and work more on their weaker areas. In addition, inventors of such sites and applications mention that at present the teacher is like a guiding light for student: he or can give some advice, recommend special literature or something like this.

On the other hand, for young learners, researchers create a special games which can help them to learn new words and phrases in not so difficult way. They say that using these games can make a lot of fun for children and for them and their parents it is like an entertainment.

One of the first program which was designed like this was introduced by Pearson English. It is an online course, which provide a wide variety of activities, exercises and tests. At the moment it is one of the biggest online courses which are provided for students and young adults which show their progress and highlight both strong and weak sides of your learning process.

As to the modern achievements there are many applications which are provided by well-known companies like Google, Microsoft, and Apple using which you can also improve your English level. And by the way, you do not have to upload it on your computers. You can just download it on your smartphone and start to use. It is very comfortable, because you can learn something even when you go to work, school or university.

And finally, there are teachers which ask their students and pupils to bring to school or describe gadget which they often use to in daily life. In that way teacher become more familiar with modern developments and start to analyze how they can combine normal lessons' strategy with new technologies.

To sum up, we would like to say that our planet will never stop to develop and researchers will introduce more and more new devices which can make our lives easier and better. But from our side we should not think that these developments can replace human works on the background, but we should understand that only collaboration of human work and advantages of these developments can make our world better.

AUTOMATIC TRANSMISSION

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Automatic transmission, arrangement of gears, brakes, clutches, a fluid drive, and governing devices that automatically changes the speed ratio between the engine and the wheels of an automobile. Since its introduction in 1939, the fully automatic transmission has become optional or standard equipment on most passenger cars. When the transmission is in the drive position, the driver has only to depress the accelerator pedal, and as the car gathers speed the transmission will shift automatically through its entire forward range of gears from low to high (ratios of the speeds of drive shaft and engine shaft) until the two shafts are directly connected

through the oil in the fluid drive, which may be either a two-element fluid coupling or a three-element torque converter. When the car loses speed the transmission automatically shifts back from high to low gear.

A fluid coupling has two vaned turbines facing each other. As the engine-driven turbine turns, a torque is transmitted by churning oil that circulates between them. (This is much like two fans facing each other; as the one is turned on and as its speed accelerates, the air flowing from it will cause the other fan to turn.) In the automobile, the oil permits the fluid coupling to slip easily at low engine speeds (thus also permitting idling while the brake is on). At high speeds the slippage is almost eliminated, and the fluid coupling functions like a solid connection.

The hydraulic torque converter resembles the fluid coupling. Oil transmits power in both. At lower speeds the blades of a pump, or impeller, force oil against the blades of a stator. These blades deflect the oil against a turbine, therefore increasing torque. At higher speeds, as in the case of fluid coupling, the oil, stator, pump, and turbine turn together as a unit. The oil moves in different directions in different parts of a hydraulic torque converter. The pump spins and throws the oil outward. The doughnut-shaped housing that encloses the pump and turbine forces the oil toward the turbine. There it strikes the turbine blades and slides inward toward the turbine hub and then returns back through the stator. The stator is equipped with an overrunning, or one-way, clutch. This device permits the stator to be used for deflection of oil at low speeds and to move with the pump and turbine at high speeds. What is described here is the simplest system; frequently the system has more elements to deflect and direct the oil, and often a torque converter is combined with gear transmissions.

All shifting is done by a combination of planetary gears and a speed-sensitive governing device that changes the position of valves that control the flow of hydraulic fluid.

If you have ever driven a car with an automatic transmission, then you know that there are two big differences between an automatic transmission and a manual transmission:

There is no clutch pedal in an automatic transmission car.

There is no gear shift in an automatic transmission car. Once you put the transmission into drive, everything else is automatic.

Both the automatic transmission (plus its torque converter) and a manual transmission (with its clutch) accomplish exactly the same thing, but they do it in totally different ways. It turns out that the way an automatic transmission does it is absolutely amazing!

Just like that of a manual transmission, the automatic transmission's primary job is to allow the engine to operate in its narrow range of speeds while providing a wide range of output speeds.

ІСТОРІЯ ДІТУ

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У цьому році ДІТ святкує своє 90-річчя. Це велике самодостатнє розвинене студентське містечко у центрі міста з безліччю будівель і рослин. А на початку 20-го сторіччя воно було лише мрією студента Нікандра Федіченка.

Нікандр Федіченко – перший керівник ДІТу – навчався у Катеринославському технікуму з 1923 року, а у 1929 р. отримав диплом залізничного машинобудування. Він прогнозував, що процес індустріалізації країни потребує вирішення проблеми інженерної підготовки. Тому разом з групою однодумців у 1930 році Федіченко прийняв рішення про заснування Дніпропетровського інституту інженерів транспорту, який був заснований на базі політехнікуму і факультету інженерів шляхів сполучення Київського політехнічного

інституту. Федіченку запропонували обрати центр міста, але він відмовився і обрав 25 гектарів для території інституту на околиці міста, де за 4 роки створив затишне інститутське містечко.

У віці 28 років Нікандер Федіченко став першим директором інституту і розпочав будівництво. Через рік, у вересні 1931 року, чотириповерховий гуртожиток був закінчений (зараз це гуртожиток №1). У травні 1931 року розпочалося будівництво навчального корпусу. У 1932-1933 роках введено в дію навчальний корпус, кафетерій, електричну підстанцію, житловий будинок для професорів та викладачів, навчальні майстерні. У 1934 р. ДІІТ вперше випустив 190 дипломованих інженерів. У 1938 році Федіченку довелося залишити посаду директора інституту через загрозу ув'язнення.

У квітні 1941 р. Всеволод Лазарян став директором інституту і залишався на цій посаді до 1958 р. У перший день Великої Вітчизняної війни в Інституті відбулася нарада, яка зібрала близько двох тисяч студентів, викладачів та співробітників. Одразу до партійного комітету надійшли заяви від 28 студентів із проханням відіслати їх на фронт. Наприкінці червня 1941 року батальйон студентів ДІІТу був відправлений до міста Суми, де солдати пройшли швидко військову підготовку. Потім деякі студенти пішли на війну. У роки війни інститут був евакуйований до Новосибірську, де продовжував підготовку висококласних спеціалістів. А у навчальному корпусі розмістилась польова лікарня, куди привозили поранених солдат. Частина повернення інституту відбулася одразу після визволення Дніпропетровська від ворога, у листопаді 1943 р., а решта повернулася у 1944 р, щоправда значна частина будівель на той час перетворилась на руїни. Матеріальна шкода становила 25 мільйонів рублів. Але студенти, робітники та бригадири почали відбудовувати інститут. Уже в 1947 р. головна будівля була закінчена і почалося будівництво нових будівель. У 1954 р. з'явилися новий навчальний корпус, два гуртожитки та інші заклади. У 50-70-х роках на території інституту вже були басейн, стадіон, спортивний комплекс, комп'ютерний центр тощо. Окрім відновлення ДІІТу В. А. Лазарян займався розвитком факультетів, кафедр і лабораторій, вів значну наукову, педагогічну і науково-педагогічну роботу, за його безпосередньою участю була створена галузева науково-дослідна лабораторія динаміки і міцності рухомого складу Міністерства шляхів сполучення СРСР. Одночасно з цим В. А. Лазарян, якому в цей час було присвоєне звання генерал-директора шляхів і будівництва III рангу, надавав велику допомогу у відновленні залізниць і забезпеченні їх безперервної роботи. У 1958 році Всеволод Лазарян пішов у відставку з посади голови ДІІТу.

У 1993 р. після сертифікації інституту було надано статус університету. У 2002 р. указом Президента України університету було надано статус національного, і того ж року було присвоєно ім'я академіка Всеволода Лазаряна.

ENGLISH IN RAILWAYS' FUNCTIONING AND DEVELOPMENT

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English combines not only these qualities, but also is a language that can rightly be called international. According to the number of native speakers, it ranks third place after Chinese and Spanish, but unlike them, the coverage of countries is much larger - English covers 106 countries, when Chinese and Spanish covers 35 and 31 countries respectively.

Railways connect a lot of countries and to ensure their effective functioning, especially in terms of passenger and freight traffic, nothing could be better than the international language – English. Also, railway companies will be able to reduce financial and time costs - when using a

common language there will be no need for translation, which takes money and time. This is especially important when there is a risk of accidents - an accident can not be prevented if companies from different countries cannot quickly exchange information.

We also should not underestimate the role of this language in railways' development. Today, most modern technologies are actively developing in English-speaking countries, and the corresponding documentation are issued firstly in English, and later translated into other languages. Thus, the railway company, in which English is used as the main language, will always be one step ahead of others, not to mention the fact that during the translation the original sense of what has been said or written may be lost.

Today, when Ukraine is actively integrating into European associations such as the European Union, railways' modernization is especially needed, since this would give an opportunity to increase the speed and quality of passenger and freight traffic, especially between Asia and Europe.

Despite the fact that railways have existed for a long time, they are still the most preferred means of transportation financially. Of course, there are faster ways to move passengers and cargo - for example, planes, but they are more expensive and dangerous.

Thus, English plays an important role in the functioning and development of railways, and this should be considered.

DETERMINATION OF MOMENTS OF INERTIA IN VEHICLES

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When a body is free to rotate around an axis, torque must be applied to change its angular momentum. The amount of torque needed to cause any given angular acceleration (the rate of change in angular velocity) is proportional to the moment of inertia of the body. Moment of inertia may be expressed in units of kilogram metre squared ($\text{kg}\cdot\text{m}^2$) in SI units and pound-foot-second squared ($\text{lb}\cdot\text{ft}\cdot\text{s}^2$) in imperial or US units.

Moment of inertia plays the role in rotational kinetics that mass (inertia) plays in linear kinetics – both characterize the resistance of a body to changes in its motion. The moment of inertia depends on how mass is distributed around an axis of rotation, and will vary depending on the chosen axis.

At the moment, the problem of developing new, convenient methods of estimating the moments of inertia is very important, because these parameters are taken into account at the stage of design and development of the car.

The moments of inertia about the three coordinate axes determine the stability and controllability of the wheeled car. Defining the inertia ratio system presents greater difficulties in the design stages of these machines. The determination of inertia designs is confirmed by the coordinated axis at the design stage of the vehicle, which is not found to be of high accuracy, and at the stages of sample creation, the composition of the experimental equipment must be made.

Currently, the determination of the moments and radii of inertia of vehicles relative to the three coordinate axes is carried out experimentally. To determine the moment and radius of inertia with respect to the vertical axis, the method of torsional oscillation of the platform suspended on the ropes with the vehicle under study is mounted on it.

Moment of inertia is the name given to rotational inertia, the rotational analog of mass for linear motion. It appears in the relationships for the dynamics of rotational motion. The moment of inertia must be specified with respect to a chosen axis of rotation. For a point mass, the moment of inertia is just the mass times the square of perpendicular distance to the rotation axis,

$I = mr^2$. That point mass relationship becomes the basis for all other moments of inertia since any object can be built up from a collection of point masses.

The moment of inertia of a point mass with respect to an axis is defined as the product of the mass times the distance from the axis squared. The moment of inertia of any extended object is built up from that basic definition.

Since the moment of inertia of an ordinary object involves a continuous distribution of mass at a continually varying distance from any rotation axis, the calculation of moments of inertia generally involves calculus, the discipline of mathematics which can handle such continuous variables. Since the moment of inertia of a point mass is defined by $I = mr^2$ then the moment of inertia contribution by an infinitesimal mass element d_m has the same form. This kind of mass element is called a differential element of mass and its moment of inertia is given by $dI = r^2 d_m$.

Note that the differential element of moment of inertia dI must always be defined with respect to a specific rotation axis. The sum over all these mass elements is called an integral over the mass.

$$I = \int dI = \int r^2 d_m$$

Usually, the mass element dm will be expressed in terms of the geometry of the object, so that the integration can be carried out over the object as a whole (for example, over a long uniform rod).

Having called this a general form, it is probably appropriate to point out that it is a general form only for axes which may be called "principal axes", a term which includes all axes of symmetry of objects. The concept of moment of inertia for general objects about arbitrary axes is a much more complicated subject. The moment of inertia in such cases takes the form of a mathematical tensor quantity which requires nine components to completely define it.

MULTILINGUALISM IN THE CONTEXT OF THE ORGANIZATION OF THE EDUCATIONAL PROCESS

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In the beginning of the XXI century, polylinguistic competence of students became one of the important pedagogical tasks. Most often, this problem is defined as the problem of multilingualism, sometimes - bilingualism. Today, the development of theoretical and practical aspects of the phenomenon of bilingualism, which is one of the most significant in state, national and cultural education, continues to develop. Today multicultural multilingual education by means of studying the native and foreign languages is an important component of the modernization of the goals and content of national educational systems in Europe (including Ukraine). In the context of globalization, economic integration and the creation of a single European labor market, educational establishments strive to provide training for European-level specialists who are able to work on a pan-European market.

The main distinguishing feature between multilingual education and the traditional form of teaching a foreign language at school or university is that in most language programs a foreign language is the subject of study, while multilingual educational programs use it as a means of learning, which means that the subject is taught in an additional language (not in the mother tongue). Traditional foreign language teaching programs at school and university are often aimed at the non-native language that they are trying to master, while multilingual educational programs include more than one language in one form or another. It should be noted that training

on a multilingual basis provides students with wide access to information in various subject areas, obtaining new information in accordance with individual needs, the possibility of continuing education, and provides additional opportunities to compete in the pan-European and world market of specialists. The content of multilingual education involves an interdisciplinary synthesis of subject, language and cultural components and can be represented by units of various levels of complexity [1]. The pedagogical aspect of multilingualism considers methodological issues related to the formation and development of multilingualism. It should be noted that each science distinguishes its target dominant of bilingualism (psychology – the influence of bilingualism on the development of individual mental processes of an individual, linguistics – language competence, reflecting the level of knowledge of a foreign language). Pedagogy also studies multilingualism in the context of the organization of the educational process, it is interested in multicultural education, the possibility of obtaining special knowledge using a foreign language, the effect of multilingualism on the general level of education [2]. Thus, the main task of the pedagogical aspect of multilingualism is related to the education and training system. This is the so-called educational multilingualism, when in the learning process a foreign language is used along with the mother tongue. In educational multilingualism, the role and place of a foreign language in the learning process is shifted: from a discipline to an object of study, it turns into one of the means of acquiring new knowledge and getting an education.

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THE TYPES OF SUSPENSION AND THE PRINCIPLES OF WORK

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Double lever The double wishbone suspension with short upper and long lower levers provides minimal lateral wheel movements (harmful to the lateral stability of the car and causing rapid tire wear), as well as slight angular movements during the up and down stroke. The configuration of the wishbone allows each wheel to independently perceive bumps and remain more vertical on the road surface. And that means better grip.

McPherson strut, named after the engineer Earl MacPherson, who developed it in 1960, is a wheel suspension consisting of one arm, anti-roll bar and a block of a spring element and a telescopic shock absorber called a swinging candle due to the fact that it fixed in the upper part to the body using an elastic hinge and can swing when the wheel moves up and down. Kinematically, the scheme is less perfect than a suspension on two transverse or longitudinal levers: that with a large suspension travel, the camber (angle of inclination of the wheel to a vertical plane) will change, and the more, the greater the suspension travel.

Multi-link suspension is somewhat reminiscent of a double-link suspension and has all its positive qualities. All elements are mounted on a stretcher through powerful silent blocks, which allows you to increase the sound insulation of the car from the wheels. The main advantages of multi-link suspension: -Independence of wheels from each other, -Low unsprung mass, - Independent longitudinal and lateral adjustments, -Good understeer - A good option for use in a 4x4 scheme. The main drawback of the modern scheme is the complexity and,

accordingly, the price. Until recently, it was used only on expensive cars. Now she "holds" the rear wheels of even some golf cars.

Rear suspension A typical representative of this design can serve as a rear suspension with coil springs as elastic elements. As an example, you can cite the design of the rear suspensions of the classic "Lada". In this case, the rear axle beam is "suspended" on two coil springs and is additionally attached to the body using four longitudinal levers. In addition, a transverse reaction rod is installed to improve handling, reduce body roll in corners and improve ride smoothness.

The main disadvantage of this type of suspension is the significant mass of the rear axle beam. This indicator especially increases when the bridge is being driven: you have to "load" the beam with the weight of the main gear housing, gearbox, etc. And all this leads to an increase in the so-called unsprung masses, due to which the smoothness worsens significantly and vibrations appear.

De Dion Pendant In an effort to "lighten" the rear axle as much as possible, engineers at many automobile companies began using De Dion suspension, named after its inventor, Frenchman Albert De Dion. Its main difference is that the main transmission case is now separated from the bridge beam and attached directly to the body. Now the torque is transmitted from the engine of the car to the drive wheels through the axle shafts swinging at the joints of equal angular speeds. This type of suspension can be either dependent or independent.

COMPUTER ENGINEERING AND MODERN SMART DEVICES

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Introduction. In the world today, people cannot live without technologies such as televisions, mobile phones, computers and others. The invention of the computer was a very important point. Communication is thus enhanced, and companies can communicate more easily with foreign countries. Research is also simplified.

Computer engineering make it possible to create semiconductor devices that can control other devices, perform math operation, create graphics and other things. Many people uses semiconductor devices every day such as mobile phones, smartphones, personal computers, smart id cards and so on. They all use logical gates grouped in great schemes, which change electric signals from inputs to some output signals. There are many ways to develop that smart devices. It looks like electrical scheme creating, creating of logical schemes and translating it to electrical schemes using some software, or write logical algorithm using special hardware-oriented language: Verilog or VHDL. All semiconductor devices works for transistor in key mode while it send signal next or ignore it. Performance of those smart devices depends on technical process – size of transistors, number of transistors and other factors.

Smart home. Technology becomes more and more important at home. From your dishwasher to your TV, and from your smartphone to your audio system – it's all powered by technology, which becomes more and more 'smart'.

Smart homes exist to solve both these problems. For starters, they combine all your devices into a single smart home system like Homey. Controlling all your devices now becomes easy, as they are all in one place. Control your home via smartphone, voice control, remote, tablet or regular physical buttons.

Concept. Semiconductor digital devices used for many people every day. Computer engineering makes it possible to develop and create this devices, makes optimization of other

devices, also computer science and discrete math knowledge we can use in fields of theoretical research. Also

Software developing. Computer engineering including basics of software developing. Learning of algorithmization, machine memory structure, programme language literals, operators and other elements help to create software that control digital device. We can use assembler language for low-level programming, C for controllers or great PC programs, and high-level programming languages for developing of great and difficult programs.

Controllers. Many simple devices needs to control them using some algorithm. It possible by using little devices than includes central processor unit, random access memory and other units in one shell. Controllers have very low performance compared with PC and smartphones, but they low costs and suitable for its tasks.

Testing. Software and hardware needs testing while developed. It used to find mistakes and correct it. Testing of developed hardware made by emulators, that emulate all device functional and try to send device all possible input signals (or main groups of signals). Software testing includes testing of every little code block by performing this block with many possible input states and incorrect behaviour detecting.

Computer networks. Many kinds of devices can be connected into networks. It grant access to send and receive data using wire or wireless connections. Most popular wire connections is Ethernet, wireless – Wi-Fi and Bluetooth. Network technologies were optimized to peer-to-peer connections, or to client-server connections.

ONE OF THE MAIN PROBLEMS OF CAR TRANSPORT IN UKRAINE

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The role of transport is not only in the transportation of goods and passengers - it serves as a kind of engine of the economy. Using transport, links are established between regions of the state and between countries. It contributes to the development of various branches of science and the emergence of new.

Efficient transport work is one of the factors of cost reduction that allows you to find hidden reserves for further growth. Transport is a connecting link in all sectors of the economy. Transport facilitates labor mobility. This is manifested in the delivery of workers and employees to and from work, in the migration of the population, namely in the processes of urbanization. Each type of transport is characterized by its own specific problems and general problems affecting all types at once.

There are enough problems associated with road transport in Ukraine a lot, but the most important low level of development of the road network can be distinguished. To date, the entire road network is underdeveloped. This is reflected in her quick wear. This problem affects roads of both regional and city significance. Poor quality of road surface increases car wear service of tires, shock absorbers, engine and other parts.

The level of development of the road network and road safety are closely related between themselves. The quality of the road surface affects not only the wear and tear of the car, but also road safety. To date, all of these problems are more associated with underfunding. The growth of investment in the development of road transport should be based on attracting private investment and the formation of road funds.

The country's economy associated with the problems of road transport has huge losses!

CERTIFICATION DEVELOPMENT

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In the context of globalization of economy and trade a wide variety of products of the same purpose but of different quality, there is a need for a tool that, regardless of the country of the manufacturer, the manufacturing technology or the quality control system used, would guarantee that the products are manufactured in full compliance with the established requirements. This tool is a certification.

In the absence of certification, the manufacturer of the product is tempted to reduce the cost of production by reducing the quality and reducing safety. In this case, the market will be filled with dangerously poor quality products. Certification in this case is a barrier to such products, facilitating the expansion of trade and economic cooperation between countries and building trust between them.

Ukraine's transportation plays a significant role in the development of the economy and in ensuring the vital functioning of the country. One of the most important criteria for the quality of transport services is the safety of the transportation process. This quality is ensured by the use of reliable and safe equipment, the use of management, transport, information technologies, the development of transport infrastructure, the provision of this area of activity by qualified personnel.

"Certificate" in Latin means "made right", although the term has become widely known in commercial practice recently (the last decade).

Initially, the certification was carried out in foreign centers and its obligation was actually established by the law of those countries where the goods were shipped from the USSR.

In Ukraine, work on certification of products and services began in 1992 in accordance with the Law of Ukraine "On Consumer Protection", and in 1993 the Decree of the Cabinet of Ministers of Ukraine "On Standardization and Certification" was adopted.

Since 1993, several mandatory and voluntary certification systems have been established in the country, the object of which is a nomenclature of goods or services. The most significant certification system among them is the National Certification System UkrSEPRO, created by the State Standard and managed by its successor - the State Consumer Standard of Ukraine.

The development of the Ukrainian system of regulation of quality and safety of products is now mainly in line with the development of world practice, with largely the methods, schemes and organization of certification in Ukraine being adjusted, adapting to the peculiarities of the current state of the domestic economy.

Unfavorable status with the quality and safety of manufactured products is typical for small enterprises, where, as a rule, there are no approved technological and regulatory documents, there is no input control of raw materials, they are not carried out in the required volume of analysis and testing of products, etc.

However, today, despite all the costs, it can be stated that certification in Ukraine has become a popular tool for regulating the market economy. During the transition from the administrative-command system of economic management to the market, the growth of entrepreneurship, it largely provided protection of the consumer from the entry into the sphere of circulation of substandard and dangerous goods. At this stage, Ukrainian certification requires its improvement and further development.

PERSPECTIVES OF LOGISTICS IN THE FUTURE

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Everything is connected. In fact, there are currently over 26 billion connected devices in the world today, and that number is only expected to skyrocket further to 75 billion by 2025. So what do all of these connected devices mean for the world of logistics? Quite a lot, actually. By using connected devices, logistics companies can offer better location tracking, improved environment sensing, transparent fleet management, and eco-friendly shipping, to name a few. In fact, Cisco and DHL estimated that IoT (Internet of Things) technologies could create \$1.9 trillion in economic value for the global supply chain and logistics sector.

