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СУМСЬКИЙ ДЕРЖАВНИЙ УНІВЕРСИТЕТ
КАФЕДРА ІНОЗЕМНИХ МОВ
ЛІНГВІСТИЧНИЙ НАВЧАЛЬНО-МЕТОДИЧНИЙ ЦЕНТР

МАТЕРІАЛИ IX МІЖВУЗІВСЬКОЇ
НАУКОВО-ПРАКТИЧНОЇ КОНФЕРЕНЦІЇ
ЛІНГВІСТИЧНОГО НАВЧАЛЬНО-МЕТОДИЧНОГО ЦЕНТРУ
КАФЕДРИ ІНОЗЕМНИХ МОВ

“TO MAKE THE WORLD SMARTER AND SAFER”

(Суми, 26 березня 2015 року)
The nineth scientific practical student`s, postgraduate’s and teacher’s
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SECTION 1

UNDERWATER CITY

V.V. Avlasovych – Sumy State University, group IN – 41
I.A. Bashlak – E L Adviser

Approximately 65% of the earth's surface is covered by the ocean. The ocean is able to give us tremendous opportunities for human development. Depths are not used. But we can use them for the benefit of the people. For example, we can arrange underwater life by repopulating the depth by people. We would be able to do business, science, technology. This can help us gradually get rid of the problem of the missing area for living.

All these ideas are going to be implemented by the Japanese company Shimizu. They promise to create an underwater city. The company actively seeks out and develops their own technology for this.

A huge sphere must be the central building. Its top will dominate the water. It is a gateway. Also living and working facilities will be placed here. Inside the atrium a "Blue Garden" is going to be located. This place should be used for a good walk. By the way business and the transport structures are placed here. The lowest part must serve as a science center.

Every city needs electricity. Infra-spiral will provide this by using temperature difference in the water. Also spiral can desalinate water. Status of the environment and production of food will be realized here too.

For creating this sphere builders need to protect construction from the water pressure and expertly select materials. Engineers want to use concrete, reinforced by recycled bottles. It is also necessary to secure facade from plants. Immersion will be governed by some small spheres filled with ballast.

The company selected three main positive qualities of their project:

• Optimal Climatic conditions, the minimum temperature variations.

• Opportunity to protect people from disasters, which, for example, often occur in Japan.

• Clear and fresh air, the lack of contamination.

If this project is able to become a reality, we will get a safe underwater city for the environment and human beings.

REPORTING OF THE MOVIE «TWELVE YEARS OF SLAVE»

V. Bardak, group MDm – 41
O. R. Gladchenko, EL Adviser

«12 years of slave» is the feeling of pain. It reminds about the slave trade in America in the 19th century. The film is based on a true story. «12 years of slave» is worth attracting of social attention.

This film belongs to the epic historical drama. It was released to the audience in 2013. Steve McQueen is the director of «12 years of slave».

This movie has many awards. For example, «12 years of slave» was awarded with «Oskar» as the best film in 2013.This movie received the same title in «Golden Globe Awards» film festival.

Solomon Nortup, a free black man from New York suburbs, was abolucted and sold into slavery. He saw the cruelty and injustice of the surrounded world. Before his eyes people shed their blood punished by their violent hosts. But Solomon didn't change his attitude to life. He helped people and dreamed of freedom. «12 years of slave» ended when Solomon came back home and met with his family.The actors played their role perfectly. Chiwetel Ejiofor stared Solomon Nortup,the central character. Lulita Niongo as Patsey demonstrated the complicated fate of black women of those times.

Among the famous actors we can see Bred Pitt as Samuel Bass. But he stared one of the secondary roles.The musical score to the " 12 Years a Slave" was composed by Hans Zimmer, with the original on-screen violin music written and arranged by Nicholas

Britell and performed by Tim Fain. The film also features a few pieces of western classical and American folk music such as Franz Schubert's "Trio in B-flat, D471" and John and Alan Lomax's arrangement of "Run, Nigger, Run". A soundtrack album, «Music from and Inspired by the “ 12 Years a Slave”, was released digitally on November 5 and received a physical format release on November 11, 2013 by Columbia Records.

SPACE COLONIZATION. MARS ONE

M. Bondarenko – Sumy State University, group IN-41
I.A. Bashlak– E L Adviser

The colonization of Space is the process of creating human settlements beyond the Earth. Theoretically, the colony can be placed: on the planets, their moons, asteroids; on the orbits of the celestial bodies; in the Lagrange’s points. The most popular projects of colonization are the colonization of **Moon** and **Mars,** and the **creation of orbital colonies.**

Moon is a promising target for colonization. This is facilitated by the proximity to the Earth, the presence of water ice, the interest from the point of view of research as well as the wealth of minerals. For example, **Helium-3**, which can be used as a resource for fusion reactors. NASA is planning a new project for the development of the Moon in 2018.

Mars is the most promising in terms of colonization. Mars has a very strong resemblance to Earth. They are: the distance to the Sun, the surface area, the presence of air and water. However, the greatest interest in Mars is because it already has a program of colonization - the private project **Mars One**. Nowadays it has been selected 100 candidates from more than 100 thousand comers and started their training, made a concrete plan and maintained production of the logistics program. By 2023 rover and modules will

arrive to Mars, that will equip the village before the arrival of the colonists. In 2024 the first people will be sent from the Earth and in 2025 they will arrive in Mars. New groups of people and goods will be sent every 2 years. It is interesting, that the return back is not planned. Everything that will happen is planned to broadcast around the clock under the TV.

An important person in the development of projects related to the space colonization, is **Elon Musk**. He is a CEO manager of the company **SpaceX**, which has made the first private flight into the space and continues to work in this direction. The Musk's ultimate aim is Mars colonization and the possibility of private flights in the future. One of the most extravagant projects of the orbital space settlements are so called **"Stanford torus".** The project was proposed in 1975 by students of Stanford University. It is a **torus** ("donut") with a diameter of about 1.8 km, rotating around its axis, creating artificial gravity of 0.9-1 g of the inner portion of the outer ring by a centrifugal force. Sunlight comes inside through a system of mirrors. The interior space of the torus is residential, it is large enough to create an artificial ecosystem.

Unfortunately, the modern technology still fails to make it possible to solve many difficulties associated with such a settlement - for example, to provide the protection from radiation or to provide an ideal functioning of artificial ecosystem.

TO MAKE THE WORLD SMARTER AND SAFER

Brazhnyk E., Potapenko K. – Sumy State University, group PM-31
Dunaeva M.N. – ELA

We talk a lot about the bad things that have come out of the internet and our technological age, but let's not forget how much technology has helped to make the world a smarter, safer place to be.

Mobile phones for children may be controversial, but at least they mean that you always know where your child is and can contact them if necessary.

When it comes to living in a safer world, technology has transformed police work - from the UK's National DNA Database to the fact that police forces in different areas can now share information much more easily. Crimes get solved with the help of technology that wouldn't have been solved before. A burglar in our area was caught because of his DNA on a cigarette butt on the doorstep outside a house he'd robbed. And who knows how many crimes are prevented because technology has made it more trouble than it's worth?

Some technology has helped to make us more responsible for our actions. We may not like that there is CCTV everywhere we go, but at least it will make us think twice the next time we want to put a cat in a bin. A life lived in full view, with potential consequences for your actions, is one that forces you to think about the bigger picture.

Although technology can be used for harmful and criminal purposes – such as email scams – it can also make the world a much safer place than it was in the past. Technological breakthroughs are responsible for the invention of alarms, cameras, phones, and other objects that we might use when we are in need of help. It is harder to get away with crime today than it was in the 1800s because human beings have more ways in which to protect the innocent and all of these inventions were due to some kind of progressive technology. Furthermore, as time goes on people find ways to improve items like cameras and phones to make them even more useful on a daily basis.

ENVIRONMENTALLY SOUND TECHNOLOGIES

V. O. Bykova – Sumy State University, group EKm-41
V. S. Kurochkina – E L Adviser

Technologies reflect our cultural values and historically have altered the nature of human consciousness.

Some believe that the problems created by one technology can be solved by a technological fix from another. They often ignore the fact that humans are both part of and dependent on nature.

Rational environmental management means making the best use of resources to meet basic human needs without destroying the sustaining and regenerative capacity of natural systems.

Environmentally Sound Technologies (ESTs) are technologies that have the potential for significantly improved environmental performance relative to other technologies.

ESTs protect the environment, are less polluting, use resources in a sustainable manner, recycle more of their wastes and products, and handle all residual wastes in a more environmentally acceptable way than the technologies for which they are substitutes.

ESTs are not just individual technologies. They can also be defined as total systems that include know-how, procedures, goods and services, and equipment, as well as organizational and managerial procedures for promoting environmental sustainability.

Defining environmentally sound technologies in an absolute sense is difficult since the environmental performance of technology depends upon its impacts on specific human population, biota and ecosystems, and the availability of supporting infrastructure and human resources for the management, monitoring and maintenance of the technology, as well as the sustainability of natural systems.

Likewise, what is environmentally sound in one country or region may not be in another, unless it is redesigned or adapted to make it appropriate for addressing local needs. Thus, the term environmentally sound technology can be applied to all technologies and their transition to becoming more environmentally sound.

People are connected to nature. If there is no human, then there is no nature. If there is no nature, then, there is no human.

TECH FOR TEACHERS

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V. S. Kurochkina – E L Adviser

Advances in educational technology have changed the way educators teach and shaped the way of children learning. As new products continue to be introduced at a rapid pace, teachers are becoming more reliant on it to engage learners and keep them hooked. In 2013 there was a national survey of teachers held by PBS Learning. The media confirmed that three-quarters of the teachers claimed educational technology made teaching easier. They felt educational technology allowed them to "do much more than ever before" for their students.

To be effective there must be a content. Teachers need resources that help them utilize technology as a medium for their teaching. The scientists have put together more than 150 resources for educators, including classroom technology tools, online resources and apps.

For example, Clickers look like small remote controls. After the instructor prompts the class, students can provide individual instant feedback, answer questions, and submit votes. Responses are automatically sent to the instructor in order to give him a signal how well the class understands the material.

Students connect the handheld devices to USB ports in their laptops. Any information is sent to the instructor and stored on a receiver. Teachers have the option of registering clickers to individual students or allowing participants to remain anonymous.

Teachers have begun using clickers in classrooms to develop curriculum and keep students engaged. Teachers can zero in on exactly what children have learned. Prompts can be worded in such a way that students strengthen their reasoning skills instead of simply recalling information.

The current generation of students has always been influenced by technology. When teachers integrate technology into the classroom by using tools, online resources, or apps, they have the power to engage students at their level of interest. The key is to find

the top technological tools and to incorporate them into lessons in clever ways.

EUGENE PATON

M. Demyanenko- Sumy State University, group KM-11
A.M.Diadechko, EL advisor

One can name many outstanding scientists in Ukraine, but Eugene Patton is known all over the world. He was an outstanding constructor and a scientist.

Eugene Paton was born in 1870 in French town Nizza. He graduated from the Polytechnical Institute of Dresden in 1894 and St. Petersburg Institute of Civil Engineers in 1896. In 1904-1939 Paton was the professor of Kyiv Polytechnical Institute. Heading the laboratory of testing bridges, he formulated the main scientific principles and discovered the scientific technology of testing bridges.

Paton decided to change his profession when he was 60. "The wish to serve the people made me to take up the new job - the electric welding" , he said. He became the founder of the first institute of the electric welding in the world. In 1896-1929 he constructed 35 bridges, among them the main bridge across the Dnieper in Kyiv. The bridge was the first boltless bridge in Kyiv and is also the longest bridge having a length of 1543 metres. Now this bridge and the Research Institute of Electric Welding bear the name of Eugene Paton. Eugene Paton died in 1953 in Kyiv.

The Ukrainians are proud of their famous cocitizen.

THE INSTITUTE OF MARRIAGE CONTRACT IN UKRAINE

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S.V.Podolkova – EL Adviser

Ukraine's independence led to the gradual intensification of market relations and the establishment of private property as the leading type of property. These fundamental changes needed appropriate changes in the system of law in Ukraine and they also concerned the family law. Though the institute of marriage contract was introduced in 1992, but in fact it is applied rather seldom. This is primarily due to the long-term Soviet tradition, firmly established in the minds of the older generations and citizens who are quite critical to the marriage contract. So the imperfectness of the marriage contract institute in law determines the relevance of models on improving its standards and future prospects of its practical use in modern times.

Regulation and function problems of the marriage contract in the law science were reviewed and analyzed in the papers of such scholars as: V.S. Zhylinkova, V.S. Hopanchuk, G.P. Tseverenko and V.A. Antoshkina. The problem of the marriage contract institute establishing in the family law was thoroughly investigated by the Candidate of Law Sciences O.A. Ulyanenko in her thesis, 2003.

Though the Institute of marriage contract has been known since Roman times, but in Ukraine it was introduced only in 1992 as a supplement to the current Code of Marriage and Family in Ukraine of that time. Nowadays, the regulation of the rights and responsibilities of spouses marriage contract is stipulated in chapter 10 of the current Family Code of Ukraine, 2003.

Despite over a decade existence of the marriage contract in Ukraine, it is still seldom applied, indicating that the Soviet view about the regulation of property relations between spouses is more common. Statistics data of 2012 exhibit that only 1357 marriage contracts were signed, mainly in Kiev, but in the regions the average number of marriage contracts do not exceed few dozens a year. That is, Ukrainian people often improperly equate notions of marriage and

marriage contract and as a result they do not want their signing.

At present the concept of marriage contract is not clearly assigned in legislation. Experts, carrying out the researches and developments in the field of marriage and family relations, consider the marriage contract notion as an agreement of persons, who applied for marriage or spouses, the object of which is the establishing of property rights and obligations, resolving of family life disputes, marriage bounds, their existence or termination.

The Family Code establishes object of relations that can be regulated by marriage contract between spouses, namely, the legal status of the property, the procedure of housing, and the right to its posessing. That is, marriage contract can govern the questions that really are not fully regulated or provided legally. The legislation provides a unilateral change in the conditions of marriage contract, but just in the instances when the condition change is necessary in the interest of one of the spouses or minor, disabled children.

The Family Code of Ukraine provides the cases of termination or rejection from rights and obligations. Taking into consideration bilateral form of marriage contract, its termination or rejection is performed bilaterally. There are cases when termination is one-sided in court, if the circumstances are essential. A marriage contract as a form of civil law transactions may be invalidated if any rules are contrary to applicable laws; incompetent or partly incompetent subject composit6ion persons who signed the marriage contract; breach of contract notarial form; or if the subject of regulated relations in the marriage contract is also non-property rights and responsibilities of spouses.

THE THEORETICAL BASIS OF THE HISTORICAL ASPECT OF DEVELOPMENT AND A SYSTEM OF LOCAL TAXES AND FEES

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S.G. Zolotova – E L Adviser

The Ukraine local taxes system in its modern dimension moved a difficult and controversial way. The problem of the formation and development of local taxes and fees extensively researched within the last years, but has not lost its relevance. The creation of a quality local system of taxes and fees, begins almost simultaneously with the proclamation of independence of the Ukrainian state. So, naturally the beginning of the Ukrainian taxes system is the year, when our country gained independence.

The history of the local taxes and fees system may be divided into two stages:

- prior to the tax code;
- after the tax code.

In 1991, the regulation of the local taxes and fees carried out by USSR law which was called " Taxation System " provided 3 local taxes and 12 local fees. The law called " Taxation System " was the main starting point of creation of their own local taxation system, which resulted in a significant increase in business, reducing unemployment and capital accumulation.

The turning point in shaping their own effective taxes system is the Tax Code of Ukraine, which is the beginning of a new reform of the national tax system. After adoption of the Tax Code of Ukraine in 2011 the structure of local taxes and fees has undergone significant changes. In this Code the quantity and quality of national and local taxes and fees has been changed.

The reducing of the amount of local taxes and fees introduces the tax code positive features : firstly, most taxes that existed before the introduction of the tax code almost did not conduct their fiscal function; secondly, they had low economic efficiency and most of the costs of their administration often exceeded the income from them. On the other hand, there is a duplication association and local

fees that existed before. Inability of local authorities to implement a hidden tax potential and effectively regulate economic activity at the local level, lack of transparency in the administration of certain taxes lead to underutilization of existing capacity taxation.

The process of reforming local taxation is unfinished, but it needs to be changed more than ever. To increase the efficiency and functioning of local taxation it needs to adapt to European standards. In modern conditions of European integration transformations and the crisis in the country, forming quality local taxes system is one of the main country target.

Overseas local taxes appear to be a viable source of financial self-sufficiency of communities rather than perform an auxiliary role that the state tax reform should go through the experience of other European countries in this area.

ADMINISTRATIVE AND LEGAL STATUS OF THE STUDENT SELF-GOVERNMENT IN UKRAINE

Y. Gorbatko – Sumy State University, group U-31
S.V. Podolkova – EL Adviser

Among the important areas of higher education reform in Ukraine is the development of students' self-government. In terms of

the democratization of education, humanization of principles, decentralization of higher education institutions, the synergy of all participants in the educational process dealing with everyday issues as well as strategic directions of separate educational institutions is becoming vitally important. The initiative of the students makes possible the resolution of priority issues, like: improving the quality of education and preventing of corruption in the ranks of educational institutions.

Today, significant proliferation and development in Ukraine has become a type of students' organization as student self-government in educational institutions of different accreditation levels, which gradually turn substructures of higher education institutions into separate organizations. Despite the fact that the student self-government in Ukrainian version has rather short history, some common trends have already been formed during its formation, and, what is the most significant, common problems requiring detailed study and analysis, basic working mechanisms to address these problems in different levels, from national to higher education institutions have been outlined. Modern civilization general trends of make system impact forming on the reform of higher education in Ukraine, which primarily provides its democratization. Strategic directions of higher education are determined by the Constitution of Ukraine, Education Law, Higher Education National Doctrine, decrees of the President of Ukraine, the Cabinet of Ministers of Ukraine. An important part of this process is to increase the role of student self-government, which helps attract students to higher educational establishment in wide scope.

According to the Constitution of Ukraine, Article 36, the citizens of Ukraine have the right to freedom of association in political parties and public organizations; to exercise and protect their rights and meet the political, economic, social, cultural and other interests. Taking into consideration the fact that students in our country are the most numerous, mobile and intelligent part of the population, it's evident, that they can successfully create their government. The student self-governments are under control at all levels and accountable to the General Assembly or conferences of relevant levels. The student self-government activity is guided by the laws and decisions of the specially authorized central executive authority in the field of education and the relevant central authority, which the higher education institution is subordinate to, by the statute of university. For its part, the self-student government of Sumy State University functions to ensure fulfillment by the students of their

duties and to protect their rights. It is involved in the management of the University and promotes harmonious development of student's personality, future organizer and leader skills formation. Self-student government is established on a voluntary basis at the initiative of the enrolled elected persons and is an integral part of University public authorities. It protects the rights and interests of persons enrolled in higher education, and their participation in the management of higher education institution. The activity of the student self-government is aimed at improving the educational process, its quality, providing education and spiritual culture of students, increasing their social activity.

Nowadays the student self-government is represented not only at the higher education level, but also at the state level. In June 2005, Kyiv hosted the conference of Ukrainian Student Council under the Ministry of Education and Science of Ukraine guidance. All-Ukrainian Student Council was created. Delegates from the student self-governments of more than 150 universities from all state regions, in general, about one million students approved the Ukrainian student council and elected members of its board. The formation of Ukrainian Student Council has become possible due to many factors, namely, the principles of the Bologna process which considers a student as a partner; understanding the need to create a coordinating body among the student parliaments and councils that have been created in various universities and institutes throughout Ukraine. According to the law, project on student self-determining system guarantees the student self-government, legal and organizational principles of its establishment and functioning. The law is aimed at enhancing the role of the student self-government in social relations in the field of education.