Why has IoT made such a big impact on the logistics industry in such a short time? One big reason comes from the increasing popularity of third-party logistics companies in recent years, which offer an easier way to maintain the entire supply chain. To manage logistics from the outside, these third-party companies are using asset tracking through connected devices to make the process smooth and seamless. Tagged parcels and containers allow warehouses to track inventory, vehicles, and equipment through cloud services. Fleet management also becomes easier through real-time monitoring of vehicle and driver performance, using collected data to improve operations. This includes increasing fuel efficiency, implementing preventative maintenance and making operations proactive instead of reactive.

IoT sensor technology is also vital for the logistics companies of today: with sensors allowing full visibility inside shipments while they're in motion, helping to ensure they reach their destination in the customer's anticipated condition. The Internet of Things contains a multitude of possibilities which logistics tech startups are now taking advantage of: In 2018, 60% of global manufacturers used analytics data recorded from connected devices to review their processes and identify optimization possibilities. And according to General Electric, the implementation of these IoT devices will add \$10 to \$15 trillion to worldwide gross domestic product growth by 2030 – the equivalent of China's entire current economy.

Companies from around the globe are discovering more exciting ways to exploit the Internet of Things for additional efficiency and productivity. Here are some of the most exciting IoT logistics startups in the game today.

Globe Tracker. By combining cellular and IoT technologies like Bluetooth and LoRa, Globe Tracker is addressing end to end cold chain visibility for logistics companies. Its suite includes remote temperature monitoring, compliance, and visibility tools in an effort to make the cold chain more efficient, reliable, and improve the quality of perishable transport around the world. Its main solution is in the maritime sector for refrigerated containers or reefers. For this sector, they provide two-way communication to refrigerated containers no matter the brand or model – even if the reefers were created over 20 years ago.

Sensolus. Want to start tracking non-powered assets like pallets, containers, trailers, or manufacturing parts? Belgian startup Sensolus may be your solution. Using its tracking STICKNTRACK asset management service technology on all of the above, any logistics company can add new visibility and transparency into its supply chain and logistics operations, offering the power to improve processes and reduce costs. The solution is built to be energy-efficient, easy to install, operationally scalable, and highly reliable in industrial environments. The geo-localization solution can also be further optimized by adding it to the SIGFOX IoT connectivity and global network.

TOURISM

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By the early 21st century, international tourism had become one of the world's most important economic activities, and its impact was becoming increasingly apparent from the Arctic to Antarctica. The history of tourism is therefore of great interest and importance. That history begins long before the coinage of the word tourist at the end of the 18th century. Modern tourism is an increasingly intensive, commercially organized, business-oriented set of activities whose roots can be found in the industrial and postindustrial West. The aristocratic grand tour of cultural sites in France, Germany, and especially Italy—including those associated with Classical Roman tourism—had its roots in the 16th century. It grew rapidly, however, expanding its geographical range to embrace Alpine scenery during the second half of the 18th century, in the intervals between European wars. As part of the grand tour's expansion, its exclusivity was undermined as the expanding commercial, professional, and industrial middle ranks joined the landowning and political classes in aspiring to gain access to this rite of passage for their sons. By the early 19th century, European journeys for health, leisure, and culture became common practice among the middle classes, and paths to the acquisition of cultural capital (that array of knowledge, experience, and polish that was necessary to mix in polite society) were smoothed by guidebooks, primers, the development of art and souvenir markets, and carefully calibrated transport and accommodation systems.

Currently, tourism specialists are in high demand. This is due primarily to the fact that people have more opportunities to travel. And if before with traveling abroad there were many difficulties, now there is no problem. The main thing is the desire to go to another city or country and at least minimal financial opportunities. A specialist in the field of tourism deals with all issues related to the organization of leisure. In this case, you can work in several areas: social and cultural service and tourism, organization management, tourism. If with the first and third sphere everything is more or less clear, then with the second it is not very clear. Tourism specialists who have chosen the management of organizations are engaged in personnel management, the quality of services provided, and develops tactics for communicating with clients.

Who is it suitable for? First of all, work in the field of tourism is suitable for those people who themselves love to travel and relax in comfort. They should be sociable, inquisitive, have a craving for learning new things. A specialist in the field of tourism should possess a lot of information, be able to intelligibly convey it to the client. In addition, language skills are important.

Demand Currently, tourism specialists are in high demand. And this applies to almost all areas. This is due to the fact that the restaurant, hotel and tourist business is developing rapidly. People like to relax, and therefore restaurants, hotels and travel companies should offer them the best service.

Prospects If you like the tourism or hotel and restaurant business and you decide to get an education related to this field of knowledge, you can not worry that you will be left without work. The tourism and hotel-restaurant business is developing rapidly. There are many new restaurants and hotels, travel companies. You will not have employment problems. The main thing is to get a quality education and have a great desire to work in this area. Then you will surely succeed.

НАЦИОНАЛЬНАЯ КУХНЯ СОВРЕМЕННОЙ АФРИКИ

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академика В. Лазаряна

Африка – это целый материк, состоящий из множества стран, где можно встретить и засушливую пустыню, и равнины, и тропические болота, и джунгли, именно поэтому кулинарные традиции этого континента многогранны и неоднозначны, и я хочу о них рассказать.

Национальной кухне современной Африки более тысячи лет. В ней сочетаются кулинарные традиции многих стран и народов, населяющих африканский континент.

В чем заключается уникальность кухни Африки? Африканская кухня впитала в себя некоторые португальские традиции и, конечно же, только выиграла от этого. Португальцы привезли сюда цитрусовые продукты, а также традицию мясных и постных дней. И поэтому многие современные африканцы по пятницам мяса не кушают. Кухня Африки насыщена блюдами из морепродуктов, а также из бобов, риса, маиса и многочисленных экзотических фруктов-овощей

Но больше всего популярны бобы. Простые жители до сих пор готовят блюда, изобретенные не одну сотню лет назад. Одним из экзотических на европейский взгляд блюд является «калулу» – это смесь свежего и высушенного мяса. Блюдо с необычным названием «мумба» по вкусу напоминает курицу гриль.

Большое разнообразие рыбных блюд готовят африканские хозяйки, но особенно много вариантов супов. Из старинной кухни можно привести пример приготовления телупии с использованием пальмового масла. Недаром его называют «какуссо». Какуссо – это речная рыба, приготовленная в том же знаменитом пальмовом соусе. Кухня Африки богата салатами из местных овощей и фруктов. Однако в больших количествах употребляются и экзотические для этой местности помидоры.

Салаты готовят из местных растений и овощей. Но широко используются и привозные растительные культуры, в том числе и фрукты. Бананы и гуаву привозят с севера, а томаты и виноград – с юга.

Кроме своих блюд, Африка может похвастаться высоким уровнем пивоварения и виноделия. И делает это исключительно хорошо.

Традиционные праздники и обряды проводятся нечасто. Если позволяют средства, то на празднике подаются безалкогольные напитки, пиво в бутылках, курица-гриль. Чаще всего африканцы пьют кукурузное пиво и пальмовое вино, так как оно стоит гораздо дешевле.

Кухня Африки интересна своим колоритом. Соус из масла пальмового дерева вряд ли оставит равнодушным самого опытного гурмана.

Жители, даже живущие в крупных городах, как правило, предпочитают питаться дома. Это вызвано не столько традицией, сколько недостаточно большим количеством мест общественного питания и недостаточным соблюдением санитарных норм в разного рода закусочных и ресторанах.

Африка – это экзотические тропики и пустыни. В ней до сих пор сохранились многие нетронутые уголки красивейшей природы, которые так привлекают туристов, предпочитающих любоваться экзотической флорой и фауной. Там есть на что посмотреть и полюбоваться. Приезжайте к нам, мы всегда рады гостям...

MULTILINGUALISM: AN INTEGRAL ATTRIBUTE FOR CAREERS IN THE FUTURE

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Dnipro National University of Railway Transport named after Academician V. Lazarian

For most of its history, humanity has been multilingual. Under the influence of many factors – historical, social and economic, there has always been a need for people who have known two or more languages. Over time, communities appeared in which two or more languages functioned. Modern processes, primarily globalization and the development of information and communication networks, give an even greater impetus to the spread of multilingualism. Multilingualism has already become a fact of modern life for almost all countries of the world. It is not a matter of personal choice – to know one (native) language, to study one or two foreign languages. The need to communicate with colleagues, to work on the Internet, and to navigate freely in international scientific discourse – all these factors require a person to have at least one, and sometimes several, foreign languages.

Freedom of border crossing and employment in any country in the world also contribute to an increase in the number of bilinguals in previously monolingual communities. A variety of communicative situations, different roles of communicants and differences in languages – all this leads to mutual influence and changes in languages.

The concept of “multilingualism” is relatively new, since it gained its wide use only in the second half of the twentieth century due to the development of Internet technologies and the dissemination of media. By this time, synonymous terms such as “multilingualism”, “polylinguism” and “trilingualism” existed in scientific and journalistic literature. There is no clear and generally accepted interpretation of the concept of “multilingualism” in the scientific literature. But most philologists (V.V. Pashkov [1], E. F. Tarasov [2]) are inclined to believe that multilingualism is a real socio-linguistic situation, the essence of which is the coexistence and interaction of two or more languages within one language group.

Traditionally, the term “multilingualism” is understood as the ability of a person to use several languages, as well as the coexistence of various language groups within the same territory. However, in the educational policy of Europe, the term “multilingualism” is used to describe a new area of the Commission’s policy, which provides conditions for the distribution of all languages and in which teaching in different languages can develop. In addition, multilingualism is also a special type of thinking that absorbs the cultural values of several peoples open to dialogue.

The result of multilingual education is the achievement of a basic multilingual competence, which allows us to consider it not only as an alternative way of learning a language, but also as a way of mastering special knowledge, familiarizing oneself with the values of world culture and developing social and communicative abilities of a person.

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ENGLISH IS THE LANGUAGE OF COMMUNICATION

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"Do you speak English?" with this phrase begins the conversation between two people that speak different languages and want to find a common language. It's very good when you hear: "Yes, I do" and start talking. People of different countries and nations have to get along well with the progress in world trade and technology as well as with each other. Knowledge of foreign languages helps you to develop friendship and understanding among people. English is very popular now. It's the language of computers, science, business, sport and politics. It's spoken all over the world. It is the official language of the United Kingdom, Ireland, the United States of America, Canada and Australia. There are more than 750 million speakers of English in the world.

Speaking a foreign language you can read papers, magazines and original books by great writers, watch satellite TV Programs. If you like travelling you can go anywhere without being afraid that other people will not understand you. English is very important to find a good job.

English is a language which is important, useful and helpful for every citizen in today's world. By learning English language, you can develop four important skills like: Speaking, Listening, Reading and Writing.

Knowledge of English is important as you can get to know how to frame sentences, how to use words in dialogues while speaking to others. As every word has a particular context where it fits right, using words in such a manner in English is an art that can only be mastered by practice. And with such command, you can easily communicate with others on any level. Mostly, listening and speaking improves your command on English language. Daily listening to English speakers and trying speaking in English, helps you to know how to use the language, where to use each word and when to use it in a correct manner.

Concentration on learning English communication skills in this new millennium is a tremendous move towards speaking and writing fluently in English. Also your way of pronunciation of different words will be improved if you learn good communication. You can make conversation, practice dialogues and give high-quality presentations if you learn English communication language skills. Communicating with people in English on a daily basis also improves your pitch & voice/tone of your speech; how to speak in a correct form & for correct usage.

Advantages of learning English language communication are an endless list, creating possibilities each day to connect with people worldwide. With command over English language you can get jobs easily and can participate in interviews and discuss with people in a group about any particular important topic or aspect. English communication gains you wisdom and you can also gain lots & lots of knowledge by reading online magazines, newspapers, story books, essays, websites and journals and any of the greatest and famous writing written in English by poets, authors or leaders.

Apart from being most important, widely used and useful, English is considered to be one of the easiest languages to learn and speak. With daily practice, you can communicate-well with others and improve your skills, show-off or expose your skills before others to impress and motivate them to come up with their English language communications skills. Hence, English even-though being a foreign language to many is now most commonly used language worldwide.

METHOD FOR ASSESSING THE AERODYNAMIC DRAG OF VEHICLES IN ROAD CONDITIONS

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Aerodynamics (from Greek aer - air and dynamis - force) is a section of mechanics of continuous media, in which the purpose of research is to study the patterns of motion of air flows and their interaction with obstacles and moving bodies. In aerodynamics, they consider motion at subsonic speeds, is under normal conditions up to 340 m/s (1200 km/h). A more general section of mechanics is gas dynamics, in which flows of different gases are studied.

The history of aerodynamics dates back over a hundred years. Over the years, science has accumulated a lot of knowledge and began to divide into several independent parts, depending on the theoretical scheme of air: hydrodynamics, gas dynamics, supraaerodynamics, hyperdynamics, magnetoaerodynamics.

Aerodynamics is divided according to the method of study into theoretical and experimental ones. Theoretical aerodynamics method of study means that such aerodynamics uses mathematics to study phenomena. Complex phenomena are schematically simplified and experimentally simplified. Experimental method of study is used in the case, the same phenomena are studied, but on the basis of observations, field experiments or modeling of phenomena in aerodynamic laboratories.

In the modern world, the aerodynamics of the vehicle is particularly relevant. Every car company strives to make the shape of the car more aerodynamic and streamlined for the development of higher speed, smoother movement and fuel economy.

In the process of developing the bus, engineers tried to improve the design of the vehicle, reduce environmental pollution by reducing exhaust gases, as well as increasing aerodynamic properties by changing the shape of the body.

The body of the vehicle, especially the passenger car, as the largest part of the car, has a decisive influence on the nature of the vehicle's interaction with the air environment.

Aerodynamic drag, which hinders the car from moving forward, dramatically increases with increasing speed, and also depends on the cross section of the car and the perfection of body shape. Currently, there was the need to create bodies of vehicles with lower aerodynamic resistance. At the same time, the fundamental attention in automotive aerodynamics has at all times attracted two fundamental problems: frontal air resistance and lift. Absolutely any vehicle is similar in shape to the profile of the wing of the aircraft: flat bottom and convex top.

It follows that the air flowing over the car goes a long (way) than the air below. But the flow rate from below is higher than from above. Because of this, a thin air zone appears above the machine and, on the contrary, a high pressure zone. As a result, the higher the speed, the stronger the air from the bottom lifts the car.

In some cases, for example, on race cars use different types of aerodynamic elements such as anti-wing, spoilers, splinters, diffusers and lining on the bottom designed to create clamping force. The use of these elements on cars is not economically advantageous.

The verified results showed that the traditional method of determining the parameters of the aerodynamic resistance of the car does not give high accuracy of the result in the form that the quadratic dependence of the aerodynamic force on the speed is used, thus the changes in the coefficient of the frontal aerodynamic resistance from the speed are not taken into account. In connection with this purpose of research will be development of experimental-theoretical method and determination of dependence of aerodynamic resistance of the car on the speed of its

movement. The calculations should be made on the example of KrAZ family vehicles, since low-speed trucks are considered to have low aerodynamic resistance.

ENGLISH IN TRANSPORTATION COMMUNICATION

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Each person has at least once thought about learning a foreign language. In modern realities, knowledge of a foreign language is included in the standards of staff recruitment in a successful company, regardless of its environment. In the professional transport area, knowledge of languages is an important part in different directions, starting with practice in European countries and ending with the purchase or sale of spare parts and cars. For the company development you need to know the language, every entrepreneur understands this. And in order to maintain a large business, especially a global one, international relations are necessary. As we all know the world language is English, and knowledge of English is a very important part, because without it business development is impossible. A foreign language is needed in various sectors of the automotive industry. Parts for foreign cars are marked in a foreign language, and even for a simple worker in a “provincial” service station minimum knowledge of the language of the manufacturer of certain parts is needed.

Language means communicative competence availability. According to R. Bell, communicative competence is not an innate ability. This is the ability, which is formed during the process of a man’s acquisition of social and communicative experience as well as interaction with the social environment. Students learning English as a second language acquire communicative experience only in the process of communication in the classroom. The main students’ training unit is the situation considered in the broader social context including elements of the student’s immersion into the culture of the speaking language country and the native speaker’s psychology. Communication typically takes place in the artificial verbal environment reproduced during the lesson. Colloquial situations, as well as communicative and situational tasks allow influencing the formation of statements, stimulating students to create texts, causing the need in reproducing these statements. Communicative situation is a situation of colloquial communication of two or more people, which has a clear structure with the following components: an addresser; an addressee; their relationships and the way of communication (official - neutral - friendly); the goal of communication; the means of communication (language or subsystem - dialect, style, as well as non-verbal means - facial expressions, gestures); mode of communication (oral / written, close / remote); a place of communication. All these components are situational variables. The change of the values for each of these variables results in varying the communication situation and, therefore, the resources used by participants in the situational and communicative behavior in general. In order to achieve partners’ communicative goals, the text content, its linguistics form or expression are not the only leading factors. Communication as an activity is a system of elementary acts. Each act is defined by the subject that is the initiator of communication, the rules which the communication follows; the goals that participants should achieve in the process of communication; and the situation in which participants interact. In order to make a successful act of communication a person must carry out a specific number of acts that ensures successful communication.

So, learning foreign languages can guarantee the business development not only in automotive area, but in any of them.

HYDRAULIC SYSTEM IN BULK HYDRAULICS

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The hydraulic system must have a pressure limiting device (safety valve) in front of the first control valve. If several values of pressure are used in the hydraulic system, an adequate number of relief valves must be provided. The safety valves must be adjusted (adjusted) using a special tool and be able to seal the regulator.

Pipelines and their connections, the maximum pressure at which a mobile hoist with a work platform is limited by the setting of a relief valve, shall withstand at least double the pressure without any residual deformation.

All fittings and hoses, which are critical components of a three-stage hydraulic lift for a mobile platform lift platform, must have a tensile strength of four times the working pressure projected by the hydraulic system.

All other hydraulics must be designed for at least the maximum pressure at which they will operate, including the temporary increase in pressure required to perform the strength test.

Each hydraulic circuit of the hydraulic system must be provided with space for the installation of pressure monitoring devices and exhaust air entering the system, and the required number of measuring devices to check and control the correct operation of the system.

Each hydraulic circuit of the hydraulic system must be provided with a place to remove the air entering the system.

An atmosphere-connected hydraulic fluid reservoir must be fitted with an inlet air filter. The three-dimensional hydraulic actuator must have the means to ensure the level of cleanliness of the working fluid that is necessary for the safe operation of the mobile hoist with the working platform.

Hydraulic systems, including gas-hydraulic accumulators, must be provided with devices to automatically release the pressure of the working fluid or to force the insulation of the battery when the hydraulic actuator is switched off and the system is depressed.

The high-pressure hoses shall be of such design, marking the inlets and outlets of the working fluid, or positioned in such a way as to exclude a faulty connection which could lead to hazardous operating conditions of the mobile lift equipment with the work platform, for example, a sudden change of direction or rotation of the working body.

Load-sensing threaded connections shall meet the requirements of the relevant standards, and reduced stress areas should be taken into account in the manufacturing and elastic deformation tolerances caused by hydraulic pressure when calculating stresses.

The design of threaded connections subject to variable tensile loads must take into account the fatigue of the metal and prevent them from being uncoupled.

Conditions for increasing the pressure in the hydraulic system should be considered:

- the influence of devices that reduce the speed of extension / retraction of the rods of the hydraulic cylinders to the speed that could result from the flow of full flow of the working fluid into the cylinders, causing internal loading from the influence of pressure in addition to the normal pressure resulting from the application of external loads.

TRAVELLING

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Twenty years ago not many people travelled overseas for their holidays. The majority of people stayed to have holidays in their country. Today the situation is different and the world seems much smaller.

It is possible to book a holiday to a seaside resort on the other side of the world. Staying at home, you can book it through the Internet or by phone. The plane takes you straight there and within some hours of leaving your country, you can be on a tropical beach, breathing a super clean air and swimming in crystal warm water of tropical sea.

We can travel by car, by train or plane, if we have got a long distance tour. Some young people prefer walking or hitch-hike travelling, when you travel, paying nearly nothing. You get new friends, lots of fun and have no idea where you will be tomorrow. It has great advantages for the tourists, who want to get the most out of exploring the world and give more back to the people and places visited. If you like mountains, you could climb any mountains around the globe and there is only one restriction. It is money. If you like travelling, you have got to have some money, because it is not a cheap hobby indeed. The economy of some countries is mainly based on tourism industry. Modern tourism has become a highly developed industry, because any human being is curious and inquisitive, we like leisure, visit other places. That is why tourism prospers.

People travel from the very beginning of their civilization. Thousands years ago all people were nomads and collectors. They roamed all their lives looking for food and better life. This way human beings populated the whole planet Earth. So, travelling and visiting other places are the part of our consciousness. That is why tourism and travelling are so popular.

Nowadays tourism has become a highly developed business. There are trains, cars and air jet liners, buses, ships that provide us with comfortable and secure travelling.

If we travel for pleasure, by all means one would like to enjoy picturesque places they are passing through, one would like seeing the places of interest, enjoying the sightseeing of the cities, towns and countries.

Nowadays people travel not only for pleasure but also on business. People have to go to other countries for taking part in different negotiations, for signing some very important documents, for participating in different exhibitions, in order to exhibit the goods of own firm or company. Travelling on business helps people to get more information about achievements of other companies, which will help making own business more successful.

There are a lot of means of travelling: travelling by ship, by plane, by car, walking. It depends on a person to decide which means of travelling one would prefer.

Tourism has almost no disadvantages, except making people less patriotic. With the development of international tourism, people have become less interested in culture and the attractions of their native country, but in fact, our country has a great number of wonderful places to offer. So don't forget the fact, that country, where we born and we live have so many beautiful place for visits. It mean, that you can't go everywhere and just look around. You'll surprised

TOPICALITY OF THE ENGLISH LANGUAGE LEARNING ON CONTEMPORARY ECONOMY'S CONDITIONS

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Significance of foreign languages in modern technocratic world and circumstances of furthermore economy's development and their impact on it has increased definitely. Mostly widespread among it is English. Value of the English language at moment is hardly appreciated. It has been transformed on some "universal" language for a long time. Curiously that more than 750 million people in the entire World use it in conversation with each other and 80 per cent of information available as electronic data is interpreted in English. It is studied in schools, universities, used in negotiations with foreign partners, on tourist trips, and so on and so forth. Last decades, English is gaining increasingly more importance; put other foreign languages behind itself.

Henceforth, at Ukrainian entities, English' competence is primarily requirement to candidate before applying job and condition significantly effects on employees' wages and salaries. Nowadays, majority of companies submit reports in accordance with international standards. Top of these companies focuses on lack of highly-qualified specialists, with advanced English skills. In respect to these circumstances, they consent to pay for aforesaid employees' service 1.5-2 timed higher wages and salaries than for work of accountants have not aforesaid skills, for instance. At some enterprises, in reasons to high-qualified on foreign languages field' employees keeping, organize English training courses directly at workplace. Training program includes professional area of the company and focuses on detached specialities of employees.