According to the Law of Ukraine about Amendments to the Law of Ukraine "On Higher Education" as to the issues of student self-government, Verkhovna Rada of Ukraine resolves: to bring amendments to The Law of Ukraine "On Higher Education". Thus, we can conclude that the student self-government in Ukraine is still far from European standards, but we have examples to follow.

ANDRIY KUZMENKO
M.Grebenyuk –Sumy State University, group KM-11
A.M.Diadechko, EL Advisor

Thousands of music fans have been shocked recently by the death of Andriy Kuzmenko, best known as the lead singer of the rock band Skryabin.Andriy was a Ukrainian singer, a writer, a TV presenter, a producer, an actor and a wonderful man, that is way he is so respected.

Kuzmenko was born on August 17, 1968 in Sambir, Lviv region. The first impulse to melomania was the Beatles song "Lady Madonna", which Kuzma heard in 1979, when he was 10 years old. He made an electric guitar of plywood, painted as expected, and played it. Andrew graduated from the music school, where he was taking piano classes.

In 1983 Kuzma heard the Polish American group Exploited which seized him and made him love punk rock forever. One day when he was walking around the basement in Novoyavorivskiy Street, he heard that there was someone playing punk rock. He could not resist and come in, and then asked to play. So then Kuzma had his own group, called Chain Reaction. Even then, the boys expressed their protest against the injustices of the world. He played the guitar, sang and was also the author of music lyrics.

When the musician was 21, him friends and he created the group "Skryabin". On June 30, 1989 the first song was written. However, later Kuzma was not limited to just music, but also realized himself as a TV presenter and showman.Kuzma was a wise and intelligent man, a psychologist by nature, charismatic and unique, honest and genuine. Although Kuzma behavior depended almost exclusively on his mood. The musician did not like to speak about his personal life, and tried to avoid it in every way. But he willingly commented political developments in the country and even devoted to them his songs. Commenting on the latest developments in the East, Kuzma spoke rather harshly and critically.

With the death of Kuzma the whole era of Ukrainian music was gone.

LEONEL MESSI

Y. Grychanyk – Sumy State University, group IT-11/2S
S.G. Zolotova – E L Adviser

Every football fan must know of a great footballer by name

Lionel Messi. Messi has accumulated many fans for himself as a result of his skills in football. This great and talented footballer who stands as a role model to many football fans and players has made his way to the top in the field of soccer. Barcelona FC is known to be celebrated today because of this great football titan. Messi's abilities in the football pitch has made people perplexed and amazed at the way he handles and controls ball in the pitch. His soccer talent is simply unimaginable. He is an excellent genius as far as football is concerned. Messi's soccer skills made me develop interest in his background and success story. Surely, Messi had his limitations but he strived to overcome them and today, he is the most celebrated, highest paid and world's best soccer player ever known.

Let's take a look at the success story of Lionel Andres Messi: Lionel Andres Messi popularly known as Messi, is a renowned and one of the greatest soccer players of our time. He is also the highest earning footballer in the world. He plays the forward position for FC Barcelona and Argentina national team. At 5 feet 7 inches, and an early-life hormone deficiency, Messi never had an easy path to glory. It goes to show that the tallest, strongest, or fastest physical features are not required to the best of your discipline. Instead of being discouraged by his height, he has leveraged his unorthodox size to his advantage. His short legs allow him to change directions faster and keep an unmatched level of balance.

I'm sure that Leo is one of the best players ever seen and I know that he's very grateful to Barcelona (if you know the facts from his biography). There are many lessons to learn from the success story of this great footballer. A man now celebrated and recognized for his outstanding talent. Despite his limitations: his financial background, his health condition, rejection, physical limitation, and so on, he was still determined to make great use of his inherent ability. Today, the world has overlooked its limitations and all they can see is his success.

FREDERICK DOUGLAS
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ELA – Zolotova S.G..

Self-made people make our history because they are naturally born leaders. Frederick Douglass is one of them.

And if we want to change this world we live in for better, smarter and safer, we must change ourselves too. It is a long way that requires doing smallest steps every day. Knowing the basic ideas that helped self-made people to go through a life with a great success might help us too.

The important thing is trust. Trust in yourself and the whole world will trust in you.

Passion is also very important too. Passion colors everything. Being passionately interested in what you are doing helps to walk over the obstacles on the way. Do not aim for success if you want it; just do what you love and believe in, and it will come naturally.

Never give up. Aim is unreachable within few steps. A lot of people give up on the half of the way – it seems everything they have done before was in vain? To have success, you can not let failure stop you. Success consists of going from failure to failure without loss of enthusiasm.

Frederick Douglas has proved all these points by his own life. He was born into slavery and not allowed to read and write, but he secretly taught himself because he knew that knowledge is a pathway from slavery to freedom. In 1837, he met a free black woman and this meeting destined his own fate. Her free status strengthened his belief in possibility of gaining his own long-awaited freedom.

Later he has become an African-American famous social reformer, perfect orator, politician and the leader of the abolitionist movement, well-known for his anti-slavery writing.

Douglass was a firm believer in the equality of all people. His famous words are: “I would unite with anybody to do right and with nobody to do wrong”.

Making our world better is our essential duty. We must not be unconcerned about the things happening around.

FISCAL SECURITY: IMPORTANCE AND NECESSITY

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Ryabushka L.B. Ph.D, associate Professor
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The state as a sovereign institutional formation acts as the main regulator of political, economic, social and cultural development of the population. The precondition of such development providing is creation of the economic security system which is put in the basis of the national security. The main modern threat to the economic security of Ukraine is political crisis that violates macroeconomic stability and leads to imbalance of socio-economic system in general. The military conflict and civil war destroys the bases of the state's economy, threatens to national security and stipulates to the emergence of oppositions in the international space. The origin of regional conflicts leads to the necessity to search new concept of collaboration in the format as "center-region", which will contribute to the strengthening of legal, organizational and financial capacity of municipalities. This "center-region" will be conductive to development of effective territorial organization of local self-government and improving the quality of public services. The fiscal security of the state is important part of the financial component. The financial component is the active mechanism which provides functioning of the economic security.

Thus, the state fiscal security as a part of financial security is a special state of the government solvency that provides balancing of revenues and expenditures of state and local budgets and effective use of financial resources of the budget system in the implementation of the state and local governments functions by maintaining financial stability of the budget system to the threat impact.

The questions which are connected with the fiscal security are rather actual for the different countries. Especially they are displayed during certain negative processes which happen in the state. They have direct influence on the budgets of all levels. The modern fiscal security has to consider influence of various factors on the budget system of the country. Accordingly to this, it should ensure fulfillment of social and economic tasks which are assigned on the

state. The fiscal security as an important factor of social and economic development of the state is a peculiar indicator and criterion of efficiency of its budgetary (fiscal) policy and the organization of the budgetary process. From the economic point of view the fiscal security is the ability of the state through the budget to perform its specific functions and tasks, it helps to satisfy needs of taxpayers and recipients of budgetary money considering to the public interest. Therefore, providing fiscal security of the state is a key task during the implementation of its strategic socio-economic priorities. Ukraine has European development vector and its requires of studying the economic essence and indicators of fiscal security in the case of the European countries. The European security system is focused on integration of the European countries with the common values and economic priorities.

Considering the European vector of Ukraine's development it is appropriate to explore the best examples of budget transparency of OECD, where the subject of special attention is: the publication of information about all stages of the budgetary process and communication of financial performance budget with information about the goals and objectives of the current budget; to take into account information of the budget , at the same time those problems which are not obvious in the budget, but are essential for state finances (the macroeconomic measures budgeted and divergences of forecast from the actual indicators; vested benefits and sales tax exempt and their influence on the budget; accounts receivable and payable; the State property; obligations of pension system; contingent liabilities that is the result of the insurance arrangements and obligations granted by the state, and such as a result of the State claims; providing access for citizens of to professional, independent estimates of quality of the budget data; publication of long-range financial forecasts. All aforesaid causes introduction in Ukraine system of reforms in the budgetary realm, which would be correspond to contemporary realities and national interests.

ENVIRONMENTAL BIOTECHNOLOGY

H.M. Hurets – Hohai University, Nanjing, China

Environmental biotechnology is the application of biotechnology in the natural environment. It could sustain the environment by using eco-friendly biological processes. Some of these processes could be used to solve the most demanding environmental problems like controlling air emissions and water pollution. Developing countries in Asia and elsewhere have high levels of atmospheric pollution. Besides, they are coupled with their growth in population, that creates enormous sewage and waste disposal problems.

Converting the leaves and stalks of maize, algae and cellulose into bio fuels can greatly reduce green house gas emissions, comparatively in terms of fuel obtained from fossil sources. And it costs less to make biofuel in terms of energy requirements too. This is one way how biotechnology can be used to lower carbon dioxide emission levels.

Improper disposal of solid and hazardous waste not only damages the environment but causes the maximum health problems. Incineration was earlier considered the best way of disposing solid wastes, especially domestic wastes. Although it is still being done in developing economies, the situation is quite different in the developed world. And biotechnological processes are responsible for that. Today using the process of anaerobic digestion, bio-degradable solid wastes can be converted to bio-gas and usable organic material. Furthermore, anaerobic digestion is progressing to a stage, that in future it may not be necessary to separate bio-degradable solid waste from the total solid waste, before starting anaerobic digestion to make bio gas and so on.

In the treatment of sewage water, biotechnological techniques can be used to introduce especially cultured aerobic, anerobic or facultative bacteria, which also happen to be inexpensive. These micro organisms along with their enzyme systems can effectively carry out bacterial reduction of organic matter in waste water of sewages. Not only that, when anaerobic bacteria are used in sewage water treatment, biogas can be produced. So at one level, cleaning up

hazardous waste in the environment is an application of environmental biotechnology. The same technology when applied to waste systems of other industries produces important byproducts. For example, in penicillin manufacture, the fungal biomass that remains after making penicillin can be converted to animal feed using advanced biotechnology techniques.

Biotechnology helps assist in environmental monitoring. For example there are products that can help detect harmful and toxic soil pollutants (portable biotech products are available, so contamination can be assessed onsite). Plant and bacteria are used to remove soil pollutants using a process called bioremediation. The process is to add nutrients to the soil to activate the bacteria already present or by adding newer bacteria to the soil. In both cases these bacteria consume and convert toxic materials to harmless compounds.

One of the practical applications of bioremediation is to use a combination of bacteria and plants to reconfigure any piece of land and make it free of toxic substances. For example, this technology can also help redevelop erstwhile industrial land into land that is suitable for human habitation, by removing contaminants in the soil and water. Bioremediation process not only handles soil impurities, but also impurities in the groundwater and surface water as well.

The environment in a farm is usually messy and requires constant physical labor in keeping the place clean and hygienic. But biotechnology products are now helping to keep the farm environment spick and span. For example, in livestock farms, biotechnology` helps maintain farm environment by degrading livestock manure, and in eliminating foul smelling gases like hydrogen sulfide. Not just that, but with specific reference to where the livestock is kept, it helps keep a probiotic environment. These biotechnology products are usually a combination of potent waste digesting enzymes and selected strains of bacteria.

1. Maria Gavrilescu –Environmental Biotechnology.
2. Haavisto Johanna – Industrial and Environmental Biotechnology
3. Klaus Hoppenheidt – Biotechnology.

CONSTITUTIONAL RIGHTS AND FREEDOMS OF CITIZENS IN UKRAINE

A. Irzhavska – Sumy State University, group U- 31
S.V.Podolkova – EL Adviser

According to the current legislation of Ukraine, a citizen of Ukraine, a foreigner, a stateless person and any other person has the scope of rights and obligations determined by the Constitution of Ukraine, the Civil Code of Ukraine, the existing legal acts of Ukraine and international treaties.

Human rights are degree of individual freedom guaranteed by law, its ability to operate freely, to choose the type and extent of a person's own behavior aimed to meet the material and spiritual needs through the use of society and the state benefits within the limits determined by national and international law.

Constitutional rights and freedoms are inalienable and inviolable. It means that all people are free from birth and no one can deprive them of their legal rights.

All men are equal in the extent of their rights and freedoms. Realization of the rights and obligations of one person must not violate the rights and duties of other citizens, society and state interests.

The Constitution of Ukraine determines equal rights and freedoms of a man and a citizen regardless of gender, race, nationality, language, origin, place of residence, religion.

Adopted scope of rights and freedoms can not be narrowed when adopting new laws or amending existing legislation. The rights are inexhaustible (though their amount may be increased) and guaranteed by the state.

Ukrainian Constitution ensures equal rights to men and women (Article 24, Section II). Women are provided with equal opportunities in social, political and cultural activity, in getting education and training, labor and rewards. Special measures for the safety and health of women, providing pension benefits; creating

conditions allowing to combine work and motherhood; legal protection, material and moral support to mothers and children, including paid leaves and other benefits for pregnant women and mothers are guaranteed by the country's fundamental documents.

Foreigners and stateless persons who are in Ukraine on legal grounds enjoy the same rights and freedoms as citizens of Ukraine. Also, these individuals have the same duties as Ukrainian citizens. Foreigners and stateless persons may be granted with asylum in the order prescribed by law.

It's common known that Constitutional rights and liberties are guaranteed to every person. The highest guarantee of rights and freedoms of a man and a citizen is Ukraine's constitutional order based on strict observance of the Constitution and laws of Ukraine, international law, generally recognized principles.

The state is the subject, charged with duties to safeguard the rights and freedoms of the citizens. This function is provided by the state through the entire system of government.

The most common documents, which are fully reconciled with the Constitution regulations are the following: the Universal Declaration of Human Rights (1948), the International Treaty on Civil and Political Rights (1966), the International Treaty on Economic, Social and Cultural Rights (1966), the European Convention on Human Rights and fundamental freedoms and its Protocols (1950), the European Social charter (1961), etc.

Thus, according to the Constitution of Ukraine a man and a citizen in this country enjoys a certain amount of rights and freedoms defined in the current legislation of the country and international agreements guaranteed by the state. All persons are equal and there are no restrictions or preferences based on race, ethnicity, gender, language, origin, place of residence, religion.

MARCUS PERSSON
E.Kaba – Sumy State University, group IT-11/1

S.G.Zolotova, EL Adviser

Marcus Persson is a famous video game designer and programmer. He owns the video games company 'Mojang' which he co-founded in 2010. He has received many accolades and recognition for his contributions to the video game industry.

Persson was born on June 1, 1979 in Stockholm, Sweden. He began developing his programming skills at the age of seven when he got his hands on his father's computer. At the age of only 8 he created his very first game which was a text based adventure. In 2005 he got a job at King.com as a game developer. After exhibiting his skills there for four years he left the job to work for Jalbum. Apart from this he has made several other games for Java 4K Game Programming Contest. He is also the co-founder of Wurm Online.

Persson got his recognition from his creation of the sandbox game called 'Minecraft' which came out in November 2011. He left his job to devote all his time to this game. The same year of its release, the game sold a million copies and then few months later its second million and then third million. The game was a big hit so much so that Persson had to hire new people in his Minecraft team. He also released a version of the game for iOS and Android which he called the Pocket Edition. A version for the Xbox was also made and released in 2012. The game has sold more than twenty million copies since its release. It has gotten several awards and gotten deals with toymakers such as LEGO. He remained the chief designer of the game till 2011 which was its official launch. After that he passed on the job to Jens Bergensten.

His work on Minecraft not only brought him romantic relationship, but also many prominent fans, including electronic DJ Joel Zimmerman. Persson says that he has no intention of becoming a huge tycoon; he just wants to program and design video games because that is what he is passionate about.

THE FLOWER-SHAPED STARSHADE MAY BE USED TO FIND EARTH-LIKE PLANETS

M. Kartalov – Sumy State University, group ET – 31
S.G. Zolotova – E L Adviser

The technological progress is changing people minds. We have changed the manner of thinking while science is developing. The exploring of different planetary bodies like the Earth-like planets will be our next step in the nearest future.

Astronomers believe that every star in the galaxy has a planet, one fifth of which might possess life. Nevertheless, we have not seen any of them yet. Everything we can see is the light of the nearest stars, which are billion times brighter than the planets' light. The light from the star is diffracting and scattering inside the telescope, creating very bright image and we cannot see the planet at all. Researches starts from the idea of using eclipse effect, but because of the phenomenon of diffraction the round shape is not distinct enough. In case of using only round screen the light will diffract like water bending around a rock in the stream. To control diffraction scientists have decided to feather the edges, that is why they consider using flower petal-shaped screen to be the best way to solve this problem. That brings Jeremy Kasdin and his team to extraordinary piece of equipment: a flower petal-shaped "starshade". They want to build a space telescope that will be able to design the image of an Earth-like planet near another star and to find out whether it can have life using a "starshade". Placed at a distance of 50,000 km from a telescope "starshade" will create a shade in which the space telescope will be able to create the image of planets near the distant stars.

During the summer internship 2013, four undergraduates from California built four petals. The research group successfully ran special tests 16 times. All they have to do is to complete the "starshade" and to find the way they will get the "starshade" at a distance of 50000 km away from a telescope. A lot work to do, but scientists are sure, that this technology is one of the better ways to see Earth-like planets in nearest future.

ZINEDINE YAZID ZIDANE

D. Kayota - Sumy State University, gr. KM-11
A.M. Diadechko, ELA

Zinedine Yazid Zidane is am eminent French footballer of Kabyle origin, who played in the position of attacking midfielder for "Cannes", "Bordeaux", "Juventus", "Real Madrid" and the French National team. Born on June 23, 1972 in the French city of Marseille, he was the youngest of five children in a family of Algerian immigrants. Zinedine`s father worked as a storekeeper in the department store, and his mother was a housewife. Besides football Zidane was fond of skateboarding, cycling and judo. However, his main talent was revealed in football. Zinedine started playing with the boys of his age who lived in Marseilles quarter of La Castellana.

When he was ten, he became the youngest footballer to play for the local club. In 1987 he was watched by people from the club "Cannes". Liked by the coach, he remained in this team, and a year later he made his debut in the top division of the French Cup, coming on as a substitute against the club "Nantes". On February 8, 1991 Zidane scored his first goal in the top division in a match against the club "Nantes". After the "Cannes" relegated to the second division, in 1992 he left the team. In 1992, Zinedine Zidane signed a contract with the club, "Bordeaux". The club quickly became a celebrity: in his first season Zidane managed to score 10 goals.

On August 17, 1994 Zidane played for the French national team for the first time. In a friendly match against the Czech Republic the French lost - 0: 2, until the left when Zinedine came out. Within two minutes, he scored two goals. In 1996, Zidane transferred to the Turin club "Juventus" for seven million dollars.

In 1998 he became a national hero Zinedine France. Two goals scored in the final match with the Brazilians against France brought victory to France in the World Cup, and the title of the best player in the world and the "Golden Ball" to Zidane. Two years later, the French team won the European Championship and Zinedine again was named the best player of the year.

Five years in the "Juventus," made Zidane the best player in the world. As a part of the Turin club, he was champion of Italy

twice, won the Italian Super Cup and Europe, as well as the Intercontinental Cup.

In 2001, Zidane moved to Madrid "Real" for 66 million dollars, which at that time was the transfer record. In 2002, the club "Real" Zinedine swept to victory in the Champions League. In 2003, he became the champion of Spain and the third time was considered the best player of the year.

In 2006, the French team with Zinedine Zidane was in the finals of the championship. In extra time of the final match against Italy on incident between Zidane and Marco Materazzi occurred, which resulted in the a red card for French footballer. Deprived of their leader, the French team lost by penalties and became the second. Despite the removal of "unsporting behavior", Zidane was named the best player of the championship.

At the end of the 2006 World Cup Zinedine Zidane retired.

Zidane received 14 red cards in his career. And almost all of them were provoked by his opponents.