Moreover, English has no small importance on the Railway sector's activities.

For instance, Ukraine has a potential to strike a bargain with the United States on the construction of new tracks inasmuch as Native railway experts are highly-evaluated abroad in respect to their master qualification. However, for these reasons, Ukrainian railway' workers have to obtain knowledge on English at daily level, with specific terminology using, at least. Such noticeably projects involve investment as well as assist to sharing knowledge and foreign technologies providing on domestic enterprises, in addition.

English language competence, presumably, is helpful during the international passengers transporting. For instance, English is official in fifty-four countries – in Great Britain, USA (in thirty-one States), Australia, Ireland (as well as Irish), Canada (along with French) Malta (with Maltian), New Zealand (side by side with Maori and Sign Language).

Additionally, it is used as official in some Asian countries such as India, Pakistan et cetera and African, mostly as former British Colonies, contemporary members of British Commonwealth, from the one hand. Notwithstanding, majority of population in aforesaid countries is another languages' Speaker.

Evidence, therefore, indicates that, English become as obligatory for person educated. Advantage of this viewpoint consists, particularly, in obtain abilities for higher degree in society occupy and keep a conversation with outstanding people. Finally, as the people of Laos say: "Knowledge of foreign language is equivalent as two-timed living".

TRANSMISSION

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The vast majority of Subaru Impreza GD / GG - all-wheel drive. Front-wheel drive cars are mainly presented in the right-hand drive and imported from Japan or England.

Four-wheel drive in Subaru is part of the image. Yes, the design is very similar to Audi Quattro: the engine is in front of the axle, the box is behind the axle. But there is a charm, because boxer engines are very short, which means that there is no problem with overloading the front axle and understeer. And the center of gravity is theoretically lower. Subaru advertising claims the superior performance of such a bundle, but in practice, the Lancer Evo with the usual in-line four-cylinder engine proved to be, at least, no worse.

The transmission is surprisingly reliable, although if we talk about the WRX / STI and especially the highly tuned options, the margin of safety can already be exhausted. Yes, and age with runs do not spare anyone.

If we turn to the specifics, then problems with splines and a joint of equal angular velocities are usually a minimum. As a rule, they are "torn" on devices with the most powerful engines only drag fans on asphalt. Here is the rear gearbox and driveshaft worth checking carefully - for cars with powerful turbo engines. Buying a car with a manual gearbox is not a panacea for repairs, especially if the engine is supercharged. Five-speed gearboxes are not very reliable, cut clutches and gears, dead synchronizers on "charged" machines are commonplace. Usually it cuts off either the second gear or the fifth one, depending on the situation.

And most often the viscous coupling lock is killed. The center differential block of which it is a part. If the lock flies, then it is better to change the entire manual gearbox, along with the drives to the box from the previous Impreza, where the viscous coupling is conditionally eternal. Yes, you can only change the shank of the box and the viscous coupling itself, but this operation may require complex manipulations. If the box twitches, the car eats rubber, and the consumption is too big, then the clutch is definitely worth checking. Usually the resource of this element is within 100 thousand kilometers, even with a relatively calm style of movement.

It is possible to extend the life of a viscous coupling a little by replacing its fluid - the procedure is not very complicated and not very expensive. Why viscous coupling fluid is not officially supplied is a big question, but it is suitable for any gearbox with a limited-slip differential, and even viscous machine oil is also suitable in extreme cases.

Six-speed gearboxes, in general, are more reliable, in any case it is more difficult to roll them up with the "horse" moment of the turbo engine. If your motor develops more than 400 Nm, then the choice is obvious. Yes, viscous coupling will have the same problems, unless you have a machine with DCCD - a system of dynamic torque distribution along the axes, found on STI modifications.

The design of the center differential of a six-speed gearbox is exactly the same as that of a five-speed gearbox, only the load on it is usually greater, and, therefore, the resource may not reach hundreds of thousands. The six-tenth box also has problems with the tips of the shift forks, their plastic linings after 120-150 thousand kilometers are already very worn out and the switches lose their clarity. The gears may not turn on, and eventually the ends of the forks and slip rings will wear out. The combination of a six-speed manual gearbox "mechanical gearbox" with a controlled differential DCCD - for those who are strong-willed and thick wallet, this system is even more complicated and has many wearing components.

МНОЖИННІ ІНТЕЛЕКТИ ГОВАРДА ГАРДНЕРА

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Говард Гарднер – американський психолог, який вважав, що інтелект людини не зводиться до вирішення математичних, логічних і вербальних завдань, що входять в традиційні тести інтелекту. Тому в 1983 він запропонував свою модель – «Множинні інтелекти», відповідно до якої людина має не єдиний, так званий «загальний інтелект», а цілу низку інтелектуальних здібностей.

Гарднер був вражений різноманітністю ролей дорослих осіб різних культур - ролей, які базуються на найрізноманітніших здібностях і навичках, в рівній мірі необхідних для виживання у відповідних культурах. На підставі своїх спостережень він дійшов висновку, що замість єдиної базової інтелектуальної здатності існує безліч різних інтелектуальних здібностей, які зустрічаються в різних поєднаннях. Гарднер визначає інтелект як «здатність до вирішення завдань або створення продуктів, обумовлену конкретними культурними особливостями або соціальної середовищем.. Саме множинний характер інтелекту дозволяє людям приймати такі різні ролі, як роль лікаря, вчителя, політика та будь-яку іншу.

Типи інтелекту, які запропонував Гарднер у своїй теорії:

1. Вербально-лінгвістичний інтелект – це здатність ефективно застосовувати слова в усній або в письмовій формі .

2. Логіко-математичний інтелект – здатність використовувати та оцінювати співвідношення між діями або об'єктами, коли вони фактично не присутні, тобто до абстрактного мислення.

3. Візуально-просторовий інтелект – інтелект, задіяний для розуміння картин та образів, передбачає здатність уявляти, машинально малювати, працювати над проектом дизайну тощо. Художник, скульптор, архітектор, садівник, інженер – усі вони переносять свої уявні образи на створювані або змінювані ними предмети.

4. Кінестатичний інтелект – свідомість усього тіла, дає можливість контролювати й інтерпретувати рух, танцювати, бігати, стрибати, торкатись, жестикулювати, керувати фізичними предметами, установлювати гармонію тіла й розуму.

5. Музичний інтелект – цьому інтелекту сприяє почуття звуку й емоційна здатність реагувати на нього.

6. Міжособистісний інтелект – представлений здатністю швидко розпізнавати й оцінювати настрої, наміри, мотивації та почуття інших людей.

7. Внутрішньообистісний інтелект – представлений здатністю чітко сприймати себе, свідомо помічати внутрішній настрій, наміри, мотивації, темперамент і бажання; здатністю самодисципліни, саморозуміння й самооцінки.

8. Натуралістичний інтелект – передбачає здатність навчатися за допомогою природи.

9. Екзистенціальний інтелект – це здатність філософствувати, медитувати, вивчати історію, культуру релігії, обговорювати «життєві питання».

Говард Гарднер акцентує увагу на тому, що ступінь розвитку того чи іншого інтелекту залежить від частоти його використання в житті. Чим частіше це відбувається, тим більша імовірність сформуванню певний тип інтелекту, тим краще він буде розвиватися.

Отже, всі типи інтелекту пов'язані між собою і якщо розвивати один з них, інші, суміжні з ним, також будуть розвиватися.

IMPACTING OF HYPER INFORMED ERA

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Nowadays, the huge amount of data exists around us, that is why our century is named “hyper informed digital era”. Because people`s brain consumes each piece of information he finds today, it becomes the newest global problem.

In a situation where you constantly consume content, the central part of the brain is active and this means that energy does not enter the part that is responsible for thinking. Essentially, your brain is hibernating.

According to the research, just the physical location of the phone affects the amount of RAM and the mobile intelligence of your brain. You get stupid when you have a telephone near you. And you have increased volumes of intelligence and mobile memory when there is no phone near you.

In addition, we observe a condition in which young people cannot maintain prolonged psychological contact with each other. They are not interested in the inner world of another person. Other people became replaceable for them because they do not see the value of each of them individually.

Scientists are sure that this situation with a radical change in the functioning of the brain will lead to terrifying consequences. Change the habits of brain`s hyper multitasking is what you really need to normalize your mental health situation. To do this, you must adhere to several rules.

When performing simple tasks that do not require too much attention, switching between media activities can be useful: it will help reduce boredom and make routine work more enjoyable. But when we need to focus on important matters, technology interference in the work must be minimized.

Develop awareness – think about the value of each link that you open in the browser. Is this information relevant to your primary concern?

Limit access to new information resources - many applications are now available to help combat Internet addiction. And for greater productivity, scientists advise you to correctly distribute your time during the day: check mail in the morning, leave social networks for the evening. Get rid of the habit of entering all applications at once, after each “distraction” it’s becoming more difficult to get back to work.

Reduce the boredom and experience with one task. To do this, of course, you need to organize breaks during which you can do exercises, listen to your favorite music or even take a short nap. Increase the task execution time – this will develop tolerance for long work cycles, and rewards in the form of breaks will become more pleasant.

NEW STRUCTURE OF RUNNING WHEELS OF BRIDGE CRANES

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The most probable causes of bridge cranes failures are the short service life of crane wheels and crane rails, fatigue destruction of end beams, slow-moving shafts of movement mechanisms with hinged reduction gears, loosening and wear of the rail track, wheel derailment, breakage of guide rollers for cranes with flanged running wheels. In general, the wheel rejection

is due to the wear of the rib. One of the reasons for this wear is the dynamic forces that appear during the movement of the cargo cart and crane bridge.

Dynamic loadings which arise in bridge cranes at movement of running wheels were considered in robots of many famous scientists, such as B.S. Kovalsky, M.P. Alexandrov, N.A. Lobov, S.A. Cossack, M.M. Gokhberg, V.A. Vaynson, D. Kalker, and others. Experimental studies have shown that the movement of the crane gives rise to quite significant dynamic forces, which lead to a decrease in the durability and reliability of the crane wheels of the bridge crane. Loading of crane metal structure during operation of movement mechanism is determined by two components - static forces from weight of cargo and crane and dynamic loads, which occur during its non-stationary movement.

During movement of crane at constant speed transverse forces have oscillatory unstable character, which is due to appearance of transverse elastic oscillations of axle and leads to transverse displacements of all running wheels, as well as appearance of contact forces, which act on wheel flanges from rail side.

To reduce dynamic loads, we have proposed the use of running wheels with elastic inserts.

Crane wheel with elastic ring arranged in rim is characterized in that flexible insert features stepped shape that enters slots cut on wheel inner surface.

Experimental studies were carried out on idler and drive wheels of the mechanism of movement of the freight trolley of the bridge crane.

To record vibration of the wheels installed on the crane trolley, two vibration sensors D 14 were selected, which were installed in the housing of the crane wheel box and were supported by their probes against the outer race of the rolling bearing. The first sensor was designed to fix axial vibration and the other to fix radial vibration. The signal from the two sensors was transmitted to the ZETLAB amplifier followed by A/D converter (ADC). As an ADC, a universal ZETLAB was used, with the ability to digitize 14 bits and a clock frequency of 140 kHz, which allows not only to convert the analog signal to digital, but also digital to analog.

The ZETLAB program was selected as a program for signal recording and analysis, allowing not only real-time signal display with the possibility of scaling, but also allowing signal digitization with the possibility of further processing of results in different standard programs. This program also allows recording of the signal, the length of recording is limited only by the hardware capabilities of the computer and the capacity of the hard disk of harmonious components.

The method allows to find and determine the nature of dynamic loads acting on the crane wheel from the side of the cargo trolley.

As the results of the experiments have shown, the vibration level when moving a wheel with an elastic insert is much less than that of a conventional running wheel.

ENGLISH TERMS AND PHRASES FROM AUTOMOTIVE INDUSTRY

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Many people around the world own a car and rely on these amazing machines for transportation daily. Since the creation of the first car, a whole new vocabulary has evolved to explain how cars work, their different uses and the names of their parts.

Although cars are the same around the world, some names of their body parts/car related nouns change when using American English or British English. These differences are highlighted below.

An **automotive** is also known as a **vehicle**, **car**, **auto** or **automobile**. These words are most often used to describe private passenger vehicles.

Bus: Bus; Coach Bus; Minivan; MPV – Multi-Purpose Vehicle; Passenger Vehicle; School Bus.

Commercial Trucks: Big Rig; Road Train; Truck; Van.

Economy Car: City Car; Compact; Hatchback; Microcar.

Family Car: Crossover SUV; Full Size / Large; Large Family Car / Mid-size; Small Family Car.

Off-roaders and Utility Vehicles: 4WD (Four Wheeled Drive); Pick-up Truck – In the United States, this is a common term used for what other countries might call an SUV or 4WD. Not all pickup trucks can be used off-road on sand and mud; SUV (Sports Utility Vehicle); Ute.

Luxury Vehicles: Executive; Grand Saloon; Limousine.

Sports Cars: Convertible; Coupe; Roadster; Sports Car; Supercar.

Bonnet/Hood: The part of the car body that covers the engine and can be opened like a door to maintain the motor.

Boot/Trunk: Normally the rear part of the car which opens to store luggage or other items.

Wheels/Tyres: These are what a vehicle sits on and spin to make the automotive move.

Passenger Cab: The enclosed space which the driver and passengers sit inside during transportation.

Horn: When the driver presses a button, usually near the steering wheel, the horn makes a very loud sound which alerts other drivers to them.

Windshield: The front window which a driver looks through to see the road ahead.

Spare Tyre: A wheel which is stored inside the car somewhere to replace a tire if it should get damaged.

Windshield Wipers: Motorised arms with rubbers strips that move back and forth over the windshield when it is raining to wipe away water.

Side-mirrors: These mirrors are on the outside of the car. One is next to the driver and the other next to the front passenger. They allow the driver to see what is beside and behind them.

Rear-view mirror: Installed on the inside of the windshield between the driver and passenger; the rear-view mirror helps the driver to see what is directly behind him.

Bumpers: On the front and rear of a vehicle, below the lights, are long panels called bumpers. These protect the car from minor bumps and hits from other cars or objects.

Hand Brake/Parking Brake: A lever or small foot pedal that engages the brakes manually to stop a vehicle from moving when it is stationary.

VEHICLE BRAKE EFFICIENCY

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Wheel machine braking is the process of reducing or maintaining a constant speed of its movement. A special case of braking is keeping the machine in place - braking with a parking brake (the speed of movement is zero).

On some types of wheel machines, the separate braking of the wheels of the different sides is used to provide a rotation (power method of steering), which allows to determine the additional function of braking control, which is to change the direction of movement. Recently, foreign passenger cars have introduced systems that provide braking of the outer board wheels,

which makes it possible to stabilize the position of the car on the road (stabilize the heading angle).

All vehicle braking modes are divided into two categories:

- Emergency braking with maximum possible intensity;
- Service braking.

Emergency brakes occurring in an emergency situation are usually performed before the vehicle is completely stopped. This regime actually accounts for a few percent of all braking cases, but it is it that defines most braking performance requirements. Emergency braking is characterized by high dynamism, takes place in tight road conditions and determines traffic safety. Service braking is one way to control the speed of movement depending on the external conditions.

The duration of the braking process is an indicator of the lag of the terrain-machine system on the control action. In practice, the braking distance during braking with maximum efficiency is used to evaluate the braking properties of vehicles. The equivalent braking performance is the maximum or average deceleration of the machine.

The braking distance of the vehicle depends both on the initial braking speed and road conditions and on the duration of the dynamic stage of the process (the time elapsed from the moment the control pedal is touched to the moment the deceleration or braking force reaches the maximum values). A number of formulas, as well as dependencies proposed by Y. Taborek, D.P. Giant, M.D. Artamonew, Norman, O. Bode, V.G. Rosanov, I.L. Cruz, are currently used to determine the magnitude of the braking path on a straight section of the road.

Known dependencies allow calculating the braking distance of the wheel machine taking into account the time of operation of the brake drive, the phases of wheel blocking, the correction for the speed of growth of the braking force, etc. The diversity of work devoted to the study of this issue is due to the desire of the authors to obtain a more accurate result of the calculation of the braking distance. However, the natural variation of the parameter values included in the calculation formulas does not allow to unambiguously identifying an adequate dependence. However, these equations do not take into account the effects of hydraulic resistance in the machine transmission and air resistance on the amount of braking path.

The known equations do not allow the calculation of the braking distance of wheeled machines under the action of lateral force, as well as on the longitudinal slope, which does not allow to estimate the braking properties of wheeled machines under different operating conditions.

So, to ensure the required level of traffic safety, it is necessary not only to have initially high braking performance, but also to maintain it throughout the operation of the wheel machine.

It can therefore be concluded that the performance criteria of the service braking system for road tests of automobiles and tractors are braking distance and steady-state deceleration.

ADVANTAGES AND DISADVANTAGES OF DISTANCE LEARNING

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The popularity of distance education has increased dramatically in recent years. This form of study is the most flexible and accessible for many who want to gain knowledge. Much has been said in favour of distance education, and apparently no less than the disadvantages of this form of education. The purpose of this article is to analyze how important are the reasons for introducing distance learning into our daily lives.

At first, distance learning is good for those who spend a lot of time and self-power on the road to a university and don't think that the university is good place for studying. Those people wait the whole day to go home and to do something that is really important for their education (to read a book, to learn a course, to write some code etc.), but after the whole day in university they can't find any time and self-power for it.

With distance learning you have an opportunity to study at any time. The distance learning students can decide for themselves when and how much time during the semester they spend on studying the material. They build an individual training schedule for themselves.

An opportunity to learn at your own pace is a benefit. It is not necessary to study at the same pace as other students. The student can always return to studying more complex issues, watch video lectures several times, read correspondence with the teacher, and may already miss topics already known to him. Studying at home you can learn the material at your own pace, and it can give better result than if you try to understand the topic during the lecture. And I want to say here, that the best way to learn to do something really good, to remember it enough to be able to recall and reproduce it again at the right time, is to learn to do it by your own. Besides, the whole day is yours; you can manage your time any way you want, so it's time to recall your intention to train at home, or to plant a flower and care about it, to do a big cleaning in your house, to cook your favourite dish or something new etc.

Availability of educational materials is convenient for you. Access to all necessary literature is opened to the student upon registration in the distance learning system, or he/she receives educational materials by e-mail. The problem with the lack or absence of textbooks, tutorials, or tutorials disappears.

Individual approach is provided with distance learning. With traditional teaching, it is difficult for a teacher to give the required amount of attention to all students in the group, to adjust to the pace of each. The use of remote technologies is suitable for the organization of individual approach. In addition to the fact that the student chooses the pace of study, he can promptly receive from the teacher responses to emerging questions.

There are some disadvantages of distance learning. With no faculty around for face-to-face interaction and no classmates who can help with constant reminders about pending assignments, the chances of getting distracted and losing track of deadlines are high. You need to keep yourself motivated and focused if you want to successfully complete your distance learning course. Besides, the good way to remember and to understand something is to explain it to your friend. Distance education is not a good idea if you tend to procrastinate and can't stick to deadlines.

I don't think that distance learning is a good idea for all people for a long time. Sometimes it's necessary and good but don't forget that every person is the part of the society and even your learning is distance, your work probably will be sociable.

THE CYBERSECURITY IN THE TRANSPORTATION SYSTEM

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The rapid adoption of digital technology across industries is very important factor nowadays. The number of devices connected to the Internet is growing at an exponential rate, laying the foundations for the development of Smart Cities. With the technology landscape moving so quickly, what does it mean for a crucial industry such as transportation? After all, Smart Cities are surely going to require ‘Smart Transportation’ to allow the smooth flow of passengers and cargo — not to mention that of critical data, which will help to improve

operating efficiency. However, as our transportation networks become smarter, they will also become exposed to the ever-present threat of cyberattacks.

This is not a problem that can be simply ignored or wished away. The earlier that transportation operators get serious about cybersecurity, the sooner they can secure their systems.

To serve the needs of future Smart Cities, transportation networks will need to be constantly connected, to allow data to flow seamlessly across multiple networks, applications, and systems. This free-flowing movement of data will enable the synchronization of schedules between public transportation and feeder buses, for example, allowing commuters to better plan their journey.

However, this is also a double-edged sword: Management of heavy data flows can distract operators from spotting vulnerabilities until it's too late, allowing cyber criminals to use high data traffic to mask attempted probes and attacks on transportation systems.

To handle this threat, operators will have to remain constantly vigilant. Data gives operators real-time visibility over their physical infrastructure; this visibility also applies when it comes to digital networks.

With the right data-monitoring solutions, operators can map their entire network for high-risk vulnerabilities, and use that information to craft appropriate cyberattack response strategies, minimizing the risk of widespread disruption. This is a constant process, but it gets easier over time, with the right systems and mindset in place. Plus, as operators continue to fortify their network, it will become increasingly resilient to new threats.

As the interdependency between operational safety and cybersecurity grows, operators will face the twin pressures of ensuring the safety of passengers and cargo while guarding the digital infrastructure that their operations increasingly run on.

Operators, however, shouldn't see this as a need to choose between the two worlds; instead, security and safety should be treated as parts of the same whole. This approach focuses on blending both safety and security into future transportation systems, co-designing and co-testing for both aspects in every element of the network.

Operators could try to understand the extent of how the operation — or failure — of different parts within a system will impact both the safety and security of its whole. Doing this would lead to systems with intentionally designed safety and security measures that complement each other, or automatically isolate one from the other, in the event of a breach.

Operators shouldn't view, or raise, cyber risk as a reason to delay digitization; they must view it as a strong motivation to continuously improve the integrity and robustness of their networks. Only then can they ensure their continuous relevance to both the needs of future customers and the development of future Smart Cities — while guaranteeing the safety, efficiency, and reliability of their day-to-day operations.

PROBLEM OF PHISHING

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Phishing scams are designed to trick people in handing over usernames and passwords, which can be used to access protected data, networks and systems. Phishing attacks are becoming increasingly sophisticated, with many fake emails being almost entirely indistinguishable from real ones. Because of this, your approach to security needs to be equally sophisticated. There are three key elements of a strong anti-phishing policy: detect, prevent, and respond.

Phishing can be identified as follows:

1) Spelling and grammar mistakes. When skimming through your email watches for spelling and grammar errors. These errors are indicative of spam. Most reputable business checks their emails for copy mistakes.

2) Links. Be aware of the links and pay careful attention to them. If you are suspicious of an email, do not click on the link. Instead, to make sure it is not a scam, rest your arrow on the link-again do not click it at first sight- and see if the link that is appearing in the yellow box is like the link in the message. In case of a scam, the link entirely differs from each other.

3) Spoofing. It has now become a common practice to spoof popular websites and even those of reputable companies. The attackers, well-learned in graphics and technicalities, find it easy to change emails and make it appears it is connected to the legitimate organization, but they are actually phony site scam. The web addresses that sometimes resemble the real organizations might be a scam site altered by cybercriminals.

Types of phishing

1) Deceptive phishing – It is one of the most common phishing scams. The attackers send fake messages to the user by impersonating original and authentic companies, trying to steal away any essential credentials. The emails usually contain threats or urgency for doing certain things to scare their victim into giving in their personal information. The reason it is so common and successful is because of major similarities between legitimate company’s correspondence and their scams.