On May 30, 2010 Zidane went out to play in a charity match stars "Real" Madrid versus Milan, in which his club won with a score of 4: 3. On November 12, 2010 he became an adviser to the president of the club "Real" Florentino Perez. In 2011, Zinedine Zidane became the sports director of Madrid "Real".

Zinedine Zidane is a Goodwill Ambassador for the UN Development Program. Together with other celebrities, he participates in various charity programs.

Besides, Zidane is a Knight of the Legion of Honor (1998), an officer of the Legion of Honor (2009), Chevalier of the Order of the Algerian National Merit 3rd Class (2006).

DAVID SARNOFF
O.A. Koloskova – Sumy State University, group EP-11

A.M. Diadechko – E. L. Adviser

According to a definition, a "self-made man" or "self-made woman" is a person who was born poor or otherwise disadvantaged, but who achieved great economic or moral success thanks to their own hard work and ingenuity rather than to any inherited fortune, family connections, or other privilege. The biography of David Sarnoff (1891-1971) – american communicator and businessman, one of the founders of radio and television broadcasting in the United States – clearly illustrates the idea of a "self-made man".

David Sarnoff was born in a poor family in a small Jewish village in what is today Belarus. The family emigrated to the United States in 1900. Living in New York City, young David helped support the family by selling newspapers before and after school.

From 1906 he worked in the "Companies Marconi wireless telegraph" (New York). Sarnoff worked hard to educate himself and steadily rose through the company ranks. He suggested to his superiors begin to design and build a radio for the average consumer, however, his idea for a “radio music box” was ignored by his bosses at the Marconi company until the 1920’s, when Sarnoff’s predictions about the popularity of radio were proved to be quite prescient. From 1919 he worked in the Broadcasting Corporation of America (RCA), since 1922 – Vice-President, 1930 – President, in 1947-1970 years – Chairman of the Board of Directors. In 1926 he founded the National Broadcasting Company (NBC). Since the beginning of the 20`s David was an advisor to the ten US presidents.

David Sarnoff organized regular broadcasting in the United States (since 1939). Under his leadership, a system of color television compatible with black and white was established (1949), TV program was recorded by VCR (1956), the first television feature film was produced (1964). Sarnoff participated in the creation of space communication systems, computerization of the United States. International Institute of Electrical Engineers has established an award in his name for achievements in the field of electronics (1959).

SPHEREE- THE FIRST STEP TO THE FUTURE TECHNOLOGIES

A. Kotenko – Sumy State University, group IT – 32
S. Zolotova – E L Adviser

Anyone who has dealt with 3D - image, notice that the flat monitor is not convenient analysis and evaluation of the studied model. Flat picture gives some idea of the object, but you can not see it from any angle without using the scroll function image.

That is why, a completely new device for 3D - modelling, called Spheree was developed. Spherical Display, developed by a group of researchers from Brazil and Canada, gives a picture like a physical objects and makes possible to see the model from any angle and from any side.

Looking at the picture in the spherical display, you might think that it looks like a hologram, but it is not. The principle of this device is placed inside of a layer of several mini projectors. Images created by them cover the entire surface of the display, and the position and movements of the user are tracked by infrared camera.

We can only imagine how wide the scope of display Spheree is. You can simulate not only the things that we used to see in everyday life, but things you never reach with a human eye. For example, a model of the universe, the solar system, planets, planetary bodies, etc.

The user can examine or edit images directly on the device or on the controller or use the screen to display the final result obtained on the desktop.

Undoubtedly, this technique is a confident step in the technology of the future, because it gives us wide opportunities of the new study. The use of 3-D technology will invent a unique product for modelling incredible things.

AUGUSTA ADA BYRON

A. Kramar, Sumy State University,group IT-11/1

Augusta Ada Byron was born 10 December 1815 as the only child of the poet Lord Byron and his wife Anne Isabella Byron. Byron did not have a relationship with his daughter.Ada was often ill, beginning in early childhood. At the age of eight, she experienced headaches that obscured her vision. In June 1829, she was paralyzed after a bout of measles. She was subjected to continuous bed rest for nearly a year. By 1831, she was able to walk with crutches. Despite being ill Ada developed her mathematical and technological skills. At age 12, this future "Lady Fairy", as Charles Babbage affectionately called her, decided she wanted to fly. Ada went about the project methodically, thoughtfully, with imagination and passion.

On 8 July 1835 she married William King, 8th Baron King, becoming Baroness King. They had three children: Byron , Anne Isabella , and Ralph Gordon . In 1838, her husband became Earl of Lovelace.

Throughout her life, Ada was strongly interested in scientific developments and fads of the day, including phrenology and mesmerism. Even after her famous work with Babbage, Ada continued to work on other projects. In 1844, she commented to a friend Woronzow Greig about her desire to create a mathematical model for how the brain gives rise to thoughts and nerves to feelings ("a calculus of the nervous system"). She never achieved this, however. As part of her research into this project, she visited electrical engineer Andrew Crosse in 1844 to learn how to carry out electrical experiments. In the same year, she wrote a review of a paper by Baron Karl von Reichenbach, Researches on Magnetism, but this was not published and does not appear to have progressed past the first draft.

Lovelace first met Charles Babbage in June 1833. Later that month, Babbage invited Lovelace to see the prototype for his Difference Engine. Ada became fascinated with the machine. Babbage was impressed by Lovelace wife' intellect and analytic skills.

In 1953, more than a century after her death, Ada's notes on Babbage's Analytical Engine were republished. The engine has now been recognized as an early model for a computer and Ada's notes as a description of a computer and software. Her notes were labeled alphabetically from A to G. In note G, she describes an algorithm for the Analytical Engine to compute Bernoulli numbers.It is considered the first algorithm ever specifically tailored for implementation on a

computer, and Ada has often been cited as the first computer programmer for this reason. The engine was never completed, however, so her code was never tested.

Ada Lovelace died at the age of 36 and was buried, at her request, next to her father at the Church of St. Mary Magdalene, Hucknall, Nottingham.

THE ESSENCE OF SOCIAL CHANGES

Krasnobaieva A.D. – Sumy State University, group M-32/2
Maliovana N.V. – E L Adviser, Ph.D.

The whole modern world is associated with profound changes. They affect all spheres of human civilization. If the society hadn't changed, it would have died. The concept of "social change" in sociology is used to describe the dynamics in the society. But nowadays the term "social change" is not used in the sociology. In the social sciences and in practical politics there is a concept of "social development", which means a certain kind of social change that is directed towards the improvement, complications improvements. However, there are many other social changes that can't be recognized like changes in the direction of cultivation. Therefore, the concept of "social change" has become widespread. Social change does not involve any changes in any sphere (economic, political, spiritual),it involves changes in social systems, social stratification, social communities, social processes, institutions, organizations and their interactions.

Changes may be classified at the following levels:

- At the level of interpersonal relationships (the concept of human morality).
- At the level of organizations and institutions (change of existing social institutions).
- At the level of small and large social groups (the appearance of farmers, entrepreneurs).
- At the societal and global levels (economic development of some countries, stagnation and crisis in the others).

At present we can't build a complete typology of social changes. Nevertheless, it is necessary to include at least the types of

social change that can be noticed by everyone.

By its nature, the internal structure, the degree of impact on the society social changes can be divided into two major groups: the evolutionary and the revolutionary social change.

The first group consists of partial and gradual changes, carried out as a fairly stable and constant tendency of increasing or decreasing any qualities. Revolutionary social changes differ significantly from the evolution: firstly, because they have highly radical change involving a radical change of the social object; secondly, because they are not private, they are general or universal changes and; finally, they tend to rely on violence.

In sociological studies there are violent and voluntary, reversible and irreversible changes. Changes can be planned or unforeseen consciously or unconsciously. It is advisable to distinguish organized changes from natural changes caused by the processes of self-organization. Let's list the main types of causes of social changes:

1) Natural causes - resource depletion, environmental pollution, disasters.
2) Demographic reasons - changes in population, overpopulation, migration, the process of generational change.
3) Changes in culture, economy, scientific and technological progress.
4) Socio-political reasons - conflicts, wars, revolutions and reforms.
5) Social and psychological reasons - addiction, saturation, aggressive growth of population, etc.

Thus, each socio-cultural system can be changed. The problem isn't developed yet. It means the choice of the necessary pace of social changes can accelerate and slow down, be uneven and concentrated.

From the history of the world and its changes, it is possible to track both positive and negative social changes that will affect the further development of the world in future but this question will be important and under discussion over and over again.

QUENTIN TARANTINO
M.V.Levitskiy – Sumy State University, group EP-11

S.G.Zolotova – E L Adviser

Quentin Jerome Tarantino (born March 27, 1963) is an American film director, screenwriter, cinematographer, producer, and actor. Tarantino grew up an obsessed film fan and worked at Video Archives, a video rental store while training to act. Tarantino is a shining example of self-education, he never studied at universities or academies of directory and actor arts, all that he learned he learned on examples of the great films and on amateur courses.

There is a some cult films, made by Tarantino: Pulp Fiction, Kill Bill dilogy, Inglorious Bastards, Django Unchained. Greatest budget/gross ratio belong to Pulp Fiction, 8,5 million budget to 213 million gross. And the biggest gross is 425 million for Django Unchained with 100 million budget. All films has more than 80% rating on the review aggregator sites. During the career Tarantino got over 30 various rewards include 3 Oscars in 2013 for Django Unchained (best scenario), in 2010 for Inglorious Bastards (best scenario and best directors work) and for Pulp Fiction in 1995 (best scenario)

His films are characterized by non-linear storylines, satirical subject matter, and an aestheticization of violence, as well as features of neo-noir film and spaghetti Westerns. However Tarantino is quietly pacific person and he says, that violence must stay in films, not in real life. There is a some interest facts about Q.J. Tarantino:

- He hasn't higher education, furthermore he didn't graduated from high school.
-He paid for his friend – Robert Rodriguez 1 dollar for "Kill Bill" soundtrack, Robert repaid with same price for small episode in "Sin City"
-First Russian film, that Tarantino saw - was "Moscow does not believe in tears", and he liked it.
-Quentin doesn't like the hidden advertising in films, all his characters smokes a Red Apple cigarettes - his own brand of cigarettes, which he invented especially for this.

RAY KROC

A.V.Lebedka,Sumy State University, group IT-11

A. M. Dyadechko - E.L. Adviser

Ray Kroc, the man who helped make the fast food industry famous. He expanded a small business into an international operation called McDonald's.

Ray Kroc's story remains an important part of McDonald's history. And his way of doing business continues to influence fast food restaurants that feed people around the world.

Ray Kroc, a high school drop out, attained his first job by employing a bit of dishonesty; the 15 year old young man lied to the military to become an ambulance driver during WWI. The war ended before young Ray could see action, and so Kroc took a job playing piano for a radio station at night and selling paper cups by day. He next became fascinated with a multi-mixer milkshake machine and purchased the marketing rights to it. For the next 17 years, Kroc traveled the country selling his milkshake making miracle to whoever would listen. As he made the rounds to customers, he became intrigued by a hamburger restaurant in San Bernardino, California owned by the McDonald brothers. While the McDonald brothers were satisfied with their small franchise, Kroc believed the burger business had far greater potential. Although Kroc was by then a 53 year old man suffering from diabetes and arthritis and missing both his thyroid and gall bladder, he had a vision of turning the restaurant into a global fast food empire. In 1961, he purchased the McDonalds's franchise. In only a few years , Kroc had sold a billion hamburgers and opened the franchise's 500th store. McDonald's had begun its campaign to take over the world. The Hamburger would be proud.

TO MAKE THE WORLD SMARTER AND SAFER

V.O. Lisachenko – Sumy State University, group IT–31

D. O. Marchenko – E L Adviser

Nowadays, technologies play more important role than every time before. They are everywhere: in our schools, universities, big and small companies, outdoors and even in our houses.

There are hundreds of fantastic books about the house of the future. Today the dream of science fiction “Smart House” is becoming a reality. The main characteristics of the house are comfort, functionality and energy efficiency. The principle of operation of the “Smart House” technology is based on decentralized intelligence, which doesn’t require a central computer. In this system each part has its own intelligence. It improves the reliability of the system.

There are many scripts to control the light. You can choose "romantic dinner", "home theater", "party", etc.

“Smart House” provides security of your house, both from outside invasion, and from accidents inside the house. All opening sensors are connected with each other and your control device.

Surveillance cameras allow you to control the situation in your house. You can see what happens in the house all the time. Even if you are away from your house, you can see the guest, call intercom system, and even let him in.

“Smart House” makes you feel comfortable even if you are out. When the house is empty, heating goes into economy mode. And if you are inside the house suitable temperature and wetness are set in it automatically.

“Multiroom” will allow each room to have its own music. The system control is available by a multi-tablet or a phone.

“Smart House” waters your garden not letting the plants dry out. Gardening can be fully automatic and does not require your participation.

This house is just a little part of our high-tech world, which consists of a great number of such technologies. These important inventions can improve people’s lives and make our world smarter and safer.

THINGS THAT MAKE OUR LIVES EASIER

M. Maiboroda – Sumy State Pedagogical University, group 823

M. M. Chykalova – E L Adviser

They say the desire to facilitate the work is the engine of progress. Of course, there are some sceptical sayings telling that laziness is bad, but objectively, due to laziness, we get a vast majority of modern inventions for our life and scientific discoveries, not to take into consideration the things that were made to entertain people initially or to vary everyday life. What things were designed precisely in order to facilitate any time-consuming process? These things include the TV remote control. This is a well known fact that television itself was invented with quite a different purpose. But the remote control definitely was created to redeem us from the need to constantly get up from the couch to switch TV channels.

It would seem that a modern person made his everyday life convenient to nowhere, surrounded himself with hundreds of devices designed to simplify and streamline her everyday life. However, even now more and more ingenious devices continue to appear that make everyday life of a contemporary man more comfortable and relaxing.

Of course, we cannot say that the development of modern technologies is a simple process, but just over an infinite number of experts work in this field. As a result, every day we get new methods of resources usage and new ways of information and various data assessment. In general, the modern technologies let us change many problems and help greatly to expand the opportunities of every person, and allow us to use even those which were not used previously for some reasons, or were either not available, or seemed to be inconceivable.

Imagine the situation: a lot of people every day - at home, at work and with friends drag a big bag, where some things are collected, let’s call them "Not sure why I need all this, but maybe it will come in use one day!" So many scientists every day improve some things for people to feel themselves comfortable with, and not

feel any physical baggage. In other words, they simplify our everyday life.

The civilized world we live in creates much more things that we need, and also produces more than we are able to use. We did not do it on purpose. Nevertheless, even the most accurate of us diligently surround themselves with different sorts of junk. As time changes the meaning of concepts, even if you do absolutely nothing, the trash is accumulated around you by itself.

Fortunately, people have come up with a great way of recycling unnecessary stuff to functional and very beautiful things.

Actually, the term "upcycling" means the creative transformation of unnecessary things in various decorative items, household products, clothing and accessories. As a result, the value of things, created with one's own hands, is much greater than the value of worthless material that went to its production. It also benefits the environment, by promoting reuse over discarding whenever possible.

Everyone can upcycle, which is part of the appeal, and people can participate at whatever level they feel comfortable with, from delving through dumpsters to salvage useful things to re-using containers rather than tossing them or throwing them out.

In Ukraine upcycling as the environmental movement came not long ago - in 2010. The most well-known in this field is an ecodesign workshop «Peredelki» with Alina Kopyca and Anastasia Kostenko.

OUR WORLD

T. Marchenko, group E-22a

V. Shimko, group E-22a
S. Zolotova– EL Advisor

Our world is precious and we must become more aware of it. Many of our everyday actions are changing the planet permanently. The evidence of global warming is clear in the Arctic and Antarctic continents. We must all do everything in our power to save our World.

Leave the car at home. The next time you need to go somewhere, think twice before you get the car out. Walk or ride your bike whenever possible.

Take a shower. Choose wisely. A shower uses 3 to 5 gallons of water per minute. A full bathtub uses 36 gallons.

Buy a light colored car. Choose a light-colored car with tinted glass to lessen the need for air conditioning.

Put a bottle in your toilet. Fill a plastic liter bottle with water, put on the cap tightly and then put it in the back part of your toilet cistern. Since the average toilet uses 3 to 7 gallons of water per flush, the bottle will displace some water, so your toilet will use ½ - 1 gallon less each time someone uses it!

"Recycle" your clothes. Don't throw away the clothes that no longer fit or are unwanted. Donate your clothes to the needy or to other clothing drives for the poor. If you can't find anywhere then take them to the Salvation Army. If you want to make money, try having a garage sale.

Buy Local. Much of the produce that we eat now has been shipped or flown from many miles away. Not only does this pollute the environment and we pay the price for the cost of the shipping (ie gasoline or diesel) and the packing, but this produce has been grown as specific varieties that can survive the hardships of early picking and transportation, so we lose in numbers of varieties as well as in nutrition.

Turn Off Your Car Engine. If your car is going to be idling for more than 45 seconds, it’s more fuel-efficient to turn the engine off and restart the car again when you are ready to move.

Take laptop plugs out! Charge your laptop till it's full, then simply un-plug it and let it run until it's empty, this could save lots of energy!

Use both sides of paper. Save paper that has been used on one side for the next time you need to jot something down quickly. Having a few pages of "scrap" paper around is a good way to keep you from wasting new sheets each time.

Buy energy saving bulbs. Energy saving bulbs cost more and are dim at first but they save more energy and last longer.

Use your heart to share with others. If everyone was doing this simple thing, we would enjoy peace and love all over the world and share happiness all together.

Give a smile and say a nice word for everybody.

If you do this every day you will enlighten the world in your own eyes and in the eyes of everyone you meet!

TIMOTHY WALTER "TIM"BURTON
I. Masalitin –Sumy State University, group KM-11

A.M Diadechko,EL Adviser

Timothy Walter "Tim" Burton is an American film director, producer, artist, writer, and animator. He is known for his dark, gothic, macabre, and quirky horror and fantasy films.

Burton was born in August 25, 1958, in the city of Burbank, California. Tim would make short films in his backyard on Evergreen Street using crude stop motion animation techniques or shoot them on 8 mm film without sound (one of his oldest known juvenile films is "The Island of Doctor Agor", that he made when he was 13 years old).

"Stalk of the Celery Monster" attracted the attention of Walt Disney Productions' animation department, which offered Burton an animator's apprenticeship at the studio in 1980.He worked as an animator, storyboard artist. While at Disney in 1982, Burton made his first short, "Vincent", a six-minute black-and-white stop motion film .Burton's next live-action short, "Frankenweenie", was released in 1984. It tells the story of a young boy who tries to revive his dog after it is run over by a car. After "Frankenweenie" was completed, Disney fired Burton, under the pretext of him spending the company's resources on doing a film that would be too dark and scary for children to see.

The list of his films include a horror comedy fantasy "Beetlejuice", a romantic dark fantasy "Edward Scissorhands", a musical fantasy-thriller "The Nightmare Before Christmas", a fantasy adventure "Sleepy Hollow", an animated fantasy " Corpse Bride" , a musical horror film" Sweeney Todd: The Demon Barber of Fleet Street", a horror comedy "Dark Shadows" and an animated horror comedy "Frankenweenie". He is also known for blockbusters: the superhero films "Batman", a sci-fi film "Planet of the Apes" , a musical adventure film "Charlie and the Chocolate Factory" and a fantasy film "Alice in Wonderland", which garnered a worldwide gross of over $1 billion worldwide, being Burton's most successful film to date.

BIOFUEL AS AN ALTERNATIVE ENERGY SOURCE

A. Nechypurenko , student, SSU, ET-31

S. Zolotova, EL Advisor

Today there is a problem of effective and efficient use of energy. Back in 1912, Rudolf Diesel expressed his opinion: "The use of vegetable oil as fuel today is insignificant, but in the future it will become as important source of motor fuel, as it is now refined petroleum products and coal." Today on this thesis scientists have formed the basis of modern energy sectors related to the use of alternative energy sources.