2) Spear Phishing –The spear phishing is more personalized and upgraded version of deceptive phishing, though the objectives remain the same. They try to connect with the user by adding user’s name, occupation, workplace, their number, position and several more information. This mostly happens on social media like LinkedIn, where multiple information of the target is displayed in the front, helping the attacker to craft his mail more convincing.

3) Malware-based Phishing – This scam is about any harmful software downloaded and running on the PC. The source can be any unknown email with an attachment, unintended download from a website or stumbling to unsafe sites.

Some Steps to Protect Yourself from Phishing

1. Protect your computer by using security software.
2. Protect your mobile phone by setting software to update automatically.
3. Protect your accounts by using multi-factor authentication.
4. Protect your data by backing it up.

Prepare your last line of defense against phishers; protect your friends and relatives, with anti-phishing.

THE ROLE OF TECHNOLOGY IN TRANSPORT MANAGEMENT

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What does Transport Management comprise of?

SOURCING: It all start with managing the entire life-cycle of transportation sourcing. Optimizing bid events, standardize contract management, and drive contract compliance with a secure, single view to the contracted rates and carrier allocations plans comes next.

RATING: Then transportation rates are centralized and standardized across various modes and geographies. Optimize carrier, mode, route and rate selection based on preconfigured business rules, available services, and carrier capacity commitments.

PLANNING: Consolidate, plan, optimize, and schedule across all modes and geographies.

TENDERING: A universal communication platform joining shippers with a networked multi-modal carrier community.

FREIGHT PAYMENT & AUDIT: Receive freight bills electronically, standardize the data and format, and audit against the contracted rate and shipment activity. Resolve discrepancies through a collaborative dispute workflow with transportation providers. Payment vouchers are triggered following bill approval.

All of the above factors help reduce transportation costs. Since they eliminates billing errors in the audit process, standardizes globally on one transportation management platform, reduces transportation provider switching costs by gaining faster deployment and low cost of ownership. There are many benefits of TMS that manufacturers, distribution companies, and anyone who ships freight realize. They go often way beyond just the cost of shipping freight. If you can look at your freight and transportation department as more than just a cost, then you are thinking in the right direction on how to holistically help your business leverage a TMS for the maximum ROI.

A transportation management system (TMS) helps companies move freight from origin to destination efficiently, reliably, and cost effectively. TMS encompasses solutions for moving freight in all modes and also includes intermodal movements. The TMS processes include freight transported inbound or outbound, domestically or internationally; using transportation assets owned either by the company or an outside service provider. The freight managed by a TMS ranges in size from parcels to bulk commodities.

Perhaps no other supply chain application offers so many ways to save money or drive value. But the main reason companies implement a TMS is to reduce freight spend. A TMS achieves these savings based on process enforcement, analytics, and optimization; with virtually no other supply chain application offering so many different forms of optimization.

Shippers that implement TMS solution compared to traditional methods of transportation management perform better in terms of service levels and freight savings. The benefits of a TMS are quite a few, for example, when you have the ability to use a TMS with reporting and analytics you are able to see the affect of your choices within that TMS, leading to increased customer service. The MORE you use your transportation management system the more you decrease time on freight management and more time working on other projects such as warehouse duties. Furthermore you get the overall combined Supply Chain visibility you need to make business decisions that drive further cost savings and decrease inefficiencies. A robust TMS offers the ability for you to optimize the way you transport.

IS THE INTERNET A RELIABLE RESOURCE?

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We live in time, when all information we need, is contained in the Net, (like Wikipedia, YouTube, answers on Mail.ru, etc). Most of inhabitants of the Earth, especially teens, are used to use the Internet to find the necessary information instead of newspapers, magazines, radio and so on. And this is really more comfortable for people, because they can easily find all they want: only actual news in chosen topic without ads and really quickly. So, people shouldn't use their encyclopedias to find some information for their articles, for example. It sounds good, isn't it?

But the Net is becoming more and more like a trash can. And use of the Net resources is becoming more and more inconvenient. There are some reasons.

First, the Net – it's the place, where everyone can post anything he wants. It can be website, video on YouTube, article in Wikipedia and so on. This is good that the Net give such

opportunities to the users like these, because this way people become more creative, but if we speak about education information, just imagine that the headteacher of the any school agreed to use new textbooks of unknown author, without supervision or recommendation. It doesn't happen. Authors of these things can make mistake accidentally or purposely. For example, the person, who posted learning video-lesson on YouTube wrote in the name of the video one information, but didn't mention it in his(her) video, this is a kind of faults.

The second reason is click bait, which I have already mentioned. What is the click bait? It's the situation, when in the name of the some resource (video, article, etc) or in the description contains fake information, which wasn't mentioned in the resource, and resource can contain completely different topic and information as well. Authors of these resources try to fascinate people attention by writing shocking and provocative headlines. And the most dangerous thing is when "click bait" contains in the link.

It isn't hard to make user to install something he doesn't want to by pressing a link. And it isn't safe because user not always is aware of it. This way user could ruin his device by installing virus. By the way, user could install the virus with another application as well.

The next reason is spam (sending the same information from time to time). Spam is one of the annoying things in the Net because it's really disturbing for the user. Spam is like special kind of virus, but you can have got some spam by visiting some websites surfing the Net. Spam can send users some random ads, which will be output on the screen, some videos, loud music and so on. And not always spam content is acceptable for users, you even won't be able to delete this spam, it will keep sending you some weird information till you don't close the website.

When the Net became the most popular resource among teens and I'm kind of think that approximately 80% of Internet users prefer it to other resources, so the Net is a very well-known resource, scammers was thinking about new crimes. And it continues nowadays. Scammers can easily make users to pay attention on theirs ads or posts due to accessibility of the Net, which I have mentioned before. It can be fake website or for example fake advertisement on the trading floor about selling something with the really suited price. So, at least one person per day is being tricked.

Generally, the Net is a very big resource, which includes a plenty of information, so that the user need to spend less time and efforts finding appropriate information. But at the same time the Net can make you being nervous or even robbed. There isn't alternative for the Net nowadays, where everyone can stay safe. The Net is really deserves attention and user support, because the Net was created with the good purpose – give users answers to all the question they want in a very short term.

MACHINE VISION

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Machine vision.

Machine vision is a relatively young area in science, in which scientists and programmers took up the problem of managing the processing of such large data as images only at the beginning of the 70s of the last century.

Computer vision focuses on processing three-dimensional scenes projected onto one or more images. For example, restoring a structure or other information about a 3D scene from one or more images. There is also an area called visualization, which was originally associated with the imaging process, but sometimes dealt with processing and analysis. For example, radiography works with video analysis of medical applications. Finally, pattern recognition is an

area that uses various methods to obtain information from video data, mainly based on a statistical approach. A significant part of this area is devoted to the practical application of these methods. Thus, we can conclude that the concept of "machine vision" today includes: computer vision, recognition of visual images, analysis and image processing, etc.

Machine vision tasks:

Detection. Video data is checked for a specific condition. Detection based on relatively simple and fast calculations is sometimes used to find small areas in the analyzed image, which are then analyzed using techniques that are more demanding on resources to obtain the correct interpretation.

Image recovery. To tell the truth it's my favourite task of machine vision cause it allow us to revive a lot of memories which contained in old photos. The task of image restoration is to remove noise (sensor noise, motion blur, etc.). The simplest approach to solving this problem is to use various types of filters, such as low or medium frequency filters. A higher level of noise removal is achieved during the initial analysis of video data for the presence of various structures, such as lines or borders, and then controlling the filtering process based on this data.

Interfaces. Gesture control (computer vision technology that can recognize special hand movements) continues to develop. The new HoloActive Touch interface allows users to control virtual 3D screens and push buttons in space. We can say that it is a simple version of the real holographic interface of Iron Man. And the eyeSight's Singlecue Gen 2 device uses computer vision (gesture recognition, face analysis, determination of actions) and allows you to control your TV, smart lighting system and refrigerators with gestures.

How to study computer vision.

There are several options. The first one is to try to independently study OpenCV or PCL - an open source code library of computer vision algorithms. They will help you to touch the "low-level" capabilities of the technology. And the second one is to enter the university at the department that specializes in the study of computer vision, which I did. The educational program "Informatics", which belongs to the Department of Informatics, Faculty of ITM, has been training programmers for 25 years that can cope with the difficult field of computer vision.

ENGLISH IS IMPORTANT FOR EVERY SOFTWARE DEVELOPER

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Today we are talking about the role of English in the life of representatives of the professions in the field of information technology and programming. IT is not only the most dynamically developing industry nowadays, but also the most variable.

On the web, there is debate about the need for English skills in the above field. Some argue that they do well without it, others argue in favor of English and reinforce them with personal stories of success. I am on the side of those who are for English and for its development. After all, in the IT field it is difficult without it. Let's see why.

All basic (and not only) programming languages are based on English words. In practice, this means that it is much easier to learn a new programming language and learn how to better handle already familiar ones if you are proficient in English.

All fundamental specialized literature is written, first of all, in English. And not everything was translated into Russian. Even less material is translated correctly.

Pass specialized certification in the field of IT and obtain certificates from companies such as CISCO, Microsoft, etc. (which, by the way, is a serious increase to the salary!) you can only if you know English.

Problems often arise in the work. Sometimes you have to look for a solution to the problem on the Internet, and it often happens that the necessary information in Russian is simply wasn't published. But in the English-speaking environment, you can find almost any necessary information, especially on the topic of IT.

All the largest IT companies in the world are based in the USA (Google, Microsoft, ORACLE, Apple etc.) and even in their Russian departments English is the predominant. So, if you do not speak the language, then you will not be able to build a career in one of the world's largest IT corporations.

Programmers often have to work with foreign customers. Most often, all communication are exclusively in English - and initial negotiations, drafting of the technical assignment, and its coordination, and interaction during the implementation of the project, etc.

Most of the master classes, seminars and webinars from well-known IT gurus are conducted in English. It's no secret that attending such events is extremely useful for professional and personal growth, as well as for inspiration.

Programmer like no one else should always be aware of new trends, developments. Considering the fact that about 90% of new information in the network appears in English, possession of it becomes not a privilege, but a necessity.

In conclusion, I want to say that you can just be a programmer even without knowing English.

To achieve professional growth you need to know English. To become a really highly qualified specialist you need fluency in English + knowledge of technical vocabulary.

ЛІНГВОКРАЇНОЗНАВЧИЙ АСПЕКТ ЯК ФАКТОР ФОРМУВАННЯ СУЧАСНОГО СПЕЦІАЛІСТА

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Сучасні вимоги до спеціалістів технічних спеціальностей постійно зростають, їм приділяється багато уваги різними компетентними органами. Так, наприклад, Рада інженерів Великобританії розробила „Стандарт професійної компетенції інженерів” (UK Standard for Professional Engineering Competence), у якому серед інших компетенцій виділяє „ефективне використання комунікативних і міжособистісних умінь у спілкуванні”. Тому основна мета навчання іноземній мові у вищих технічних закладах нашої країни полягає у підготовці такого спеціаліста, практичне володіння іноземною мовою якого дозволяло б йому ефективно працювати зі спеціалізованою іноземною літературою, спілкуватися з колегами на конференціях, семінарах, укладати наукові доповіді, писати листи колегам за кордон.

Формування іншомовної компетентності спрямоване на розвиток уміння практично користуватися реальною живою мовою з усвідомленим порівнянням лінгвістичних явищ із їхніми комунікативними функціями: інформативною, регулятивною, емоційно-оцінювальною, етикетною. Учені виокремлюють такі комунікативні уміння, що формуються під час реалізації цих функцій:

- інформаційна функція – запит інформації, повідомлення інформації, сприймання і розуміння інформації;
- регулятивна (спонукальна) функція – спонукання до чогось, прохання про щось, порада, договір, сприймання спонукання та реакція на нього;
- емоційно-оцінювальна функція – вираження власної думки, оцінки, почуття, емоції, переконання, вираження задоволення/незадоволення;

- етикетна функція – звертання, початок розмови, вираження зацікавленості, підтримання розмови, закінчення розмови, привітання, подяка, співпереживання.

Для успішної реалізації цих функцій засобами іноземної мови необхідно не лише володіти цими засобами, уміти вживати їх в основних видах мовленнєвої діяльності, але й знати країнознавчі реалії, особливості вербальної та невербальної поведінки в соціокультурному контексті. Адекватна мовленнєва поведінка в будь-якому професійному форматі вимагає засвоєння не лише системно-мовних знань, але і знань законів, звичаїв, національного менталітету країни, мова якої вивчається, так як відмінність ділових культур у процесі взаємодії означає дисбаланс у роботі механізмів прийняття рішень, самоорганізації, вирішення конфліктів. Володіння мовними засобами, правильність мовлення за відсутності уявлень про культурний компонент значення не гарантують взаєморозуміння та результативного спілкування з представниками інших культур.

Зміст країнознавчої підготовки у ВНЗ базується на засвоєнні фонових знань, тобто знань географії, історії та культури, суспільно-політичних та етнографічних реалій, які необхідні для ефективного діалогу між представниками різних культур.

Обізнаність із лінгвокраїнознавством – головна умова розвитку культури спеціаліста в рамках міжнаціонального полілогу, а також дієвий фактор конкурентноспроможності фахівця як на вітчизняному, так і на міжнародному ринку праці. На сучасному етапі розвиток міжнаціонального полілогу сприяє подоланню національних стереотипів і сприяє міжкультурному взаєморозумінню у діловій сфері.

FOREIGN LANGUAGES USAGE IN RAILWAY TRANSPORT: ITS ADVANTAGES AND OPPORTUNITIES

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Nowadays English has become the world's most important language in politics, science, trade and cultural relations. Over 300 million people speak it as a mother tongue. The native speakers of English live in Great Britain, the United States of America, Australia and New Zealand. English is one of the official languages in the Irish Republic, Canada, and the South Africa Republic. English is one of the official languages of the United Nations Organization and other political organizations. Half of the world's scientific literature is in English. That's why I choose English for railway employees.

Since language has become a doorway to a particular culture, learning a new language enables a person to have a broader understanding of that race or culture. Opening up to a culture allows you to be more flexible and appreciative of other ways of doing and looking at things. As a result, if you are multilingual, you have the advantage of seeing the world from different vantage points. In today's interconnectedness, this is a valuable tool.

There is a reason why foreign languages and railway transport linked. I mean modernization of Railway Transport of Ukraine plays an important role in creating the conditions for transition to innovative development. That makes learning of foreign languages an integral part of it.

Also there some advantages of learning foreign language. Psychological studies have found that speaking two or more languages is a great asset to the cognitive process. The brains of bilingual people operate differently than single language speakers, and these differences offer several mental benefits.

Many of these attributes are only apparent in people who speak multiple languages regularly – if you haven't spoken a foreign tongue a long time, your brain might not be reaping

these bilingual benefits. However, people who begin language study in their adult lives can still achieve the same levels of fluency as a young learner, and still reap the same mental benefits, too.

Speaking a foreign language improves the functionality of your brain by challenging it to recognize, negotiate meaning, and communicate in different language systems. This skill boosts your ability to negotiate meaning in other problem-solving tasks as well. It makes a person more flexible and open to other cultures. It is very useful for everyone.

Ukraine attracts about 570 thousand foreigners per year. These guests usually do not speak Russian or Ukrainian, and wait for an unforgettable experience. Most of them travel with somebody who can speak common language but other travel by themselves. A person who works on the railway transport have to know foreign language, because there are so much foreign tourists who travel by train! I think that learning of foreign language on the railway transport is very important, especially learning of English, because English is the second or native language in a lot of countries in the world. Also it helps to understand each other. This language can be called one of the world languages.

ENGLISH WORDS AND PHRASES THAT ONLY GEARHEADS UNDERSTAND

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People who love cars, people who really, really love cars have a language all their own. These people are called "gearheads" ("petrol heads" in the UK) and while you are sometime among their numbers, more often you are listening to their secret lingo and saying "What?" The words and phrases all sound cool and maybe a tad off-putting. But with a bit of study, you can soon be speaking fluent gearhead too.

Power-to-weight ratio: It isn't rocket science: all things being equal a lightweight car with large engine will go FAST. This is the "power-to-weight ratio" and expression of potential performance. It's important to gearheads because of course a big engine is heavier in many cases than a small engine. So adding motor size means that the car has to first move all that extra heft around. This encourages shedding weight in other places which is why most really fast cars are made of lightweight aluminum, magnesium and carbon fiber.

Drift: When entering a corner on a race track at a good speed, it's possible to get the wheels of the car to lose traction. The result is that the car will slide semi-sideways through the turn. This ruins lap times, but it looks cool and has been popularized by highly rated auto shows such as the former BBC hit "Top Gear" as well as countless YouTube videos. Some enthusiasts even build cars specifically to drift. A skilled drifter can control the drift and get the car to straighten out when the corner is completed. A less-than-skilled drifter will spin the car.

Launch: A glorified technical term for a jackrabbit start. Except that for gearheads, the idea is to control the launch, avoiding a burnout, which looks cool but robs the car of speed and destroys a good 0-60 mph sprint. Modern high-performance cars often have something called "launch control" a feature that can be activated to prevent the drive wheels from getting loose at a start.

Heel-and-toe: This is one of those specialized driving techniques known only to people who drive stickshifts with clutch pedals and beyond that people who fancy themselves really good at driving stick. So good, that, you know, they could hit the track with their mad skills. Here's what the maneuver involves. When you downshift, you want to "blip" the throttle, giving the car a bit of gas, to match the engine RPMs from one gear to the next and keep the car's

wheels turning smoothly. When you heel-and-toe, you blip while braking at the same time, typically by using one side of your foot for the brake pedal and the other for the accelerator.

A dab of oppo: "Opposite lock" steering is a way of controlling a car that's into a drift and losing traction at its wheels (usually the rear wheels in a rear-wheel-drive car, a phenomenon known as "oversteer"). In order to get the car smoothly through a turn, you steer in the opposite direction as the curve. But just a little bit. Hence the "dab" of "oppo".

Grip: Driving like a pro is all about understanding the place where the rubber literally meets the road: the tires. When seasoned drivers talk about how push their cars, they often speak of "grip" a sense of how well the tires are grabbing the road or track surface. When a driver is really pushing it, he'll talk about driving at the "limit of grip" the dividing line between keeping the car under control as the tires lose traction and going into a slide or spin.

Rockford turn: The maneuver was well-known to drivers who liked to take to parking lots and pull the rather easy, low-speed trick for some easy thrills. Basically, you accelerate in reverse, slam on the brakes and rapidly turn the wheel, swinging the front end of the car around, at which point you pop it into drive (or first gear), then punch it and speed off.

ИСПОЛЬЗОВАНИЕ ИНТЕРНЕТА В ИЗУЧЕНИИ ИНОСТРАННЫХ ЯЗЫКОВ.

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В 21-ом веке Интернет стал неотъемлемой частью жизни современного человека. Число пользователей Интернета на сегодняшний день составляет более 1,5 млрд. человек, следует также отметить, что данная цифра постоянно растет. Ресурсы глобальной сети весьма разнообразны. С помощью Интернета стал возможен обмен файлами большого объема: текстовыми документами в формате pdf, видео- и звуковыми файлами, т. е. материалами, неотъемлемыми при изучении иностранных языков. Интернет-ресурсы, доступные для изучения иностранных языков, можно разделить на группы: ресурсы, которые помогают получить знания и умения, и ресурсы, которые усовершенствуют речевые навыки.

Первая группа это: учебники и самоучители, мультимедиа (графическими изображениями, звуковыми файлами и т. д.), словари и разговорники, переведенные в электронный формат.

Вторая группа это: интернет-ресурсы, которые используются для языковой практики в процессе диалога как с изучающими иностранный язык (разного уровня подготовки), так и с носителями языка.

Такое общение можно реализовать прежде всего в тематических социальных сетях, цель которых заключается в коммуникации на иностранных языках. Самыми известными такими ресурсами являются SharedTalk и Livemocha. Портал SharedTalk предлагает возможность общения в режиме реального времени в форме чата, в том числе голосового. Портал Livemocha это сложная образовательная система, где наряду с общением осуществляется изучение иностранных языков.

Таким образом, на сегодняшний день интернет-ресурсы представляют собой значительный фонд материалов, которые можно использовать как для самостоятельного изучения языка, так и группового обучения, осуществляемого преподавателем. В случае индивидуального использования, некоторые интернет-ресурсы дают возможность не только доступа к дополнительным материалам, но и поиска друзей и общения. Ссылки на некоторые ресурсы можно рекомендовать студентам, которые изучают иностранные языки и конкретно русский язык как иностранный. В приложении дается список адресов

интернет-порталов, где можно найти полезные материалы для изучения русского языка как иностранного.

Приложение

Обучающие порталы и программы On-line:

Портал для изучения русского языка (для носителей арабского языка):
<http://russian.jeeran.com/index.html>

Портал на арабском языке по изучению русского языка: <http://ru4arab.ru/>

Время говорить по-русски: http://www.speak-russian.info/time_new/eng/

Учебный курс «Русский без акцента!» с русским, английским, немецким, испанским и китайским интерфейсами:

<http://www.ruskiymir.ru/ruskiymir/ru/education/news/news0002.html>

«Русский для всех. 1000 заданий». Многоязычная программа для изучения русского языка: <http://www.ruskiymir.ru/ruskiymir/ru/education/news/news0005.html>

Образовательная программа «Тренажёр словарного запаса»:
<http://www.ruskiymir.ru/ruskiymir/ru/education/news/news0009.html>

«Звуковая энциклопедия русской культуры»: <http://www.ruskiymir.ru/ruskiymir/ru/education/news/news0011.html>

Learn Russian online: <http://www.russlandjournal.de/en/russian/>

Learn Russian Language Skills:

<http://www.transparent.com/languagepages/russian/russian.htm>

Funky Russian: <http://www.funkyrussian.com/>

Социальные сети

<http://www.livemocha.com>

<http://www.sharedtalk.com/>

NANOCOSMETICS

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Nanomaterials have been used in the development of cosmetics from hundreds of years ago. Gold and silver nanoparticles have been used by women as the nail colors. Further, liquid formulations containing gold nanoparticles have been used as anti-aging in the Middle Ages. But, in the recent years, nanoscaled materials have more extensively been used in the development of cosmetics. Nanomaterials have been increasingly used in pharmaceutical industries for the formulation of cosmetics. The products containing these materials have contributed greatly to the pharmaceutical and cosmetics market worldwide. The quantity of sales of products containing nanomaterials in 2012 and 2015 were about \$155.8 and \$2.6 billion, respectively, which has been projected to reach over \$55.3 billion in 2022

Types of nanomaterials used in cosmetics.

Liposomes. Liposomes are bilayer vesicles mainly composed of natural or semisynthetic phospholipids that are considered as safe materials in the formulation of cosmetic products. Liposomes have many advantages in delivery of cosmetic active ingredients such as vitamins, minerals, antioxidants, and anti-aging materials to biologic cells by their fusing to bilayer structures of skin. Other types of vesicles with improved skin penetrating ability were developed such as transferosomes, niosomes, and ethosomes. Nanometals, such as nanosilvers and nanogolds, have been used in the formulation of cosmetics, in large part because of their high efficiency and antibacterial effects in some cosmetics such as deodorants and toothpastes. These materials are widely used in other industries and thus, they have high market values among

nanomaterials. Solid lipid nanoparticles Solid lipid nanoparticles (SLNs) are nanosized lipid droplets stabilized with suitable surfactants containing active ingredient(s). These nanostructures can protect the encapsulated active ingredients from degradation. SLNs can also be used for the formulation of controlled delivery of cosmetics and the improvement of the skin penetration of cosmetic active ingredients. Other advantages reported for SLNs include (a) improving of the skin hydration by cosmetic products and (b) increasing of the sunscreen efficiency for some chemical sunscreen active ingredients.

Nanoemulsions. Nanoemulsions are nanoscaled droplets of a liquid uniformly dispersed in another liquid. These droplets provide a large contacting area with skin and can act as the carrier for cosmetic active ingredients. These products are considered to be safe for the formulation of cosmetic products. The smaller droplet size of the nanoemulsions provide higher efficiency and stability, as well as greater transparency.

Nanocapsules. Nanocapsules are nanostructures made of polymeric entities dispersed in an aqueous or oily phase. These formulations are considered as excellent carriers for some susceptible active agents such as vitamin D or potent cosmetic active ingredients. Many other types of nanostructures have been used in the cosmetic formulations, including nanocrystals, dendrimers, cubosomes, hydrogels and buckyballs. Each of these nanomaterials has unique characteristics in terms of morphology, surface area and functional groups, and skin penetration potential.

Risks of using nanomaterials in cosmetics.

Some researchers have reported the unwanted penetration of nanoparticles through the skin and the systemic circulation. It is shown that zinc oxide and titanium dioxide nanoparticles ranging from 10 to 200 nm in the sunscreen products can penetrate the intact skin and impose inadvertent biological damage. Neurotoxicity of zinc oxide nanoparticles on the neural stem cells of a mouse (NSCs) has also been demonstrated in vitro. Cytotoxicity of titanium dioxide nanoparticles has also been reported by some researchers. In the recent study, it has been showed that titanium dioxide nanoparticles have the potential to induce autophagy and necrosis in the sertoli cells and adversely affect the spermatogenic cells and testicular morphology in Zebra fish. The penetration of these nanoparticles into deeper viable layers of the skin and general circulation significantly increases by the presence of eczema, acne, wound, psoriasis and UV damages in the skin. Occupational expose to nanomaterials may occur during the production process, via products containing these entities, or during use, disposal, or recycling of these products. Nanomaterials have very higher toxicity compared to the micronized particles, in large part due to their higher penetration potential in tissues and living cells. The main routs of exposure to nanomaterials are inhalation, ingestion, and dermal absorption. Nanomaterials also have some environmental risks. Release of nanomaterials to the water, air and soil with sufficient amounts during manufacture, use or disposal can cause some environmental issues. For example, the nanomaterials with antibacterial effects can interfere with the beneficial bacterial system in the natural ecosystems. Some of the nanomaterials can bind to the air pollutants such as cadmium or petrochemicals and transport them to long range distances. In conclusion, all these issues should be taken into consideration in the formulation during using and disposing of nanocosmetics.

NANOTECHNOLOGY IN MEDICINE – NANOPARTICLES IN MEDICINE

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The use of nanotechnology in medicine offers some exciting possibilities. Some techniques are only imagined, while others are at various stages of testing, or actually being used today. Nanotechnology in medicine involves applications of nanoparticles currently under

development, as well as longer range research that involves the use of manufactured nano-robots to make repairs at the cellular level (sometimes referred to as nanomedicine). The use of nanotechnology in the field of medicine could revolutionize the way we would detect and treat damage to the human body and disease in the future, and many techniques only imagined a few years ago are making remarkable progress towards becoming realities.

Nanotechnology in Medicine Application: Drug Delivery

One application of nanotechnology in medicine currently being developed involves employing nanoparticles to deliver drugs, heat, light or other substances to specific types of cells (such as cancer cells). Particles are engineered so that they are attracted to diseased cells, which allows direct treatment of those cells. This technique reduces damage to healthy cells in the body and allows for earlier detection of disease. Researchers at North Carolina State University are developing a method to deliver cardiac stem cells to damaged heart tissue. They attach nanovesicles that are attracted to an injury to the stem cells to increase the amount of stem cells delivered to an injured tissue.

Nanotechnology in Medicine Application: Diagnostic Techniques

Scientists at Worcester Polytechnic Institute are using antibodies attached to carbon nanotubes in chips to detect cancer cells in the blood stream. The researchers believe this method could be used in simple lab tests that could provide early detection of cancer cells in the bloodstream. A test for early detection of kidney damage is being developed. The method uses gold nanorods functionalized to attach to the type of protein generated by damaged kidneys. When protein accumulates on the nanorod the color of the nanorod shifts. The test is designed to be done quickly and inexpensively for early detection of a problem.

Nanotechnology in Medicine Application: Antibacterial Treatments

Researchers at the University of Houston are developing a technique to kill bacteria using gold nanoparticles and infrared light. This method may lead to improved cleaning of instruments in hospital settings. Scientists at the University of Colorado Boulder are investigating the use of quantum dots to treat antibiotic resistant infections.

Nanotechnology in Medicine Application: Wound Treatment

Researchers at the University of Wisconsin have demonstrated a bandage that applies electrical pulses to a wound using electricity produced by nanogenerators worn by the patient. For trauma patients with internal bleeding another way to reduce the blood loss is needed. Researchers at Chase Western Reserve University are developing polymer nanoparticles that act as synthetic platelets. Lab tests have shown that injection of these synthetic platelets significantly reduces blood loss.

Nanotechnology in Medicine Application: Cell Repair

Nanorobots could actually be programmed to repair specific diseased cells, functioning in a similar way to antibodies in our natural healing processes. Read about design analysis for one such cell repair nanorobot in this article: [The Ideal Gene Delivery Vector: Chromalloytes, Cell Repair Nanorobots for Chromosome Repair Therapy](#).

ADVERTISING AS ACT OF COMMUNICATION

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According to Widdowson, human language “serves as a means of cognition and communication: it enables us to think for ourselves and to cooperate with other people in our community”. It follows that advertising is a kind of communication between the creator of advertisement (in fact, the copywriter who substitutes the producer/seller and transfers his ideas

into advertisements), and the consumer. Communication is the process between at least two sides – the addresser (transmitter – speaker or writer) and the addressee (receiver – listener or reader). Between these two participants, the coded meaning (information) is transmitted through the communication channel. Each communication is proceeding in given context or situation. In case of advertising, “the addresser is the copywriter, and the addressee is the reader, the meaning transmitted is about the product (more specifically, an attempt to make the reader buy the product), the code (in the case of press advertising) is language and some sort of visual code, the channel consists of printed publications, and the context will include such features as the reader’s total situation (does he have the product already? can he afford it? etc.), the publication in which the advertisement appears, and last but not 18 least the knowledge that the text is and advert”. From this we conclude that advertising is a kind of communication with its own principles. The addresser is a producer – a company that tries to persuade the addressee – a consumer - to buy a product. The code of the language has to be known by all participants of the communication. The information communicated by the advertisement is not discussing everything about the product. It is incomplete because there is no space enough to describe the product into details. The information only contains what the producer thinks the consumer needs to know. It always contains the name of the product and usually the information how it can benefit the customer.

Various media embody the communication channel, for example billboards, radio, cinema and television, web banners and web popups, skywriting, press (magazines, newspapers, printed leaflets), advertisements in public transport, floating advertising on blips and balloons, illuminated signs, and many other possibilities to promote the product in public. In most cases of advertising, we use verbal language for express ideas often accompanied by a picture or symbol, music, some kind of computer animation or video related to the verbal text. Verbal language is concerned with words; it is not a synonym for oral or spoken language. Non-verbal (wordless) message can be sent or received “through any sensory channel - visual perception, sound, smell, touch, taste; through gesture, body language or posture, facial expressions and eye gaze; object communication such as clothing, hairstyles or even architecture; symbols and infographics; prosodic features of speech such as intonation and stress and other paralinguistic features of speech such as voice quality, emotion and speaking style” (<http://www.wikipedia.org/>). The use of non-verbal communication, also called paralanguage, is inevitable part of advertising language. There are many examples of use of non-verbal language in advertising: web banners of bright colours moving quickly in front of our eyes, a romantic music in an advertisement for a new women’s perfume and a fragrant stripe of the same inside the Cosmopolitan magazine, surprised face of a woman who has 20 just found a fantastic washing powder and a mild voice of a young man in radio advertising for an insurance company. It depends on media used whether verbal, non-verbal or both communications are used in particular advertisement.

THE HISTORY OF VEHICLES

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The automobile was first invented and perfected in Germany and France in the late 1800s, though Americans quickly came to dominate the automotive industry in the first half of the twentieth century. Henry Ford innovated mass-production techniques that became standard, and Ford, General Motors and Chrysler emerged as the “Big Three” auto companies by the 1920s. Manufacturers funneled their resources to the military during World War II, and afterward automobile production in Europe and Japan soared to meet growing demand. Once

vital to the expansion of American urban centers, the industry had become a shared global enterprise with the rise of Japan as the leading automaker by 1980.

Although the automobile was to have its greatest social and economic impact in the United States, it was initially perfected in Germany and France toward the end of the nineteenth century by such men as Gottlieb Daimler, Karl Benz, Nicolaus Otto and Emile Levassor.

The 1901 Mercedes, designed by Wilhelm Maybach for Daimler Motoren Gesellschaft, deserves credit for being the first modern motorcar in all essentials.

Its thirty-five-horsepower engine weighed only fourteen pounds per horsepower, and it achieved a top speed of fifty-three miles per hour. By 1909, with the most integrated automobile factory in Europe, Daimler employed some seventeen hundred workers to produce fewer than a thousand cars per year.

Our life is really fast and it is getting faster and faster every day. And it is impossible to imagine our unpausing life without modern means of transport. The most popular one is undoubtedly a car. A car can get us to almost any place we need. It gives us a wonderful opportunity to visit more places during a day and feel comfortable and safe.

People have always tried to invent something that could help them to travel in the most convenient way. The first attempts to build individual cars date back to 1770s, when cars that ran on steam appeared. Some of them behaved quite well but some did not. And all of them were not very fast and easy to use. Inventors spend many years trying to build cars running on steam, electricity, or gasoline. And by 1890s there were several brands in Europe and the USA that managed to sell cars to those who could afford them. The most popular cars were gasoline cars and by 1910 they became so large and powerful that they allowed travelling long distances in a relative comfort. But those cars were very expensive.

The situation when only rich people had cars was changed by the new American brand and the first affordable car – Ford Model T. From 1915 to 1925 they sold more than 15 million Model Ts, and many farmers, workers and teachers changed their horses to those cars.

The car was a key force for change in many countries all over the world in the twentieth century. It did not only change the way of travelling it changed the total urban and rural looks. Distant places in the country were not isolated anymore and the population of suburbs expanded. Automobiles have changed the total arrangement of our cities.

COMPUTER TECHNOLOGY IN MODERN SOCIETY

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Computers have penetrated into all spheres of human activity, starting with primary education and ending with the study of the latest technologies, the study of new types of matter, unknown so far to humanity. The use of computer technology facilitates the education process in secondary and higher educational institutions, both for students themselves, students, and workers.

Due to the variety of software and hardware, today it is possible to use all the potential capabilities of computer technology. This allows you to store a huge amount of information, while taking up minimal space. Also, computer technology allows you to quickly process this information and keep it protected.

The widespread use of computers has played a huge role in the development of the labor market. Automation of information processing allows you to do work in seconds, which was previously lost weeks, informing managers about the status of enterprises and jobs occurs

instantly. The economic potential in the field of insurance and financial services is increasing due to the increased exchange of services. The introduction of computer technology to introduce new forms of employment and labor organization.

It takes much less time to develop new projects, because you do not have to spend a lot of time on computational processes and you can completely devote time to the process itself. Computer technologies play an important role in medicine, various virtual models of the development of diseases are created, huge databases of information are created on the basis of which new drugs for treatment are invented.

A computer today is a means of communication, and communication itself is currently the cheapest. For people with disabilities, this is sometimes the only way not only to communicate, but also thanks to modern computer technologies, such people can realize themselves and get a job.

Computer technology has a positive effect on the development of children when used properly. It is noted that with the proper selection of programs and games in children, logical thinking develops better, coordination of eyes and hands improves. The child develops self-confidence and self-esteem, children are more focused compared to children who do not have experience using a computer.

On the other hand, unlimited access to huge amounts of information sometimes leads to excessive use of a computer, mainly Internet addiction or dependence on computer games. And this causes both psychological and physical harm. People who are too keen on computer games are more irritable, quick-tempered in ordinary communication. Some develop addiction to games, and when it is impossible to satisfy their need in the ordinary world, their mood worsens, states of increased anxiety, sometimes depression appear.

Modern information technology is a technique due to which the life of many people has become much simpler and easier. Probably one of the most popular types of information technology is the Internet, which is in great demand. Many people believe that a person who once met the Internet will not be able to get rid of its dependence. And this is actually so. On the Internet you can find a lot of useful information without spending a lot of time on this. After all, before it was necessary to go to the library, look for a book, which was not always there. And today it's enough to turn on the computer or laptop connected to the Internet and ask the search engine a question that interests you.

COMPUTER ABILITIES

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Many of users are coasting along without adequate computer knowledge. Let's help them with this list of essential skills. It is tempting to think that because you have used a computer for a long time, you are "computer literate" or "computer savvy," but this is not the case. Here are 10 skills you absolutely must know to be considered computer literate. If you already know these, you should be helping others learn them as well!

Search engines Using a search engine is more than typing in the address, putting a couple of keywords into the big text box, clicking Search, and choosing the first result. While that may work, it won't give you the best results much of the time. Learning the advanced search, Boolean operators, and how to discern good results from bad results goes a long way toward enabling you to use a computer as a powerful research tool.

Word processing Word processing is one of the oldest uses for a computer. And it continues to be extremely important, even though in many ways its functions have been put into other applications. (For example, people may write more emails than documents, but the task is nearly identical.) It is tough to claim to be computer literate if the basic functions of word processing – like spell check, table creation, and working with headers – are outside your capabilities.

Spreadsheets Spreadsheets were the killer application that got a lot of people willing to pony up big bucks for a PC in the early 1980s. Spreadsheets offer incredibly powerful analysis possibilities... if you know how to use them for more than storing the holiday card address list. Being able to use formulas, references, and macros can turn a "grid of numbers" into actionable information in the hands of the right person.

Browser basics It is almost painful to watch some "computer savvy" people operate a Web browser. The most obvious goof is going to a search engine to type in the address of the site they want to go to. But folks are unaware of a lot of other things they do that make the Internet more difficult than it needs to be. Mastering techniques like opening links in new windows, using bookmarks, editing URLs to perform navigation, clearing the browser cache, and understanding common error messages will give you access to a world of unlimited information instead of keeping you stuck with only what Web site designers make obvious.

Virus/malware scanning Much of typical computer maintenance is automated or unneeded at this point, but it is still essential to understand how to check a system for nasty bugs, spyware, and other malicious applications. While the scanning tools come with real-time monitors, something can still slip onto the system before the scanner has the right filter for it. So it's critical to know how to trigger a manual virus/malware scan, as well as how to use alternative systems, spot signs of an infection, and other similar tasks.

Common keyboard commands If you do not know how to copy/paste without a mouse, you are not computer literate. Sorry! Every operating system has some universal keyboard commands, and while knowing them won't add 30 minutes back into your day, it will take a lot of the "friction" out of using a computer. Learning these commands is more a matter of routine than anything else; a short tutorial done once a day for a week will probably be enough to put you in the habit, and it will make you a happier user.

THE ROLE OF THE ESP TEACHER

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The role of the teacher in an ESP setting is highly significant. ESP teachers help their students develop specialized language skills that will allow them to function and potentially excel in their professional lives. They also prepare their students to pursue academic competence independently. The role of the ESP teacher is not limited to only classroom or linguistic issues: An ESP teacher should follow an integrative approach, acting as a simultaneous teacher and counselor. ESP teachers should pay close attention to their students' academic and psychological needs.

A needs analysis would be the starting point to determine the kinds of language skills they need to develop, depending on their work contexts. Then tasks should be developed that focus on the kinds of language performance they need to master. No matter what methodology is chosen (content based, competency based, task based), students will need to be able to handle authentic language exchanges relevant to their working contexts. There are many useful sources

on the internet that provide models and examples of different kinds of transactions that occur in business contexts.

The overarching principles of communicative language teaching methodology can be summarized in such a way. The teacher should make real communication the focus of language learning. He should provide opportunities for learners to experiment and try out what they know. He should be tolerant of learners' errors as they indicate that the learner is building up his or her communicative competence. Many learners and teachers see mistakes as a problem to be solved or, even better, avoided. However, researchers have shown that mistakes are a positive sign of learning. Learners need to experiment, to take risks, to try to express themselves above their level or while concentrating on something else. They use the name interlanguage to describe a learner's version of the language they are studying. That interlanguage is not a broken version of the native language, but rather a work in progress, which the learner has constructed by working hard for months or years. The learners who take the most risks often make the fastest progress – but in the meantime they also make the most mistakes. The teacher should provide opportunities for learners to develop both accuracy, and fluency. He should link the different skills such as speaking, reading and listening, together, since they usually occur together in the real world and also let students induce or discover grammar rules.

In applying these principles in the classroom, new classroom techniques and activities are needed, and new roles for teachers and learners in the classroom. Instead of making use of activities that demanded accurate repetition and memorization of sentences and grammatical patterns, activities that required learners to negotiate meaning and to interact meaningfully are required. These processes are thought to constitute essential conditions for foreign language learning. Teachers are recommended to use a balance of fluency activities and accuracy and to use accuracy activities to support fluency activities. Accuracy work could either come before or after fluency work.

The ESP teacher also has a responsibility to provide a learning environment that is specialized and geared toward the skills of students. Focusing on speaking skills is highly important and quite beneficial to the students. By helping the students hone in on their speaking skills, teachers can better prepare students for life in the workforce.

THE SIMILARITIES AND DIFFERENCES BETWEEN NATURAL LANGUAGE AND PROGRAMMING LANGUAGE

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The common word 'languages' tells us that human and programming languages are both means of communication with something, in a way it can understand. The difference lies in who you communicate with. Spoken language allows you to talk to the neural machine, the brain. Programming languages allow you to talk to the binary machine, the computer. This is the real-time difference.

It is known that learning a language makes a big impact on our brain, so in this aspect native and programming languages are quite similar. There's activation in Broca's, Wernicke's and Geschwind's areas in both. It's also easier to learn a second programming language after you learned the first one, since they're based on the same principle of computations and your brain can make the logic out of the second code in an easier way.

One difference would be that while speaking a 'normal' language, you can learn it by observation and practice. You don't need certain instructions in order to make it work. You can definitely have minor, grammatical mistakes and still be understood. However, in programming,

you have to have a certain structure or else your code won't work. Any error can lead to data loss or corruption. Computer languages are formally defined; there is a formal mathematical definition for their syntax, and a formal mathematical definition for their semantics.

In addition to the technical aspects of formal grammars and such things, computer languages have no external context. In terms of syntax, some of them are completely regular; most are context-free. There is nothing useless in a computer language (unlike human's languages which allow emphasis, repetitions. They are full of allegory, analogy, and historical and cultural references that allow a short phrase or a word to carry vast weight of meaning). No human language has ever been completely described to the extent that every computer language must be.

In human languages, both the speaker and the audience understand the same language. With programming languages, only the human understands the language, which has to be translated into something else (machine code) that the machine does understand (and which few human beings bother to learn).

There are also such differences as: human languages are supported by non-verbal communication to enrich and clarify the meaning of the words, they are defined by our physical attributes of our body: namely mostly our vision, tongue and hands; in programming languages there is no synonymy, vocabulary is very limited and restricted to a few number of words in a very specific domain and most programming languages have no tenses other than the implicit present tense ('Do this now.', 'What is the current state of X.').

Therefore the fundamental difference exists and lies in the goals of using a language, the kind of receiver of data we provide and forms of expression. Despite some similarities, both languages have a large number of differences to set them apart. They might have the same effect on our brain, but it can be said that human languages are more complex than programming languages. They were created more slowly and organically; they communicate both logical and emotional information. The syntax and grammar in them is more complex, the semantics more nuanced, the vocabulary much larger.

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ФОРМУВАННЯ ІНШОМОВНОЇ КОМУНІКАТИВНОЇ КОМПЕТЕНЦІЇ

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Відомо, що останнім часом компетентнісний підхід в освіті отримав досить широке поширення на противагу традиційному дискурсу знань, умінь, навичок. Це пов'язано, насамперед, із стрімкою динамічністю сучасного світу, постійним оновленням вимог до фахівців, які в умовах іншомовного середовища набувають ще й відповідної специфіки. Навчання іноземної мови стало невід'ємною й важливою складовою професійної підготовки, а кінцевою метою – формування у студентів готовності та здатності до міжкультурної комунікації, практичного володіння іншомовними комунікативними компетенціями, тобто вмінням зіставляти мовні засоби з конкретними цілями, ситуаціями, умовами та завданнями мовленнєвого спілкування.

Поняття компетентність визначають як похідне від компетенції, так як воно вказує на суб'єкта як носія компетенції; компетентність передбачає не просто наявність знань та навичок, а здатність їх творчого використання. Отже, компетентність – це здатність приймати рішення, нести відповідальність за їхні наслідки у різних галузях діяльності; компетентність є ситуативною категорією, що виражається в готовності до здійснення діяльності в певних ситуаціях.

Ведучи мову про профільну іншомовну освіту, слід наголосити, що при вивченні іноземної мови, мова та культура виступають в органічній єдності. У зв'язку з цим програма профільної іншомовної освіти містить велику кількість країнознавчої інформації про країну, мова якої вивчається. Дисципліна «Іноземна мова», яку вивчають студенти немовних спеціальностей, носить як комунікативно-орієнтований, так і професійно спрямований характер. Тому основною метою навчання іноземної мови студентів немовних спеціальностей є формування і розвиток професійної іншомовної компетенції.

На сучасному етапі одним із завдань вищої школи є не лише кардинальне оновлення змісту навчання іноземної мови, а й широке використання інноваційних технологій формування іншомовної комунікативної компетентності майбутніх фахівців, зокрема методу проектів; технології розвитку критичного мислення через читання і листування; методу дебатів; ігрових технологій (мовні, рольові, ділові ігри, ігри-драматизації); проблемних дискусій; технології інтерактивного навчання (у парах, малих групах); сценарно-контекстної технології; кейс-методу; технології модульного навчання тощо.

Важливо, щоб при цьому кардинально змінилися роль і місце викладача в освітньому процесі: від транслятора знань і способів діяльності до проектувальника індивідуальної траєкторії інтелектуального, професійного й особистісного розвитку студента. При інноваційному навчанні викладачі іноземної мови повинні виконувати передусім функції наставника, консультанта, тренера. У цьому випадку всі учасники освітнього процесу взаємодіють між собою, обмінюються інформацією, спільно вирішують проблеми, моделюють ситуації, оцінюють дії колег і свою власну поведінку, занурюються в реальну атмосферу ділового співробітництва з розв'язання актуальних проблем на професійну тематику.