Biofuel is a renewable organic material that is processed at a certain energy sources, heat or electricity. There are several generations of biofuels, depending on the type of material:

- The first generation crops;
- The second generation: the remains of cultivated plants, wood processing industry;
- The third generation raw aquaculture, particularly biomass of microalgae (Chlorella, Spirulina and Haematococcus).

Biofuel has several advantages in comparison with mineral energy. The main ones are:

raw materials used for the manufacture of biofuels are completely renewable and waste products are unusable in the future;

production and use of biofuels is more cost-effective;

energy resources are available in most parts of the world, which can then reduce the gap between the levels of countries' development;

introduction of biofuels is environmentally friendly;

There are several disadvantages of using biofuels, such as a large area of cultivated land, low efficiency and other raw materials.

Despite the drawbacks, alternative energy industry is a priority sector which will have to be a global energy industry.

WHAT IS ECONOMIC GROWTH?

I.Oliynik, Sumy State University, Group E-31

L.P.Yarmak- E.L.adviser

Economy growth is an increase in the production and consumption of goods and services. It is indicated by increasing gross domestic product (GDP). Economic growth literary refers to an economy that is getting bigger, not necessarily one that is getting better .

The production of goods and services entails the conversion of natural resources into consumer goods and manufactured capital. This explains why there is a fundamental conflict between economic growth and conservation of natural resources. Growing economy means shrinking the ecosystem. Polution is an inevitable byproduct of economic production . Economic growth leaves large ecological footprints. However ,it is worth noting that economic growth does not necessarily have to cause pollution. The benefits of growth could be used to develop better technologies that create less harm .

Among benefits there are improved public services. With increased tax revenues the government can spend more on important public services such as health and education. Increased spending on health can improve quality of life through treating diseases and increasing life expectancy. Better educational standards can give population a grater diversity of skills and literacy .This enables greater opportunity and freedom. Education is seen as an important determinant of welfare and happiness. Reduced unemployment and poverty can also be the result of economic growth .This is significant because unemployment is major source of social problems such as crime and alienation . Speaking about advantages of economic growth one must note that it has a number of economic and social benefits.

HUMAN CAPITAL

Daryna Pasko, Ems-31

O.R.Gladchenko, EL Adviser

Human capital is one of the determining factors of human development and economic growth and it becomes the main source of wealth.

The term ‘human capital appeared rather long ago but it developed very quickly only in the second half of the twentieth century. For this reason it is important to evaluate the already extracted economic theory of scientific knowledge on the definition of its essence.

The classics of political economy A. Smith , D. Ricardo, K. Marx, I. Fischer and others laid methodological basis of the research, the. The main development of human capital theory has been in the works of T. Schultz and G. Becker.

One of the first concept of human capital W. Petty used in 1976 by comparing the loss of weapons and other instruments of war with the loss of human life. He believed that human life had a monetary value, specifying that the loss of human life in war as the monetary loss to England.

Human capital is the value of the stock of skills, experience, knowledge, which are involves in the process of management and capitalized on the basis of hiring and they bring added value (profit).

The term human capital is determined by human knowledge, health, skills, experience used by the individual for making profit. Under the concept of “human capital” we understand:

1. The acquired knowledge, abilities, and skills;

2. This stock which should be used in different spheres of public activities. It promotes the growth of labor productivity and production;

3. The usage of this reserve leads to the growth of salary of the employee in the future declining of the part of its current consumption;

4. The increased income promotes of the growth interest of employee, and this leads to further investment in human capital;

5. These human abilities, talents, knowledge, etc. are an integral part of each person;

6. This motivation is a necessary element for the reproduction process which means (the formation, accumulation and the usage) of human capital.

The typical forms of investment in human capital are the following activities:

1. Education.
2. Training.
3. Migration and the search for work.
4. Health and nutrition.

This also applies to Ukraine, because in our territory human capital is the most valuable of all types of capital. The insufficient level of human capital at the present time is the main obstacle for the economic renewal of the country. According to experts, the increase of human capital by 1% leads to the growth of labor productivity in 3,81% and acceleration of rates of growth of GDP per capita by 1-3%.

One way to increase the total amount of human capital in the country is investing in people, namely in their health and education.

The investments in human capital increase the professional qualification and the productivity capacity of a person and thus the performance of his work.

Investments in human capital are carried out in different forms – in the form of training at the educational establishment and in the apprenticeship at a workplace.

In the context of globalization and rapid development of scientific and technological progress of knowledge becomes the main driving force of competitiveness, moving material resources into the background. Almost all countries in the world have understood that only through knowledge it is possible to improve the competitiveness and provide the modern level of life.

Scientists and research institutes made some attempts to assess the level of knowledge economy of Ukraine. The index of the economy the knowledge Economy Index - KEI) and the index of the knowledge Index - KI) were calculated with the help of this method.

OPRAH WINFREY

R.A. Ponomarenko, Sumy State University, group IN-11

S.G. Zolotova, ELAdviser

An american television hostess, actress, producer, philanthropist and entrepreneur Oprah Gail Winfrey was born on January 29, 1954, in Kosciusko, Mississippi. She moved then to Nashville to live with her father, Vernon, a barber and a businessman.

In 1976, Oprah Winfrey moved to Baltimore, Maryland, where she hosted the TV chat show *People Are Talking*. The show became a hit and Winfrey stayed with it for eight years, after which she was recruited by a Chicago TV station to host her own morning show, *A.M. Chicago.* Her major competitor in the time slot was Phil Donahue. Within several months, Winfrey's open, warm-hearted personal style had won her 100,000 more viewers than Donahue and had taken her show from last place to first in the ratings. Her success led to nationwide fame and a role in Steven Spielberg's 1985 film The Color Purple, for which she was nominated for an Academy Award for Best Supporting Actress.

Winfrey launched the *Oprah Winfrey Show* in 1986 as a nationally syndicated program. With its placement on 120 channels and an audience of 10 million people, the show grossed $125 million by the end of its first year, of which Winfrey received $30 million.

With the debut in 1999 with Oxygen Media, a company she cofounded Winfrey ensured her place in the forefront of the media industry and as one of the most powerful and wealthy people in show business. This company produced cable and Internet programming for women, In 2002, she concluded a deal with the network to air a prime-time complement to her syndicated talk show.

According to Forbes magazine, Oprah was the richest African American of the 20th century. Life magazine hailed her as the most influential woman of her generation.

In November 2013, Winfrey received the nation's highest civilian honor, the Presidental Medal of Freedom. President Barack Obama gave her this award for her contributions to her country.

MARILYN MONROE

A.M. Prykhodko – Sumy State University, group ED – 11

S.G. Zolotova – E L Adviser

In 1926 a girl was born in the charity ward at the Los Angeles County Hospital who overcame a difficult childhood to become one of the most celebrated and enduring icons of all time – Marilyn Monroe.

Marilyn Monroe was born as Norma Jeane Mortensen (later baptized as Norma Jeane Baker) on June 1, 1926. As an adult, Monroe would maintain that one of her earliest memories was of her mother trying to smother her in her crib with a pillow. She wed her boyfriend Jimmy Dougherty on June 19, 1942, at the age of 16. Monroe went to work in a munitions factory in Burbank, California, where she was discovered by a photographer. The couple divorced in 1946 — the same year that Monroe signed her first movie contract. With the movie contract came a new name and image; she began calling herself "Marilyn Monroe" and dyed her hair blonde.

But her acting career didn't really take off until the 1950s. Her small part in John Huston's crime drama The Asphalt Jungle (1950) garnered her a lot of attention. With her breathy voice and hourglass figure, Monroe became a much-admired international star, despite her chronic insecurities regarding her acting abilities. Tired of dumb blonde roles, Monroe moved to New York City to study acting with Lee Strasberg at the Actors' Studio, but in 1959, Monroe returned to familiar territory with the wildly popular comedy Some Like It Hot, with Jack Lemmon and Tony Curtis. On May 19, 1962, Monroe made her now-famous performance at John F. Kennedy's birthday celebration, singing "Happy Birthday, Mr. President."

On August 5, 1962, at only 36 years old, Marilyn Monroe died at her Los Angeles home. An empty bottle of sleeping pills was found by her bed.

L'ARTICLE JOURNALISTIQUE: LE TON C'EST BON

Etudiante Ptashnik Tania, Groupe Zht 11

L’écriture journalistique possède différents codes dont le but est de communiquer de l’information au lecteur avec efficacité. En voici une approche rapide décrite dans un ton… journalistique !
Un article journalistique est un genre à part entière. Comme tel, il possède différents constituants qui sont toujours les mêmes.

Un article journalistique peut être écrit dans différents tons. Le plus connu est le ton informatif, qui a pour but de donner au lecteur des informations essentielles de manière efficace et directe. Mais le ton peut aussi être analytique, permettant au journaliste d’approfondir de l’information, d’offrir des hypothèses ou des démonstrations, ainsi que des exemples. Enfin, le ton peut être satirique, ce qui est issu d’une longue tradition pamphlétaire française datant du XVIIIe siècle et qui fut largement utilisé pour détourner la censure sous le IInd régime. Aujourd’hui, le Canard enchaîné ou Charlie Hebdo s’en sont fait une spécialité.

Attaquer, relancer, mais ne pas chuter
L’article possède avant tout un titre. Celui-ci a pour mission d’accrocher le lecteur, il est donc court et utilise des mots-chocs qui peuvent être sous la forme d’une sentence ou utiliser des jeux de mots.
Ensuite, un chapeau (improprement orthographié « chapô » dans la com) est un sous-titre constitué de quelques phrases annonçant le contenu de l’article. Pour le web, on y inclut souvent des mots-clefs afin de faciliter le référencement naturel. Ce résumé de l’article est nécessaire pour attiser la curiosité du lecteur et l’inciter à lire la suite. Il va de soi que titre et chapeau sont particulièrement cohérents et complémentaires, car ils sont souvent lus dans le même mouvement.