Використання компетентнісного підходу при вивченні іноземної мови висуває на перше місце не інформованість студента, а вміння ефективно вирішувати проблеми. Тому інноваційні технології формування іншомовної комунікативної компетентності повинні орієнтуватися на практику, і в результаті сформувати здатність студента до практичних дій, розв'язання професійних завдань, у т. ч. з використанням знань іноземної мови. Узагальнюючи вище сказане, слід зазначити, що врахування наведених аспектів підвищить ефективність освітнього процесу та сприятиме успішному формуванню іншомовної комунікативної компетентності студентів немовних спеціальностей.

GPU VS CPU COMPUTING: WHAT TO CHOOSE?

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CPUs and GPUs have a lot in common. They are both silicon-based microprocessors. At the same time, they are substantially different, and they are deployed for different roles. A CPU (central processing unit) is often called the “brain” or the “heart” of a computer. It is required to run the majority of engineering and office software. However, there is a multitude of

tasks that can overwhelm a computer's central processor. That is when using GPU becomes essential for computing.

A GPU (graphics processing unit) is a specialized type of microprocessor, primarily designed for quick image rendering. GPUs appeared as a response to graphically intense applications that put a burden on the CPU and degraded computer performance. They became a way to offload those tasks from CPUs, but modern graphics processors are powerful enough to perform rapid mathematical calculations for many other purposes apart from rendering.

CPUs and GPUs process tasks in different ways. Regarding interrelations, they are often compared with brain and brawn. A CPU (the brain) can work on a variety of different calculations, while a GPU (the brawn) is best at focusing all the computing abilities on a specific task. That is because a CPU consists of a few cores (up to 24) optimized for sequential serial processing. It is designed to maximize the performance of a single task within a job; however, the range of tasks is wide. On the other hand, a GPU uses thousands of smaller and more efficient cores for a massively parallel architecture aimed at handling multiple functions at the same time.

Modern GPUs provide superior processing power, memory bandwidth and efficiency over their CPU counterparts. They are 50–100 times faster in tasks that require multiple parallel processes, such as machine learning and big data analysis. GPU computing is defined as the use of a GPU together with a CPU to accelerate scientific, analytics, engineering, consumer, and enterprise applications.

For many years, GPUs have powered the display of images and motion on computer displays, but they are technically capable of doing more. Graphics processors are brought into play when massive calculations are needed on a single task. That task may include games, 3D visualization, big data, image processing, deep machine learning.

GPUs are not replacements for CPU architecture. Rather, they are powerful accelerators for existing infrastructure. GPU-accelerated computing offloads compute-intensive portions of the application to the GPU, while the remainder of the code still runs on the CPU. From a user's perspective, applications just run much faster. While general-purpose computing is still the CPU's domain, GPUs are the hardware backbone of nearly all intensive computational applications.

TESLA CARS

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There are several electric vehicles (EVs) on the market today, ranging from the Nissan Leaf to the Mercedes Benz B Class—but Tesla won fans over with its unique blend of power (one gets zero to 60 in 3.1 seconds) and range (up to 270 miles per charge, according to the EPA). The reason: Other manufacturers use specialized, large format lithium ion cells. Tesla's battery pack is made up of thousands of inexpensive commodity cells that are similar to the ones in your laptop, only more refined. There are over a billion of these cells produced a year for all sorts of industries, which means their design and performance is subject to the fierce competitive pressures that are a signature characteristic of the computer and consumer electronics industries.

Driving an EV can be convenient, but when it's time to plug in the car, urban apartment dwellers or those that rely on their EVs for long road trips can't just slip into their garages to recharge. Tesla has tried to sidestep this problem by strategically placing 1332 stations equipped with more than 10,000 superchargers around the world. The cost of using these stations is

incorporated into the purchase price of the car, which is convenient. The company offers a map so travelers can find where to recharge.

They may not be able to refuel at a gas station, but Tesla owners don't lose much time to oil changes. Only the tires and wiper blades need regular replacement on a Tesla vehicle. The battery and coolants should be checked periodically, but thanks to the clever braking system—the car slows mostly by reversing the electrical motor instead of applying friction (which also charges the battery)—a Tesla won't need new brake pads anytime soon, if ever. There's no oil to change, fan belts, air filters, spark plugs, or other parts needed in traditional cars.

The Tesla vehicles are good for more than just the environment; they're also potential lifesavers for drivers. The National Highway Traffic Safety Administration has consistently given the cars high marks when it comes to safety ratings.

In fact, at one point, the Model S achieved the best safety rating of any car in history. How tough was the Tesla? It actually broke one of the machines used for testing.

“Of note, during validation of Model S roof crush protection at an independent commercial facility, the testing machine failed at just above 4 Gs,” the company reported. “While the exact number is uncertain due to Model S breaking the testing machine, what this means is that at least four additional fully loaded Model S vehicles could be placed on top of an owner's car without the roof caving in.” This strength stems from a solid structure and the Model S's electric drivetrain and low-mounted battery. These components allowed engineers to leave more “sacrificial space” between passengers and an impact and increase overall rigidity.

Buyers of the top-of-the-line Model S, the P85D, may opt for a battery-and-electronics package called “Ludicrous Mode.” The upgrade powers the car from zero to 60 mph in less than 2.3 seconds, zippier than the current figure of 3.1 seconds. The boost comes from a “smart fuse” with its own electronics and a tiny lithium-ion battery. Basically, the mechanism constantly monitors battery output down to the millisecond, allowing the software to run the car's battery at close to its absolute limit.

ПРОЦЕСС ИНТЕГРАЦИИ ИНОСТРАНЦЕВ В СОЦИОКУЛЬТУРНОЕ ПРОСТРАНСТВО УКРАИНЫ

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Я приехал в Украину на 5 лет, но мой французский язык в этой стране не работает, как и английский. Поэтому изучение русского языка стало главным.

Вот мои первые впечатления об Украине.

Отличается климат, язык, традиции. У нас в стране люди более открытые и щедрые на эмоции. Приветствовать и прощаться при входе в магазин, транспорт – это норма поведения. Улыбки, приветствия, слова «спасибо» и «пожалуйста», говорятся часто.

При входе в транспорт все уважают друг друга, заботятся о детях и стариках. В Украине иногда молодёжь спокойно сидит даже тогда, когда рядом стоят пожилые женщины, а при посадке в транспорт могут быть агрессивными.

Вначале кажется, что украинцы не любят и не доверяют друг другу, но это не так. Я видел, как они передают незнакомым крупные деньги для оплаты за проезд, а когда к ним обращаешься за помощью, они часто предлагают её с удовольствием.

Мне не нравится работа водителей на дороге. В Украине не очень уважают пешеходов и велосипедистов. Часто человек за рулём ведёт себя агрессивно, не пропускает пешеходов на переходе. Плохо ведут себя и пешеходы, особенно люди в

возрасте и молодежь, которая ходит в наушниках и не очень смотрит по сторонам. Мне кажется, я никогда не сяду за руль в этой стране.

Здесь другое отношение к сексу. У нас более ответственно относятся к семье и рождению ребёнка. Весь род отвечает за твой брак.

Конечно, отличаются и наши кухни. Начиная от кофе и шоколада, которые у нас вкуснее и заканчивая основными блюдами и гарнирами. Украинские супы состоят из большего количества воды и едят их чаще. Мясной фарш здесь используют чаще, да и специи добавляют другие. Большое количество круп, макаронных изделий, молочных продуктов и выпечка не дают возможность похудеть в Украине, так что проблемы с едой решаются просто. Главное найти студента-иностранца, который проведет первую экскурсию по продуктовым магазинам и поделится своим опытом.

От моих друзей я знаю, что в Украине сильна бюрократия. Удивляет, что в наше время компьютеров и общей продвинутости людей то, что быстро и просто решаются в моей стране, у вас представляет проблемы.

При ведении бизнеса украинцы быстро приспосабливаются к изменениям, они толерантны, рационально оценивают ситуацию. Преданность семье и друзьям - вот качества, которые достойны уважения у украинцев.

Для того, чтобы облегчить и сделать эффективной аккультурацию иностранных студентов, мне кажется, необходимо собрать статистику о сложностях жизни в Украине для иностранцев.

YOUR INFORMATION SAFETY

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Today people often don't think about their information safety. Every day they send a lot of personal data which will be kept in the Internet forever. People like to make many posts in different social networks. This information includes events of their lives, geolocation, own preferences, tastes, family membership, personal data, etc. It's very dangerous, because gigantic number of swindler, robbers and hackers as well use this data for criminal commercial gain every minute. Here will be said how to protect a person who is the Internet user.

Reliability of your passwords. For each account you must use different passwords. One must consist of capital letters, small letters and special symbols simultaneous. Length of the password should be more than twelve symbols. Also your password shouldn't have any meaning. Ideal variant is a random set of different letters and symbols.

Be careful with photos. If a person likes sharing his/her photos with geolocation a criminal will be able to know habitual ways from home to work or entertainment facilities and back.

So, every human in our society needs to anonymize own activity. Next algorithm will help you to reach this state.

1. If you buy a new computer, don't leave your phone number or IP address of your current computer and other personal data for the selected store. Risk increases if you buy it in the Internet store.

2. Close the selfie camera by sticker forever. Never use one.

3. Delete or de-energize your microphone. Deletion is possible if you can solder prudently. Never use the microphone any more.

4. Don't use a real name of this computer anywhere.

5. Also you should buy a USB dongle for access to the Internet. Use terminals without camera to pay for connection to the Internet. Use only a dongle without any Wi-Fi networks and Ethernet-cable connections.

6. Do not register any account by a dongle number. Use compliant services with one-time password for it.

7. Use VPN for each session.

8. Don't save any personal data about you and your family and friends, other contacts on your computer.

9. Don't visit your profiles and unfamiliar pages which were visited by previous devices. The first same action will kill your pains irrecoverably.

10. Deny using a computer mouse. Replace it with a touchpad. It will neutralize all efforts to identify you by unique mouse motion.

11. Sometimes change angle of horizontal position of computer while working for neutralization all attempts to identify you by keyboarding.

12. Care should be taken for metadata of your files, if you want pass on these files to another data storage item. This metadata is necessary for deletion after each file's edition. This action hides real name of your computer and an owner from properties of each file.

13. Your passwords must not be identical with the passwords on the previous devices.

14. In any case don't visit pages and accounts by old devices, which you visit by now and in the future.

And one should remember that all information produced by a user can be used against him/her.

DIE WEICHEN FÜR DIE EISENBAHN DES 21. JAHRHUNDERTS IN EUROPA STELLEN

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Mit der Notwendigkeit, Menschen und Güter weg von der Straße in die nachhaltigeren Verkehrsträger zu bringen, werden Europas Eisenbahnen immer stärker frequentiert und mehr denn je ist man auf sie angewiesen. Wie der Eisenbahnsektor zukunftssicher sein will und wie das wahr werden könnte vor genau zehn Jahren hat die Wirtschaftskrise den europäischen Schienengüterverkehr mit voller Wucht getroffen. Die Gütermengen gingen stark zurück und einige der Hauptschwächen des Sektors wurden offengelegt. Im Bereich der Gesetzgebung hatten die EU-Mitgliedstaaten gerade mit der Einführung des Europäischen Eisenbahnverkehrsleitsystems begonnen, einem Sicherheitssystem, das die Züge zum Einhalten von Geschwindigkeitsbegrenzungen zwingt und durch Signalzustände überwacht.

Ungefähr zur gleichen Zeit wurde auch das Gemeinschaftsunternehmen Shift2Rail ins Leben gerufen, um moderne innovative Lösungen für die „Eisenbahnsysteme der Zukunft“ zu entwickeln: Automatisierung, intelligente Züge, niedrige Kosten, Nachhaltigkeit, Zuverlässigkeit, Geschwindigkeit und optimaler Energieverbrauch gehörten zu den Hauptzielen des Projekts.

Betrachtet man, wie prägend 2008 für den Schienensektor war, dann ist dieses Jahr tatsächlich eine Art Jubiläum zu feiern. Wie sehr haben sich die Züge Europas in den letzten zehn Jahren verändert? Sind die Initiativen von gestern dem Boom gerecht geworden? Was müssen wir noch tun, um die Position der Eisenbahnen als echte Alternative zu anderen Verkehrsträgern zu stärken, wie es die Europäische Kommission seit mehr als 25 Jahren anstrebt?

Der neueste EU-Bericht über die Entwicklung des Eisenbahnmarkts ist vom Dezember 2019. In diesem Bericht hob die Kommission hervor, wie EU-Rechtsvorschriften im Eisenbahnsektor zu einer „effizienteren und kundenorientierteren Industrie“ geführt hätten. Die Sicherheit habe sich deutlich verbessert, das Schienennetz sei gewachsen und die Einnahmen aus dem Personenverkehr seien erheblich gestiegen.

In Hinsicht auf aktuellere Informationen ist ein Blick auf die Arbeit der jüngsten EU-finanzierten Projekte, die von Shift2Rail unterstützt werden, sehr aufschlussreich. Durch intelligente Lösungen für einen sicheren Schienentransport sowie Computer- und Kommunikationssysteme der nächsten Generation geben neuartige Technologien einen Vorgeschmack auf die Zukunft des Eisenbahnsektors. Gleichzeitig zeigt die gemeinsame Reflexion von Interessengruppen im Rahmen von Projekten wie Smart-Rail, dass eine echte Veränderung der Denkweise stattfindet, die der Branche in den nächsten Jahren dabei helfen könnte, ihre Transformation voranzutreiben. Es ist auf jeden Fall die Mühe wert: Wenn man den Ambitionen von Shift2Rail Glauben schenken kann, könnten die Bemühungen des Sektors bis 2030 durch eine Steigerung des BIP der EU um 49 Mrd. EUR, 140 000 zusätzliche Arbeitsplätze sowie zusätzliche Exporte in Höhe von 20 Mrd. EUR belohnt werden.

Unserem „Special feature“ folgen die üblichen Themenabschnitte zu Gesundheit, Gesellschaft, Transport, Umwelt, Land- und Forstwirtschaft, Industrie, Informations- und Kommunikationstechnologie, Weltraum und Grundlagenforschung. Das Magazin endet mit einer Übersicht über bevorstehende Veranstaltungen, die von EU-finanzierten Forschungsprojekten ausgerichtet werden oder an denen derartige Projekte beteiligt sind.

NEUE TECHNOLOGIEN ZUR REDUZIERUNG VON REIBUNG UND TREIBSTOFFVERBRAUCH

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Der Radsatz ist die Verbindung zwischen dem Schienenfahrzeug und dem Gleisbau darunter. Die beiden Hauptkontaktpunkte, die belastet werden und wo deshalb Energie verbraucht wird, sind der Rad - Schiene Kontakt, an dem die Last auf das Gleis übertragen wird, und das Radsatzlager, auf das sich der Drehgestell Rahmen stützt. Die Walzlager sind das Hilfsmittel für die Rotation von Radsätzen und Achswellen.

Walzlager dienen auch dazu, die Last des Fahrzeugs und seines Inhalts zu tragen. Vor mehr als 50 Jahren wurde das sogenannte AP - Kegelrollenlager entwickelt, um Reibung und die zur Bewegung von Schienenfahrzeugen erforderliche Kraft zu reduzieren. Dies war ein ganz wesentlicher Schritt zur Steigerung der Effizienz und Zuverlässigkeit sowie zur Verringerung von Wartungsaufwand und Reibungsverlusten in den Radsätzen. Seit der Entwicklung und Normung des AP - Lagers wurden seine Auslegung und Funktionalität vielfach verändert. Lagerdichtungen stellten sich als Bereich heraus, an dem Reibungsverluste weiterhin auftreten - entsprechend ausgelegte Dichtungen haben daher entscheidende Vorteile für Reibungsreduzierung und Energieverbrauch. Reibungsverluste in Dichtungen entstehen aufgrund des Überschneidungskontakts zwischen der Elastomer Lippe und der Berührungsfläche. Um dies zu vermeiden und damit den Reibungsverlust zu verhindern, wurde mit der Eco Turn eine neue, völlig berührungsfreie Dichtung entwickelt.

Ein zweiter Bereich größerer Reibungsverluste liegt im Kontaktbereich von Rad und Schiene. Über die Jahre wurden eine Reihe von Technologien entwickelt und eingeführt, um die nachteiligen Folgen eines typischerweise trockenen oder in Wirklichkeit angeschnittenen

Kontakts zwischen Radsatz und Schiene zu verringern. Der Versuch, die Reibung in diesem Bereich zu "managen", umfasst die Hauptziele, Verschleiß und schädliche Querkräfte zu reduzieren. Geringerer Verschleiß bedeutet weniger Reibung und niedrigeres Drehmoment, was sich direkt in Kraftstoffersparnis bemerkbar macht. TracGlide von Timken ist ein solches System, das sich um das Reibungsmanagement am Radsatz - Schiene Kontakt kümmert.

Die ursprünglich für AP Walzlager konzipierten Dichtungen waren konventionelle federbelastete Lippenbauformen mit einem recht hohen Überschneidungskontakt zwischen einer Elastomer Lippe und der gegenüberliegenden Auflagefläche. Allerdings zeigen sie auch deutliche und unerwünschte Reibungsverluste (oder hohe Drehmomente) und schlechte Druckausgleichsmöglichkeiten. Diese Bauform hat ein recht gutes Schmiermittelrückhalte- und Schluss Fremdkörperausschlussvermögen sowie aufgrund des geringen Kontaktdrucks der kontaktierenden Elemente auch optimierte Drehmomenteigenschaften. Die Dichtung zeigt sowohl in Labortests als auch in der Anwendung durchweg niedrigere Betriebsdrehmomente und -temperaturen. Mit dem in den vergangenen Jahren zunehmender Druck, Treibstoff einzusparen und Emissionen zu verringern, wurde versucht, die HDL- Dichtung weiter zu entwickeln. Das Ergebnis ist die völlig berührungsfreie Eco- Turn- Labyrinth Dichtung. Sie hat ihr hervorragendes Schmiermittelrückhaltevermögen im Labor und in der Anwendung unter Beweis gestellt und sehr gute Ergebnisse hinsichtlich Wasser- und Fremdkörperausschluss in den AAR M-959 Wasserstrahl- und Staubtests gezeigt. Die Hauptvorteile dieser neuen Dichtungsbauform sind jedoch ihre außergewöhnlich niedrigen Betriebsdrehmomente und -Temperaturen.

EISENBAHNAUTOMATISIERUNG UND - STEUERUNG

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Die Eisenbahnautomatisierung und Telemechanik beschäftigt sich mit der Lösung der Aufgaben der Sicherung und Regulierung des sicheren Verkehrs und einer bestimmten Bandbreite von Straßen durch die Mittel und Methoden der telemechanischen und automatischen Beeinflussung.

Die Hauptkomponenten der technischen Elemente der Eisenbahnautomatisierung und Telemechanik werden durch Strukturen und Mechanismen der Signalisierung, Zentralisierung und Blockierung dargestellt. Diese Geräte und Mittel werden wiederum durch eine Wegsperre, ein elektrisches Steuersystem, eine Zentralisierung von Pfeilen und Signalen, Elemente der Verkehrsregelung, eine Zentralisierung, eine automatische Kontrolle und Leitplanken an Bahnübergängen dargestellt.

In der Regel beschäftigt sich das Automatisierungssystem mit der Einstellung, Kontrolle und Steuerung von Objekten, wenn ein kleiner Abstand zwischen Ihnen besteht. Wenn eine beträchtliche Entfernung zwischen Objekten besteht, wird ein Telemechanik - System verwendet. Die Eisenbahnautomatik und Telemechanik ist in zwei Klassen unterteilt: die Geräte der Automatisierung und der Telemechanik auf der Station und der Strecke.

Die erste Gruppe wird durch eine automatische Sperre, eine Lokomotive automatische Alarmierung, eine halbautomatische Wegsperre, ein Kontrollsystem und eine automatische Überfahrtalarm dargestellt. Die zweite Gruppe wird durch die elektrische und Kontrollzentralisierung, den Komplex der Mechanismen der Automatisierung usw. vertreten.

Die Anlagen der Wegsperrung sind die wichtigsten technischen Mittel, die die Sicherheit der Durchfahrt der Bestände nach der Zwischenstation und der Destillation Regeln und gewährleisten. Der Begriff „Wegsperre“ bedeutet ein System von Elementen der

Automatisierung und Telemechanik, mit dem eine solche Bewegung organisiert wird, bei der die Beschäftigung mit dem Zug eines bestimmten Abschnitts der Straße unter Verwendung von Konstanten Signalen, wie Ampeln oder Semaphoren, geregelt wird.

Die Erlaubnis, einen bestimmten Teil der Bahn zu besetzen, der durch ein konstantes Signal geschützt ist, wird durch den offenen erlaubenden Zustand des Konstanten Signals bestimmt. Wenn ein bestimmter Abschnitt der Straße mit einem Zug besetzt ist, wird er durch ein konstantes Signal geschlossen, das einen geschlossenen Zustand erhält.

Während die Züge auf der Strecke der Eisenbahn die Möglichkeit zur Eröffnung eines DC--Signal, das schützt diesen Teil des Weges, ist ausgeschlossen durch die Nachhut Track-Einstellungen sperren. Diese Elemente blockieren (elektrisch und mechanisch) im geschlossenen Zustand permanent Signal, solange die Ausbeute nicht Information, dass der Zug befreite Strecke.

ERFOLGREICHE INTERKULTURELLE KOMMUNIKATION

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In unserer globalisierten Welt ist niemand von Kontakten mit Menschen aus anderen Kulturen unbeeinflusst. Interkulturelle Kommunikation findet sowohl im alltäglichen wie auch im beruflichen Leben statt. Die Verständigung zwischen Angehörigen unterschiedlicher Kulturen kann unter Umständen mit großen Schwierigkeiten verbunden sein. Erfolgreiche interkulturelle Kommunikation ist jedoch erlernbar. Zunächst muss man allerdings die möglichen Konfliktfelder kennen, bevor man diese beseitigen kann.

Der Erfolg interkultureller Kommunikation liegt also nicht nur darin, eine andere Sprache zu erlernen. Vielmehr sollte man bedenken, dass jeder Mensch das „Produkt“ der Sozialisation seiner Kultur ist. Um mit Menschen anderer Kulturen möglichst angemessen kommunizieren zu können, sollte man lernen, verbale und nonverbale Signale des Gegenübers zu verstehen und zu dekodieren. Dazu sind neben einer positiven Grundeinstellung auch grundlegende Kenntnisse der dahinterstehenden kulturellen Eigenschaften und Strukturen notwendig. Diese können beispielsweise im Rahmen von interkulturellen Trainings angeeignet werden.

Interkulturelle Kommunikation bezeichnet in den Geistes- und Gesellschaftswissenschaften soziale Interaktion von Akteuren aus unterschiedlichen Kulturen. Diese Akteure können Individuen, soziale Gruppen, Organisationen, Gemeinden, Gesellschaften oder Staaten sein. Die besondere Bedeutung der interkulturellen Kommunikation liegt darin, dass einige Aspekte von interkultureller Kommunikation eine höhere Bedeutung haben als bei der Kommunikation innerhalb einer Kultur. So können etwa Missverständnisse entstehen durch Ausdrucks-, Darstellungs- und Handlungsweisen wie Lautstärke, Tonfall, Mimik, Gestik, Grad der Höflichkeit und Grad der Freundlichkeit. Innerhalb der interkulturellen Kommunikation können besonders Vorurteile zu Problemen führen. Vorurteile sind im Gegensatz zu Stereotypen immer negativ besetzt und führen daher oft zu Missverständnissen.

Die gesprochene Sprache, so zeigen Untersuchungen, macht nur einen geringeren Teil kommunikativen Verhaltens aus. Hingegen werden vom Nonverbalen, also vom Wortlosen, 65 Prozent der sozialen Bedeutungen transportiert.

Kommunikation heißt vor allem: Sehen und Hören, Fühlen und Schmecken, und ganz sicher auch Riechen. Die Kommunikation wird auch dann nicht unterbrochen, wenn die Beteiligten schweigen: Dann reden Hände, Gesicht, Symbole, Signale und das Verhalten im Raum.

Es gibt keine natürlichen mimischen oder gestischen Zeichen, die überall auf der Welt richtig interpretiert und verstanden werden könnten. Dass wir lachen und weinen und Gefühle mimisch ausdrücken, liegt in der Natur des Menschen. Aber wann und wie wir das tun, ist abhängig von der Kultur, in der wir aufgewachsen sind. Deswegen gibt es keine natürliche Sprache der emotionalen Gestik, auf die wir uns im Umgang mit Fremden verlassen könnten. Das alles muss man erlernen. Wie wir die nonverbale Kommunikation einsetzen? Ein allgemeingültiges Lexikon nonverbaler Kommunikation gibt es nicht. Dennoch läuft die nonverbale Kommunikation nicht gänzlich regellos ab. Jeder von uns weiß z.B., wie intensiv ein Blickkontakt sein darf, wie groß die Distanz in einem förmlichen Gespräch zu sein hat und wann ein Händeschütteln bei einer Begrüßung zu beenden ist. Und wir alle haben in der Regel ein empfindliches Gespür dafür, wenn diese Regeln verletzt werden. Die nonverbale Kommunikation läuft bei der Mehrheit der Menschen völlig automatisch neben der verbalen Kommunikation ab. Nur Schauspieler oder professionelle Redner sind in der Lage, ihre Körperhaltung, Gestik und Mimik gezielt einzusetzen, um die Wirkung ihrer Sprache zu unterstützen. Der bewusste Einsatz nonverbaler Ausdrucksmittel ist weitaus schwieriger zu koordinieren, als man sich dies vielleicht vorstellt.

TECHNISCHER FORTSCHRITT UND HOHE GESCHWINDIGKEITEN FÜR DIE EISENBAHN

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Technischer Fortschritt, höhere Achslasten und höhere Geschwindigkeiten forderten bessere Messtechniken. Zur Beurteilung der Gleislage wurden seit Beginn des Gleisbaus die vielfältigsten Messmittel und -verfahren entwickelt. Viele hatten aber einen für eine reelle Einschätzung entscheidenden Nachteil: Das Gleis konnte nur im unbelasteten Ruhezustand beurteilt werden.

Höhere Geschwindigkeit und steigende Belastungen verlangten nach einem Beurteilungsverfahren unter der rollenden Last. Im 1875 beschäftigen sich verschiedene Länderbahnverwaltungen mit der Anschaffung von Messfahrzeugen, die in der Lagewaren, eine echte Betriebssituation zu simulieren und dabei das Verhalten des Gleises aufzuzeichnen.

Im Jahre 1907 beauftragte die Preußische Staatsbahn die belgische Firma van der Zypen & Charlier, einen ehemaligen sechs achsigen Salonwagen (ex Erfurt Nr. 6, aus dem Hofzug des Herzogs von Sachsen Coburg und Gotha, gebaut 1898 von Waggonfabrik Bothmann, Gotha) zu einem Gleismesswagen umzubauen. Für den Einsatz im Gleisnetz der KPEV wurden folgende Parameter gefordert:

Aufzeichnungen sollten erfolgen für:

- die gegenseitige Höhenlage,
- die Stoßeinsenkung separat für jede Schiene,
- die Spurweite sowie,
- die Bogenverläufe und der Streckenkilometer.

Weiterhin hatte die Messung gelassenen Streckengeschwindigkeit zu erfolgen. Dieses Fahrzeug hatte ein Gesamtgewicht von 54 t, welches gleichmäßig mit 9 t auf alle sechs Achsen verteilt wurde.

Da beide Messfahrzeuge sowohl im Zustand als auch in der Ausrüstung verschleßen und technisch überholt waren, entschied sich die DR 1971 bei der Waggonfabrik Simmering-Graz-Pauker einen sechs achsigen Neubaumesswagen in Auftrag zu geben. Das technische Niveau

entsprach dem von diesem Unternehmen für die ÖBB entwickelten Fahrzeug, es war eines der leistungsfähigsten Messfahrzeuge im Weltmaßstab und ermöglichte Messgeschwindigkeiten bis 160 km/h, Einige Grundprinzipien wurden bei diesem Fahrzeug beibehalten: die Stabilisierung mittels Kreiselssystem, die mechanische Abtastung von Spurweite und Bogenverlauf sowie die Feststellung der gegenseitigen Höhenlage bzw. der Stoßeinsenkung. Die Messwerte wurden aber nur noch teilweise mechanisch an das Aufzeichnungsgerät übertragen. Durch ein elektronisches Induktionssystem konnten bereits Daten elektronisch aufbereitet und in der von der DR angestrebten Streckenanalysedatei übernommen werden.

Um 1993 wurden bei diesem Fahrzeug als weitere Neuerungen die satellitengestützte Positionsbestimmung, ein laseroptisches Abtastverfahren sowie eine Verbesserung an der elektronischen Auswertungsanlage eingeführt. Grundkonstruktionen, wie die Anwendung des Tragheitsprinzips der Kreiselplattform und die teilweise mechanische Übertragung von Messwerten an das Aufzeichnungsgerät, wurden beibehalten. Die anfangs vorhandenen mechanischen Tuschezeichengeräte wurden durch einen Laserdrucker ersetzt. Dieser ehemals bei der VES-A Magdeburg beheimatete Oberbaumesswagen wurde im Zuge der Bahnreform 1994 an das FTZ in Minden umgesetzt und befand sich bis 2004 im Einsatz.

Jedem Oberbaumesswagen war ein Beiwagen zugeordnet. Er diente zur Aufbewahrung der zur Wartung erforderlichen technischen Geräte, Ersatzteile und Eichmittel. Weiterhin diente er als Wohnwagen für die aus drei Personen bestehende Stammbesatzung. Der zurzeit noch im Einsatz befindliche Beiwagen wurde 1982 vom Reichsbahnausbesserungswerk Gotha (ehem. Mitropa-Werkstätten) durch Umbau aus dem Standardreisezugwagen 51 50 20-40 243 für diesen Zweck hergerichtet. Sowohl Messwagen als auch Beiwagen wurden im RAW Gotha wagentechnisch instand gehalten und erhielten Mitte der 1980er Jahre eine Heizung mit Leichtölfeuerung.

Messfahrten wurden entsprechend der Streckenklassifizierung turnusgemäß durchgeführt. Der Messwagen hatte einen festen Umlaufplan, so dass die Dienststellen den Einsatz entsprechend vorbereiten konnten. Außerplanmäßige Messfahrten sind vereinzelt bei hochrangigen Fahrten des Regierungssonderzuges erfolgt. An der Messfahrt hatten der Abteilungsleiter Oberbau und Strecken, der zuständige Oberbaukontrolleur sowie der Dienststellenleiter und der Streckenmeister der Bahnmeisterei teilzunehmen. Die die zulässigen Grenzwerte überschreitenden Oberbaumängel wurden vom Leiter des Messwagens auf dem Papierstreifen rot gekennzeichnet. Diesen Messstreifen erhielt der zuständige Bahnmeister an der Grenze seines Zuständigkeitsbereiches ausgehändigt und halte sofort die Mängelbeseitigung einzuleiten.

ERHALTUNG, RATIONELLE NUTZUNG UND WIEDERHERSTELLUNG NATÜRLICHER RESSOURCEN IN DEUTSCHLAND

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Umweltschutz ist ein Komplex von Maßnahmen zur Erhaltung, rationellen Nutzung und Wiederherstellung natürlicher Ressourcen. Im Rahmen meiner Arbeit wurde die Vielfalt der Schutzgebiete in Deutschland und ihre Bedeutung untersucht. Solche Gebiete sind Nationalparks, Naturdenkmäler und Sanatorium-und-Spa-Zonen.

Nationalparks in Deutschland sind Landschaften, die der Erhaltung der natürlichen Vielfalt seltener Tier- und Pflanzenarten dienen und für die biologische Vielfalt von großer Bedeutung sind.

Bayerischer Wald. Nationalpark Bayerischer Wald - Deutschlands erster Nationalpark, geöffnet 7. Oktober 1970 auf dem Gebiet des heutigen Kreises Freyung-Grafenau. Nationalpark hat eine einzigartige Fauna erhalten, unter denen gibt es Arten, die vom Aussterben, wie Nörgelei, Luchs, Wanderfalken, Wildkatze, Schwarzstorch, Biber, Fischotter oder gemeinsamen Wespenbussard sowie andere typische Bewohner des Bayerischen Waldes bedroht sind.

Berchtesgaden. Der Nationalpark Berchtesgaden ist Deutschlands einziger Hochland-Nationalpark in den Alpen. Es befindet sich im bayerischen Landkreis Berchtesgaden. Im Park gibt es einen Gebirgssee Funtensee, in einem Gebiet, das in Deutschland registriert wurde, die niedrigste Temperatur im Winter.

Schleswig-Holstein Watts. Der Schleswig-Holsteinische Watts-Nationalpark ist ein Nationalpark im schleswig-holsteinischen Watt. Nationalpark erstreckt sich von der deutschen Grenze im Norden bis zur Mündung der Elbe im Süden. Die nördliche Hälfte des Parks umfasst die nordfriesischen Inseln. Dort ist das Wattmeter 40 km breit.

Denkmäler der Natur. Naturdenkmäler sind einzigartig, unersetzlich, wertvoll in ökologischen, wissenschaftlichen, kulturellen und ästhetischen Beziehungen, natürlichen Komplexen sowie Objekten natürlichen und künstlichen Ursprungs.

Der Olympiapark ist ein Park in München, gebaut nach dem Projekt des Architekturbüros Günter Benisch zu den Olympischen Sommerspielen 1972 in dieser Stadt. Nach vielen Jahren dient der Park immer noch als ein wichtiger Ort für verschiedene kulturelle, soziale und religiöse Veranstaltungen.

Der Botanische Garten Berlin ist einer der ältesten und größten Gärten Europas und der Welt. Hier, auf einem riesigen Territorium, gibt es grandiose Gewächshäuser, die größten Sammlungen von Orchideen, Kakteen, exotischen Raubfischen, die sich von Insekten ernähren. Nur etwa 22 Tausend Arten. Dieser Garten wurde im XIX. Jahrhundert angelegt und war zunächst ein wunderbarer Ort zur Erholung mit künstlichen Seen, Skulpturen, grünen Wiesen, Blumenbeeten und Bänken für Besucher.

Tiergarten. Dieser älteste Park (XVII Jahrhundert) wurde während des Zweiten Weltkriegs schwer beschädigt. Dann mussten die Bürger die Parkbäume fällen, um Häuser zu heizen. Doch mit der Zeit wurde der Tiergarten restauriert, viele deutsche Städte beteiligten sich an dieser Großaktion und schickten Samen, Sprossen und Setzlinge von Bäumen in die Hauptstadt. Heute blüht der Tiergarten noch. Neben gepflegten Wegen und Wiesen gibt es viele Skulpturen, Denkmäler, Denkmäler und kleine Teehäuser.

Sanatorium und Erholungsgebiete. Resorts-Orte, die natürliche Ressourcen für die Behandlung und Erholung haben Bayern, das Land im Süden des Landes, ist ein weiteres sehr erfolgreiches Erholungsgebiet. Natürlich gibt es viele alpine Skigebiete, von denen einige das ganze Jahr über skaten. Eine weitere lokale Attraktion - die wunderschönen Bergseen und alten Burgen, die sich auf den mächtigen Bergen erheben, die mit dunklen Tannen bewachsen sind. Auch in München gibt es viele Beerenfelder, wo Touristen Beeren pflücken und dort essen können.

Seen von Deutschland. Der Chiemsee, der mit Stolz das "Bayerische Meer" genannt wird, liegt 80 km südöstlich von München. Auf dem See befinden sich drei Inseln, auf denen sich die Burg und das Kloster befinden. In Chiemsee können Sie angeln, segeln und andere Wassersportarten betreiben.

Der Tegernsee erstreckt sich in den Ausläufern der bayerischen Alpen, 50 Kilometer von München entfernt. Das Klima am See ist gemäßigt gemütlich und wirkt sich in Kombination mit Thermalheilwasser äußerst positiv auf den Körper aus.

Der Aibsee liegt neben dem bekannten Skigebiet Garmisch-Partenkirchen. Rund um den See gibt es viele Wander- und Radwege, darunter die schönsten Ausblicke auf die sagenhafte Landschaft der deutschen Alpen.

Medizinische Einrichtungen. Berühmt für Deutschland und seine Thermalkurorte. Der erste Name, der Ihnen in den Sinn kommt, ist natürlich das berühmte Baden-Baden, ein beliebter Urlaubsort für unsere berühmten Schriftsteller und andere berühmte Persönlichkeiten des vorletzten Jahrhunderts. Die alte Stadt Bad Kissagen, in einer ruhigen und gemütlichen Atmosphäre gelegen, bietet eine Möglichkeit zur Behandlung von Erkrankungen des Nervensystems des Stoffwechsels. Um die Gesundheit zu verbessern, können Sie die Städte Bad Griesbach, Bad Reichenhall, Bad Füssing und viele andere schöne Städte mit dem Bad Add-on besuchen, nach denen Sie ohne Zweifel sowohl physisch als auch moralisch gesund werden.
Schlussfolgerungen

Daraus lässt sich schließen, dass das Territorium Deutschlands aus einer Vielzahl von Naturschutzobjekten besteht, die eine Möglichkeit bieten, die Umwelt vor Zerstörung zu schützen. Auch Nationalparks Naturdenkmäler und Spa-Zonen ermöglichen es Ihnen, in den Wäldern, Bergen und Seen Deutschlands in der Form zu bleiben, in der sie erstellt wurden.

DIE ZUKUNFTSTRÄCHTIGKEIT DER EISENBAHN

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Der Nachweis der Zukunftsträchtigkeit der Eisenbahn unter Beibehaltung des Rad-Scheine-System ist auch in den anderen Teilen der Welt für viele Bahnverwaltungen der Anstoß zu Planungen und Bauvorhaben für eigene Höchstgeschwindigkeitsstrecken geworden. Und das neue Energiebewusstsein hat zu einer weltweiten Sensibilisierung für die Endlichkeit der Energieressourcen, die Begrenztheit des Individualverkehrs und damit auch für die Effektivität der Eisenbahn geführt. Dies wird durch die extensive Entwicklung der Eisenbahntrassen in vielen Ländern der Welt deutlich. Von 1960 bis 1980 wurden in der Welt 40 000 km Eisenbahntrassen neu gebaut, 13 000 km waren noch im Bau und 30 000 km in der Planung. Diese Tendenz setzte sich nach 1980 fort.

Die Höchstgeschwindigkeitsstrecken in Großbritannien und Frankreich unterscheiden sich von den japanischen und andere dadurch, dass sie vollkommen ohne Tunnel auskommen. In der Union der Sozialistischen Sowjetrepubliken erfordert die Topografie keine Tunnel, weil zwischen Leningrad und Moskau die Landschaft völlig eben ist.

In Frankreich ging man mit dem Train Grande Vitesse (TGV-Hochgeschwindigkeitszug) den Weg, die Hochgeschwindigkeit vor allem durch höhere Antriebsleistung der Züge und weniger durch niedrige Trassierungselemente zu erreichen. Die höchstzulässige Neigung der TGV-Strecken ist beispielsweise auf 35 Promille heraufgesetzt worden. Diese Korrektur, verbunden mit einer geschickten Trassenwahl, erforderte zwar Einschnitte und Brücken, aber keine Tunnel. Das Ziel der französischen Verkehrspolitik ist die Verlängerung der TGV-Strecken nicht nur nach Südfrankreich, sondern auch durch den geplanten Kanaltunnel in Richtung England.

In der Bauphase befinden sich auch zwei Höchstgeschwindigkeitsstrecken in der Bundesrepublik Deutschland (in der zweiten Ausbaustufe 250 km/h (Kilometer pro Stunde)), die in Hinblick auf die technischen Parameter mit dem japanischen Projekt vergleichbar sind. Doch hier erfordern die Trassierungsparameter erhebliche Tunnelbauten, wenngleich zweifellos Tunnel kurzer Längen und geringer Überdeckung dominieren. Diese beiden Höchstgeschwindigkeitsstrecken sind die ersten Eisenbahn-Fernstrecken, die seit mehr als 100 Jahren auf dem Gebiet der heutigen Bundesrepublik Deutschland neu gebaut werden. Von dem

insgesamt 432 km sollen 80 km Strecke bereits Ende der 80-er Jahre in Betrieb genommen werden.

Die tunnelreiche (und auch brückenreiche) Streckenführung für Höchstgeschwindigkeitszüge hat nicht nur allgemein verkehrspolitische Zielsetzungen. Sie erbringt auch einen wichtigen Beitrag, zum Umweltschutz. Deshalb versuchen auch andere Bahnverwaltungen Europas, ihre Magistralen schrittweise aufzuwerten. Die Polnischen Staatsbahnen planen und bauen an der Höchstgeschwindigkeitsstrecke Katowice-Gdansk.

DAS UNIVERSALSYSTEM FÜR DEN SCHOTTEROBERBAU

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„W“ – Das Universalsystem für den Schotteroberbau Hochgeschwindigkeitsstrecken stellen neue Anforderungen an die Elastizität im Gleis. Denn mit dem Tempo der Züge nehmen die dynamischen Kräfte zu, die durch die schnellen Lastwechsel an den Schwellen, durch Unwuchten an den Rädern oder durch Unregelmäßigkeiten der Schiene entstehen. Um diese Kräfte möglichst sanft und materialschonend in den Untergrund abzuleiten, muss das Gleisbett eine gewisse Federwirkung bieten. Dabei hat es sich in der Vergangenheit als hinreichend erwiesen, wenn die Schiene um rund 1,5 mm einsinken kann. Um Hochgeschwindigkeitstrassen die notwendige Stabilität zu verleihen, wird das Gleisbett im Unterbau heutzutage allerdings viel stärker verdichtet als in der Vergangenheit. Bei Zugüberfahrten liegt es daher allein an den oberen Schichten, die gesamten Kräfte abzufedern. Da das Schotterbett dazu nur bedingt in der Lage ist, muss die Schienenbefestigung hohe Elastizitäten bieten. Steifigkeiten von 60 kN/mm galten dabei viele Jahre als Standard. Vossloh hat inzwischen allerdings Lösungen entwickelt, die höhere Elastizitäten bieten. Zum Beispiel das System W21, das speziell für Betonschwellen im Schotteroberbau entwickelt wurde. Es gehört zur etablierten Familie der „W“-Systeme, die sich für den Einsatz im Hochgeschwindigkeits-, im Schwerlast- sowie im Nahverkehr eignen. Ein W-System besteht, wie in Abb. 1 zu sehen, aus folgenden Komponenten:

- zwei Spannklemmen,
- einer hochelastischen Zwischenlage,
- zwei Winkelführungsplatten,
- zwei Schwellenschrauben sowie
- zwei Schraubdübeln, die in der Schwelle verankert sind. Die Spannklemme verspannt die Schiene mit Hilfe der zwei freien Federarme, die einen langen elastischen Federweg aufweisen, dauerhaft kraftschlüssig mit dem Betonkörper. Die hohe Niederhaltekraft der Spannklemme bewirkt auch den hohen Durchschubwiderstand der Schiene im Gesamtsystem. Darüber hinaus bietet die Spannklemme eine definierte Dauerfestigkeit, die garantiert, dass die Klemme unzählige Lastwechsel über eine bestimmte Schwingungsbreite hinweg unbeschadet übersteht. Die hochelastische Zwischenlage wiederum leitet die dynamischen Kräfte vertikal auf die Schwelle ab. Die Winkelführungsplatten halten die Schiene seitlich in Position. Zusammen mit der Mittelschleife der Spannklemme verhindert sie ein Kippen oder Abheben der Schiene. Wirtschaftlich bieten die W-Systeme viele Vorteile:
- Alle Befestigungsteile können werkweise vormontiert werden, was einen vollautomatischen Einbau des Gleises möglich macht. Ein Schienenwechsel kann auf einfache Weise erfolgen, indem die Spannklemme in Vormontageposition zurückgeschoben wird.
- Ein Temperaturspannungsausgleich der Schienen wird durch einfaches Lösen der Schrauben erleichtert.

- Die Systeme bieten die Möglichkeit der Spur- und der Höhenregulierung. Dafür können die Höhenausgleichsplatten einfach seitlich eingeschoben werden. Für die Spurregulierung werden unterschiedlich breite Winkelführungsplatten eingesetzt. Zudem sind sie immer komplett elektrisch isoliert.

DIE ÜBERWINDUNG DES BUEROKRATISMUS UNTER DEN MODERNEN BEDINGUNGEN DER OEFFENTLICHEN VERWALTUNG

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In einem beliebigen modernen Unternehmen besonders des Staatseigentums basiert der Verwaltungsapparat auf den bürokratischen Prinzipien tatsächlich. Es sei bemerken, dass die Bürokratie die notwendige Bedingung der Existenz der öffentlichen Verwaltung ist, ohne die sie ihre Funktionen nicht erfüllen kann. Der Begründer der Bürokratie, wie der rationalen Organisationsstruktur – der deutsche Soziologe M. Weber behauptete, dass die Bürokratie die effizienteste Organisationsform der Verwaltung ist und sie kann die Effektivität der Tätigkeit des Unternehmens mithilfe der deutlichen Arbeitseinteilung, der hierarchischen Gliederung, der bestimmten Normen der Arbeitsleistung und der Personalverwaltung erhöhen. Trotzdem gibt es immer noch die Anlässe für den Formalismus, Individualismus, Automatismus in der bestehenden Tätigkeit des Verwaltungsapparats. Sie gelten als die Hauptmerkmale des Bürokratismus des realen Systems der öffentlichen Verwaltung im Gegensatz zu dem idealen Bürokratie-Modell von M. Weber. Wichtig ist hier zu erwähnen, dass sie entsprechend den Prozessen der Informatisierung der Verwaltungstätigkeit evolutioniert wurden. Aus diesem Grund, entsteht immer mehr die Notwendigkeit der Entbürokratisierung des Verwaltungsapparats für die Erhöhung der Effektivität der öffentlichen Verwaltung.

M. Weber schloss das Erscheinen im idealen Bürokratie-Modell des Bürokratismus nicht aus. Dazu ist der Bürokratismus ein Prozess der unkontrollierbaren Umgestaltung der Bürokratie von der Gesellschaft in die selbstgenügsame hierarchische Bildung, die richtet sich nach den eigenen Interessen und nicht nach den Interessen des Staates. Die Gründe des Erscheinens des Bürokratismus im System der öffentlichen Verwaltung sind solche: das niedrige professionelle und moralische Niveau der Staatsangestellten, übermäßige Politisierung des Leitungs- und Verwaltungsapparates, die ungenügende Entwicklung der Institute der Zivilgesellschaft, insbesondere der unabhängigen Massenmedien, und das allgemeine niedrige Niveau des zivilen Bewusstseins und der Aktivität. Man muss darauf hindeuten, dass der Bürokratismus die Probleme nach sich ziehen kann. So ermöglicht er die günstigen Bedingungen nicht nur für die Korruption, sondern auch für eine willkürliche Erläuterung und Einführung der Normen der Gesetze.

Die Suche der Wege der Entbürokratisierung muss nicht auf der vollen Ausrottung des Bürokratismus beruhen. Die Hauptlösung des Bürokratismus besteht darin, seine drohenden Formen für die Gesellschaft wie z.B. der Karrierismus, der Protektionismus, die Bestechlichkeit zu senken. Für den Kampf mit dem Bürokratismus kann man solche Methoden verwenden: die Institutionalisierung der Zivilgesellschaft (die Schaffung der freiwilligen Assoziationen z.B. der Nichtstaatlichen Organisationen, politischen Parteien, Massenmedien usw.); das System des Audits der Verwaltungstätigkeit; das ständige Monitoring der zivilen Meinung bezüglich der Einschätzung der Tätigkeit sowohl der öffentlichen Hände insgesamt, als auch der Beamten persönlich. Auch kann man die Marktmechanismen im Bereich des öffentlichen Administrierens

benutzen, um den bestehenden Bürokratismus zu vermeiden. Als Wichtigste kann die Einleitung der Einschätzung und des Wertes für die öffentlichen Dienstleistungen bezeichnet werden.

Die Schlussfolgerung aus alledem ist, dass die Erledigung der oben angeführten Methoden der Entbürokratisierung zulassen wird. Alles in allem sind sie ausgesprochen von Bedeutung, um die öffentliche Verwaltung zu rationalisieren, die Verantwortung der Staatsangestellten zu vergrößern, die Errichtung der deutlichen Standards der Ausführung der öffentlichen Dienstleistungen festzustellen. So wird der Bürokratismus im Verwaltungsapparat nachgelassen.

INGENIEURTECHNISCHE MEISTERLEISTUNGEN

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Antwerpens historischer Kopfbahnhof Antwerpen-Centraal wurde nach den Marten des Center Architekten Jacques Voncke im laufenden Betrieb modernisiert. Innerhalb von zehn Jahren wurde ein Tunnel unter dem historischen Bahnhof gebaut und dieser so auch für den Hochgeschwindigkeitsverkehr zugänglich gemacht. Ende des 19. Jahrhunderts hatte der belgische König Leopold II. die Gewinne aus der Kolonie Belgisch-Kongo genutzt, um im eigenen Land Triumphbögen und Prachtbauten erbauen zu lassen. Das Empfangsgebäude des Bahnhofs Antwerpen-Centraal von Louis de la Censerie wurde vom Luzerner Bahnhof und dem Pantheon in Rom beeinflusst. Spoorwegkathedraal - die Eisenbahnkathedrale - wird das steinerne Empfangsgebäude wegen seiner gewaltigen Konstruktion im Volksmund genannt. Dabei dominiert vor allem die mächtige, kunstvoll gestaltete Kuppel, die von zehn Türmen umgeben ist und eine stattliche Höhe von 75 m aufweist. Ein weiterer imposanter Gebäudeabschnitt ist die von einem ca. 45 m hohen Glasdach in Bogenform überspannte Bahnsteighalle, die der Ingenieur Clement Van Bogaert erbaut hat. Den Höhenunterschied zwischen Empfangsgebäude und Gleishalle überwindet man durch eine neobarocke überbreite Marmortreppe, die der gesamten eklektizistischen Architektur etwas Erhabenes gibt. Doch der am 11. August 1905 eröffnete Bahnhof ist heutzutage nicht nur eine schöne Sehenswürdigkeit für Touristen, sondern auch Knotenpunkt für Reisende auf der Nord-Süd-Verbindung. Da ein Kopfbahnhof aber nicht für den Hochgeschwindigkeitsverkehr geeignet ist und selbst der Thalys einen Bogen um Antwerpen machen musste, war ein umfassender Umbau des Bahnhofs Antwerpen-Centraal notwendig. So wurde ein Durchgangsbahnhof in einem 3,8 km langen Tunnel unter dem eigenen Kopfbahnhof geschaffen. Der Untertunnelung fielen vier der zehn Gleise in der Belle Etage zum Opfer, doch dafür liegen im ersten Untergeschoss, in dem auch die Metro fährt und im zweiten Untergeschoss, in dem die Hochgeschwindigkeitszüge halten, jeweils vier Gleise. Jacques Voncke gelang es mit der Gestaltung der Tiefgeschosse aus einer Mischung von Stahl, Lichtsäulen und Brüstungen einen angenehmen technisch-sachlichen Gegensatz zum Grandeur des Bahnhofsgebäudes zu schaffen. Der Bahnhof bietet dem Reisenden aber nicht nur seine architektonische Schönheit um Wartezeiten zu überbrücken, sondern auch Einkaufsmöglichkeiten. Der ebenfalls mit einem Glasdach überspannte Eingang am Hauptgebäude und die ausgehöhlte Straßenebene wurden als Servicebereich gestaltet, in der neben Reisebedarf passend zu Antwerpen auch Diaranten in üppigen Auslagen angeboten werden. Antwerpen-Centraal ist eine 775 Mio. EUR teure ingenieurtechnische Meisterleistung. Das historische Erscheinungsbild hat nicht gelitten, sondern es wurde zukunftsfähig gemacht.

Als „Erlebniswelt mit Gleisanschluss“ übertrifft der Düsseldorfer Hauptbahnhof auch als nüchterner kubischer Backsteinbau aus den dreißiger Jahren alle Erwartungen an einen Großstadtbahnhof

Seit 1891 stand hier die Bahnhofshalle des Zentralbahnhofs in wilhelminischen Stil, welche die Bahnhöfe der „Bergisch Märkischen Eisenbahngesellschaft“, der „Köln-Mindener Eisenbahn“ und den Rheinischen Bahnhof ersetzte, denn 1838 dampfte bereits zwischen Düsseldorf und Erkrath die erste westdeutsche Eisenbahn.

1932 bis 1936 erfolgte nach dem Abriss des dreiteiligen Empfangsgebäudes, welches schon bald nicht mehr genügend Platz bot der Neubau. Dieser wurde nach den Entwürfen der Architekten Krüger und Behne im Stil der Neuen Sachlichkeit gebaut. Unverändert bis heute charakterisiert die strukturierte Backsteinlochfassade und der 40 m hohe Uhrenturm, der ein Wasserreservoir enthielt, das ursprünglich der Dampflokversorgung diente, das äußere Erscheinungsbild des Hauptbahnhofs der Landeshauptstadt von Nordrhein-Westfalen.

Zu Zeiten der Deutschen Bundesbahn wurde in den 1980er Jahren bei einem mehrjährigen Umbau auch die unter Denkmalschutz stehende Fassade restauriert. Die von der Empfangshalle weiterführende Passage, die am Bertha-von-Suttner-Platz endet, wurde einschließlich des dortigen Empfangsbereichs neu gestaltet.

Ein künstlerisches Highlight sind die verkanteten Spiegelflächen, die die Decke der großzügigen Eingangshalle zieren. Sie sollen die Bausubstanz ins rechte Licht versetzen. Die Integration von U-Bahnhof und RegioBahnhof erforderte bauliche und logistische Höchstleistungen. Der Düsseldorfer Hbf steht mit 20 Spannbetonrücken von ca. 100 m Länge auf 207 Bohrpfeilern von bis zu 2 m Durchmesser. Die Bahnsteigüberdachung aus vier aneinander gereihten Haiku wirken trotz ihrer Größe von 21600 m² durch die verbindenden Glasbänder nicht erdrückend.

Seit dem Umbau entwickelte sich der Kreuzungsbahnhof stetig zu einem bedeutsamen Verkehrsknoten. Auf 16 Fernbahn- (zwei Gleise für Autoreise- und Sonderzüge) und vier S-Bahn-Gleisen verkehren täglich 169 Fernverkehrs-, 423 Nahverkehrs- und 550 S-Bahn-Züge. Zusammen mit dem Übergang zu den vier U-Bahn-Gleisen

MODERNE GESCHWINDIGKEITSÜBERWACHUNG

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Auch Lokführer unterliegen einer Geschwindigkeitsüberwachung. Im Gegensatz zum Straßenverkehr, der überhöhte Geschwindigkeiten im Allgemeinen nur registriert und in Folge für unangenehme Zahlungsaufforderungen sorgt, wird bei zu schnellen Zügen zu rigoroseren Mitteln gegriffen: Überfährt ein Lokführer eine Geschwindigkeitsbegrenzung mit überhöhter Geschwindigkeit, wird der Zug über eine induktive Zugbeeinflussung zwangsgebremst.

Auf Wunsch der ÖBB hat die Firma Zöllner das Prinzip der Geschwindigkeitsüberwachung neu konzipiert. Während bei herkömmlichen GPE (Geschwindigkeitsprüfeinrichtung) die Geschwindigkeitsprüfung über einen Einschaltmagneten initiiert wird, beginnt die Prüfung bei der ZGP (Zöllner Geschwindigkeitsprüfeinrichtung) mit dem Überfahren des induktiven Radsensors. Im Gegensatz zu herkömmlichen GPE (Geschwindigkeitsprüfeinrichtung) berechnet die ZGP (Zöllner Geschwindigkeitsprüfeinrichtung) die tatsächliche Geschwindigkeit des passierenden Zuges am Radsensor und entscheidet aus dem Vergleich von Ist-Geschwindigkeit und zulässiger Höchstgeschwindigkeit, ob der Wirkmagnet aktiviert werden soll. Ebenso wie die Geschwindigkeitsprüfeinrichtung kann die ZGP (Zöllner Geschwindigkeitsprüfeinrichtung) stark arbeiten und somit die Geschwindigkeiten aller vorbeifahrenden Züge messen oder ESA-gesteuert nur bestimmte Züge kontrollieren. Die ZGP (Zöllner Geschwindigkeitsprüfeinrichtung)

befindet sich zurzeit im Zertifizierungsprozess. Das integrierte selbstüberwachende Doppelrechnersystem und die Überwachung der Schnittstelle zum Radsensor SIL2 ermöglichen eine hohe Sicherheitsstufe.

Die Zöllner Geschwindigkeitsprüfeinrichtung sind mit GSM/GSM-R-Modulen ausgestattet, so dass die Geräte selbst über ihren Zustand berichten können. Neben regelmäßigen Lebenstaktmeldungen, die den Betreibern zur Überwachung dienen, ist die Zöllner Geschwindigkeitsprüfeinrichtung in der Lage über Fehler, die den Betrieb nicht beeinflussen aber auch über Störungen, die den Betrieb unterbrechen, per Meldung zu berichten. Es kann also im Einzelfall entschieden werden, ob die vorliegende Unregelmäßigkeit so schwerwiegend ist, dass der Wirkmagnet aktiviert wird und somit auch die Bremsung von regelgerecht fahrenden Zügen in Kauf genommen werden muss oder ob die zuständige Stelle zwar zwecks zeitnaher Behebung informiert, der normale Betrieb aber aufrecht erhalten wird. Selbstverständlich werden auch alle durchgeführten Bremsungen weitergemeldet. Zudem ist die Inbetriebnahme der Zöllner Geschwindigkeitsprüfeinrichtung über Ferneinschaltung unter Nutzung des GSM-R-Netzes möglich.

Die Zöllner Geschwindigkeitsprüfeinrichtung befindet sich in einem kompakten Edelstahlgehäuse, dessen Doppelwandigkeit für geeignete Klimabedingungen für die Gerätebauteile sorgt. Der Zugang zum Gehäuse der Zöllner Geschwindigkeitsprüfeinrichtung ist über ein Sicherheitsschloss gesichert und muss nur bei Erstinbetriebnahme, bei Änderung der Betriebsparameter oder für Instandhaltungsmaßnahmen geöffnet werden. Das Einschalten erfolgt über einen von außen zugänglichen Betriebsartenschalter, der ebenfalls über ein Schloss gesichert ist. Am Betriebsartenschalter können wahlweise folgende Betriebsarten eingestellt werden:

- „ZGP aus“, die ZGP(Zöllner Geschwindigkeitsprüfeinrichtung) nimmt keinen Einfluss auf passierende Züge,
- „Wirkmagnet ein“, der Wirkmagnet wird unabhängig von Messergebnissen der ZGP(Zöllner Geschwindigkeitsprüfeinrichtung) immer aktiviert oder
- „ZGP ein“, der Wirkmagnet wird situationsabhängig aktiviert.

Die ZGP(Zöllner Geschwindigkeitsprüfeinrichtung) kann wahlweise über Netzanschluss mit und ohne Back-up-Akku oder autark im Akkubetrieb betrieben werden. Eine unterbrechungsfreie Stromversorgung (USV) sorgt darüber hinaus für eine gesicherte Energieversorgung. Wird eine ZGP(Zöllner Geschwindigkeitsprüfeinrichtung) in Betrieb genommen, sind am Gerät die Betriebsparameter Reaktionsstrecke, Ausgangs- und Prüfgeschwindigkeit einzugeben. Die entsprechende Bremskurve wählt die ZGP(Zöllner Geschwindigkeitsprüfeinrichtung) automatisch aus. Zudem können bei Bedarf ESA-Anbindung und Akku eingebucht werden. Während des Betriebs informiert das Display darüber, ob die gemessenen Geschwindigkeiten angemessen oder zu schnell sind oder ob eine Gegenfahrt stattgefunden hat. Liegt ein Fehler oder eine Störung vor, so erscheint eine Klartextmeldung im Display. Die genaue Ursache der Unregelmäßigkeit kann im Service-Menü abgefragt werden.

Neben der deutlich geringeren Montagezeit der ZGP(Zöllner Geschwindigkeitsprüfeinrichtung) und der Fernüberwachung über GSM/GSM-R ist der wesentliche Vorteil die deutlich höhere Sicherheit. Die ZGP(Zöllner Geschwindigkeitsprüfeinrichtung) steigert somit die Sicherheit bei Geschwindigkeitsüberwachungen und damit einhergehenden Zugbeeinflussungen erheblich.

EISENBAHNINGENIEURE MÜSSEN NACHHALTIGKEIT GEWÄHRLEISTEN

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Eisenbahningenieure sind einer großen Verantwortung ausgesetzt. Auf Grund des breiten Aufgabenspektrums, das sie abdecken, umfasst diese Verantwortung nicht nur ingenieurtechnische Fragestellungen, sondern auch Probleme der Wirtschaftlichkeit, der Nachhaltigkeit, des Umweltschutzes, der Sicherheit, der Öffentlichkeitswirksamkeit, des Gesetzesrahmens. Wir stellen fest, dass es ohne Ingenieure nicht geht: „Kein Ding ohne Ing.“ So weit, so richtig. Aber wie gehen wir mit dieser Verantwortung um?

Wir Eisenbahningenieure vertreten unsere Unternehmen im gesamten Spektrum der technischen Leistungsfähigkeit, ohne dabei die betriebswirtschaftlichen Belange zu vernachlässigen. Wir gestalten den Wettbewerb in technischer und finanzieller Hinsicht, indem wir maßgeblich die Preisgestaltung unserer Produkte beeinflussen. Wir optimieren Prozesse, wir nutzen Ressourcen so optimal wie möglich und vertretbar, wir überwachen Herstelle – und Ausführungsprozesse und wir führen Mitarbeiter und Mitarbeiterinnen durch dieses Aufgabenspektrum. Und am Ende des Projektes haben wir ein erhebliches Maß an Mitverantwortungen am wirtschaftlichen Erfolg unseres Handelns. Was aber ist der wirtschaftliche Erfolg?

Eisenbahningenieure haben seit der Erfindung der Eisenbahn immer den größten Erfolg ihres Handelns darin gesehen, dass ihr Produkt eines mit hohem volkswirtschaftlichen Nutzen ist, bei größtmöglicher Sicherheit und hoher Verfügbarkeit. Wir waren uns immer bewusst, dass diese Schlüsselfaktoren ihren Preis haben, auch in Zeiten eines großen Wettbewerbs. Wettbewerb hat uns gleichzeitig beflügelt, technische Innovationen und organisatorische Optimierung zu suchen und umzusetzen. Das nennen wir Fortschritt und wir sind darin erfolgreich.

In den vergangenen zwei Jahrzehnten hat eine Entwicklung stattgefunden, die man als ernste Bedrohung unserer hohen Ziele und Ambitionen sehen muss. Das weltweit um sich greifende Denken des «Shareholder Value» hat auch den Eisenbahnverkehr «befallen». Diese Vorgehensweise orientiert sich überhaupt nicht an volkswirtschaftlichen Zielen und Nachhaltigkeitsgedanken. Das funktioniert so nicht mit der Eisenbahn. Das Bauen und Betreiben von Eisenbahnen ist eine hohe volkswirtschaftliche Aufgabe und verlangt langfristige Fokussierung auf Qualität, Umweltfreundlichkeit, Komfort und Sicherheit. Kurzfristig orientiertes Ausrichten eines Eisenbahnbetriebes verbietet sich für Eisenbahningenieure.

Warum lassen wir uns dann ziemlich widerstandslos zu Handlangern dieser Vorgehensweise machen? Qualität hat ihre Kosten und verlangt ihre Zeit. Wir opfern die Prinzipien der Ingenieurkunst zu Gunsten der Forderungen des Shareholder Value. Auf der Strecke bleiben Qualität, Sicherheit, Nachhaltigkeit, Umweltbelange und optimal manchmal auch gesetzeskonformes Handeln. Aber im Eisenbahnwesen wird kurzfristiges Sparen langfristig richtig teuer.

Wir müssen wieder zurückfinden zu unseren erlernten Tugenden wie Gewissenhaftigkeit, Langlebigkeit, Sicherheit und Qualität. Und es muss uns eine Verpflichtung sein, dies auch unseren Nachwuchingenieuren einzuimpfen, denn die notwendige Langlebigkeit unserer Produkte ist länger als unser eigenes Berufsleben. gestalten wir unsere Produkte so, dass sie ihren langfristigen Nutzen entfalten können.

INTERNATIONALISIERUNG UND GLOBALISIERUNG DES EISENBAHNTRANSPORTES

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Zu den Merkmalen der gegenwärtigen gesellschaftlich-wirtschaftlichen Entwicklung gehören die Prozesse der Internationalisierung und Globalisierung. Diese Prozesse werden am Beispiel der Internationalisierungsvorgänge bei der Firmenverwaltung sichtbar und sie sind mit den grenzüberschreitenden Geschäftsaktivitäten der Firmen verbunden. Nicht nur, dass die Firmen außerhalb ihrer nationalen und staatlichen Grenzen Rohstoffe und Halbfabrikate beschaffen, gleichzeitig verstärkt sich auch die Tendenz zur Internationalisierung des Arbeits-, Finanz- sowie Forschungs- und Entwicklungsmarktes. Die Unternehmen führen auch den Export der sogenannten Finalerzeugnisse durch. Bei der Beschaffung der Stoffe und Materialien benötigen die Firmen sowohl in den eigenen Staatsgrenzen als auch außerhalb von ihnen den Transport derselben. Die Verknüpfung des Bahntransportes, der nationalen Wirtschaft und des gesellschaftlichen Lebens bedarf der Darstellung des Begriffes „Transport“. Diese Bezeichnung wurde erläutert: „Der Transport ist eine zweckmäßige Verlagerung von Personen und Ladungen, die von anderen Aktivitäten und Tätigkeitsbereichen in technischer, organisatorischer und wirtschaftlicher Hinsicht abgegrenzt wird.“ Mit dem Transport haben wir also dann zu tun, wenn wir die Verlagerungstätigkeiten in Bezug auf die konkreten Ladegüter oder Personen vornehmen, wobei zu diesem Zweck der erforderliche technologische Prozess organisiert wird und die entsprechenden Arbeitsmittel genutzt werden. Der Transport begleitete die Menschheit seit dem Beginn der Zivilisationsentwicklung. Er ist neben der Kommunikation ein Wirtschaftszweig, welcher die Brauchbarkeit der Güter aufgrund ihrer Verlagerung in Zeit und Raum erhöht. Der Transport ist mit anderen wirtschaftlichen Sektoren eng verbunden. Zusammen mit der Logistik und Spedition ist der Transport ein Bestandteil der TSL-Branche (Transport + Spedition + Logistik). Aus wirtschaftlicher Sicht besteht der Transport in der entgeltlichen Erbringung von Dienstleistungen, deren Ergebnis meistens die Verlagerung von Personen und Ladegütern ist. Daher kommt auch die grundlegende Aufteilung des Transportes in den Passagiertransport (Personenverkehr) und Gütertransport (Frachtverkehr). Der Schienentransport in Europa umfasst ein in geographischer, wirtschaftlicher und technischer Sicht unterschiedliches Gebiet, was ungleiche Bedingungen der Konkurrenz für Spediteure und Fuhrunternehmer in verschiedenen Ländern aufzwingt. Die Erweiterung der Europäischen Union um die Länder Mitteleuropas trug direkter Weise nicht zur Verringerung der Unterschiedlichkeiten bei der Entwicklung des Bahntransportes bei. Im Bereich der Integration der europäischen Bahn bestehen große Differenzen in Bezug auf die Bedingungen, unter welchen die Bahnunternehmen in Westeuropa und in Mittel-Osteuropa handeln müssen. Die internationale Verwaltung besteht in solch einer Verwaltung des Unternehmens, deren Bedingungen sowie auch Prozesse und Instrumente über die Grenze eines Landes hinausgehen. Die höhere Ebene der Internationalisierung führt zur Globalisierung. Der Bahntransport ist einer der nationalen, sehr „spezifischen“ Wirtschaftszweige, weil er keine neuen Produkte im materiellen Sinne erzeugt und gleichzeitig als Spediteur mit allen Wirtschaftszweigen zusammenarbeitet. Der erhebliche Vorzug der Globalisierung der Verwaltung sowie die Ursache der Internationalisierung ist die Möglichkeit, durch die Schienentransportunternehmen die dauerhaften Vorteile gegenüber der Konkurrenz auf dem internationalen und globalen Markt zu erreichen.

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Секція

«ІНШОМОВНА КОМУНІКАЦІЯ У СФЕРІ ЗАЛІЗНИЧНОГО ТРАНСПОРТУ»

ЗБІРНИК ТЕЗ ДОПОВІДЕЙ

**80-ї Всеукраїнської науково-технічної конференції молодих учених,
магістрантів та студентів**

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