L'article est lui-même composé traditionnellement de l'attaque, des relances et de la chute.
L'attaque est la première phrase du papier : elle doit être particulièrement percutante, car elle introduit la lecture. L'attaque est souvent relativement courte et rythmée ; elle peut aussi être constituée d'une citation-choc.

Les relances servent à maintenir l'attention du lecteur. Elles peuvent être sous la forme d'un exergue, qui est un bloc de texte au milieu de l'article, ou d'intertitres immédiatement reconnaissables à leur typographie (souvent en gras). Le but est de relancer la lecture en annonçant notamment les contenus à suivre de manière synthétique.

La chute est la dernière phrase de l'article. Percutante, elle ouvre sur une perspective ou sur un clin d'œil. L'article journalistique : un angle et de la rondeur
L'information est structurée et hiérarchisée par l'angle. Celui-ci oriente l'article, permettant d'adopter un point de vue clair et fléché sur une information. Il faut donc un article par angle, ce qui explique la raison pour laquelle dans les journaux, on trouve plusieurs articles sur le même sujet qui ne disent pas la même chose !

Le contenu répond ensuite toujours aux mêmes questions : qui ? quand ? où ? comment ? pourquoi ?

On le voit, l'écriture journalistique ne s'improvise donc absolument pas et se fonde sur une pratique et de la documentation de qualité professionnelle. Car comme disait Mauriac, un journaliste, c'est d'abord un homme qui réussit à se faire lire.

GORDON EARLE MOORE
Helen Pushnina – Sumy State University, group IT-11/1

S. G. Zolotova – E L Adviser

Gordon Earle Moore is an American businessman and co-founder and Chairman Emeritus of Intel Corporation and the author of Moore's law. He was born in January 3, 1929 in San Francisco, California. By January 2015, his net worth is $6.7 billion.

In 1965, Gordon E. Moore was working as the director of research and development (R&D) at Fairchild Semiconductor. He was asked by Electronics Magazine to predict what was going to happen in the semiconductor components industry over the next ten years.

"Moore's law" is the observation that, over the history of computing hardware, the number of transistors in a dense integrated circuit doubles approximately every two years. The observation is named after Gordon E. Moore, co-founder of the Intel Corporation, who first described the trend in a 1965 paper and formulated its current statement in 1975.

In July 1968, Robert Noyce and Moore founded NM Electronics which later became Intel Corporation. Moore served as the Executive Vice President until 1975 when he became the President. In April 1979, Moore became the Chairman of the Board and Chief Executive Officer, holding that position until April 1987, when he became the Chairman of the Board. He was named Chairman Emeritus of Intel Corporation in 1997.

In 2000 Betty and Gordon Moore established the Gordon and Betty Moore Foundation, with a gift worth about $5 billion. Through the Foundation, they initially targeted environmental conservation, science, and the San Francisco Bay Area.

In 2009, the Moore’s received the Andrew Carnegie Medal of Philanthropy.

Gordon Moore has received many honors. He became a member of the National Academy of Engineering in 1976.

Gordon Moore is an outstanding man who made himself a successful life.

UKRAINIAN ARTIST-PAINTER YEVGENIA GAPCHINSKA

A.Radko – Sumy State University, group FE-11

S.G. Zolotova – EL Adviser

Yevgenia Gennadievna Gapchinska (b. November 15, 1974, Kharkiv, Ukraine) is a Ukrainian artist-painter and an illustrator of children's literature.

She was born on November 15, 1974 in Kharkov in the serviceman's family, the fifth child in the family. At the age of 5 she went to school, and at the age 13 she became a student of the Kharkov Art College. Gapchinska also successfully graduated from the Kharkov Art Institute.

"№1 happiness supplier" - that`s how an artist Gapchinska calls herself. Her works are really difficult to confuse with other painters - amazing men with children signs in the spirit of "Mommy bought me a pants with roses" or "My stupid heart still loves and loves"

Gapchinska attended the Nuremberg Academy of Art, then moved to Kiev in 2000. She began her art-exhibition activities in 2002. The artist's collaborates with the publishing house "A-ba-ba-ga-la-ma-ha", in particular, she illustrated the book by Ivan Malkovich "Lisa and her dreams."

In 2008, "Ukrposhta" has released a series of 12 stamps "Signs of the Zodiac" with the works of Yevgenia Gapchinska.

Each year the painter conducts more than a dozen of exhibitions in Ukraine, Russia, France, Belgium, England, the Netherlands and other countries. She also has some own galleries in Ukraine and Russia. Her works can be found in the European museums and private collections of connoisseurs and artists. Today her works are in the collections of famous Russian and Ukrainian actors, presenters and singers. Her paintings were once bought by an outstanding singer Luciano Pavarotti.

To be successful, not only among artists, but also in any other field, Gapchinska tries to follow a piece of advice: "Any person who is fit and manufactures shoes, bags, vodka, cakes, is really doing something."

ROMAN ABRAMOVICH
A.Sanin –Sumy State University, group CM-11

A.M.Diadechko, EL Adviser

Many people know Roman Abramovich as one of the richest men in the world, but few know how he made himself.

Roman Abramovich started his multi-billion-dollar business during his army service. He first worked as a street-trader and then as a mechanic at a local factory. At the peak of perestroika, Abramovich sold imported rubber ducks from his Moscow apartment.

In 1988 Abramovich got a chance to legitimize his old business. Together with his wife Olga he set up a company making dolls. Within a few years his wealth spread from oil conglomerates to pig farms and he also started investing in other businesses. In 1999, Abramovich was elected to the State Duma as the representative for the Chukotka Autonomous Okrug. He started the charity Pole of Hope to help the people of Chukotka, especially children, and in December 2000 was elected the governor of Chukotka. In June 2003, Abramovich became the owner of the companies that control Chelsea Football Club in west London. Chelsea ended the 2004–05 season as league champions, for the first time in 50 years, and only the second time in their history. Since the takeover the club have won eleven major trophies – the UEFA Champions League, the UEFA Europa League, the Premier League 3 times, the FA Cup 4 times (with 2010 providing the club's first ever league and FA Cup double) and the League Cup twice making Chelsea the most successful English trophy winning team in the decade and being the first English team to win all European trophies.

According to Forbes, Abramovich's net worth in 2015, was US$ 9.1 billion. This makes him the 12th richest person in Russia and the 137th richest person in the world.

L'ÉLECTRICITÉ EST L'ÉNERGIE DU FUTUR, SELON LES INDUSTRIELS DU SECTEUR

Etudiant Sesenko A., Groupe EP 31
Chef d'article Aleksakhina T.

La "fée électricité" à un brillant avenir devant elle, notamment en raison du développement des nouvelles technologies de l'information et de la communication et d'un impératif climatique : réduire les émissions de gaz à effet de serre. C'est la certitude affichée par les industriels du secteur regroupés au sein de l'Union française de l'électricité (UFE) qui compte dans ses rangs des poids lourds comme EDF et GDF Suez, mais aussi des entreprises de taille moyenne comme Direct Energie.

Dans sa *"contribution"* au débat national sur l'énergie en cours, rendue publique mardi 22 octobre, l'UFE souligne d'emblée le *"bon bilan"* carbone de la France et même *"une avance dans la lutte contre le changement climatique"* par rapport à ses voisins, notamment l'Allemagne. Ce combat contre le réchauffement climatique doit d'ailleurs être *"la priorité"* de la politique européenne de l'énergie, juge-t-elle. Sans citer l'importance du nucléaire, les électriciens français rappellent qu'avec l'hydraulique, il donne un *"avantage concurrentiel"* à la France, où le prix du courant est 50 % moins cher que celui de la moyenne des pays européens membres de l'Organisation de coopération et de développement économiques.

DÉVELOPPEMENT INCONTRÔLÉ DE L'ÉOLIEN ET DU SOLAIRE

Il n'est pas étonnant que l'UFE reprenne les mises en garde des patrons de dix des plus grandes compagnies d'énergie européennes (E.ON, GDF Suez, RWE, ENI, ENEL, Iberdrola...) sur le développement incontrôlé de l'éolien et du solaire sur le Vieux Continent. Le développement des énergies renouvelables, prévient-elle, *"doit être adapté au rythme d'évolution de la demande"*, alors qu'il progresse très rapidement dans une Europe où la consommation d'électricité stagne. Ainsi les énergies renouvelables, lourdement

subventionnées, ont-elles contribué à la hausse de la facture des consommateurs français à travers le poids grandissant de la contribution au service public de l'électricité payée par les clients et par EDF. L'UFE souligne que la politique énergétique doit, au contraire, *"privilégier la rationalité économique"*. Sans sacrifier pour autant l'impératif climatique.

A ceux qui veulent réduire drastiquement la part du nucléaire en France, où il assure près de 80 % de la production d'électricité, l'UFE prévient : *"Il faut que l'évolution du mix électrique soit conçu dans une logique de coût/efficacité"* et *"en capitalisant sur les moyens existants"*. En clair, les 58 réacteurs nucléaires exploités par EDF et les quelque 400 barrages hydroélectriques. Ces deux outils assurent à eux seuls plus de 90% de la production électrique française en émettant très peu de CO2. En outre, EDF reste un exportateur net de courant, même si la balance est déséquilibrée à certaines périodes de l'année. La priorité doit plutôt être de réduire le chauffage au fioul, même si le chauffage électrique est déjà le plus développé en Europe. Il faut aussi repenser le transport routier. Chauffage et transports sont responsables des deux tiers des émissions de gaz à effet de serre dans l'Hexagone.

Mais le bilan global dépendra aussi beaucoup de l'évolution de l'intensité énergétique (quantité d'énergie pour produire une unité de PIB). Elle n'a cessé de se réduire depuis les années 1970 à mesure que les moteurs s'amélioraient et que les industriels modernisaient leur outil de production pour les rendre moins énergivores. Là encore, par un recourt moins important au pétrole.

EDWIN POWELL HUBBLE
K.V. Smyrnova – Sumy State University, group FF – 11
S.G. Zolotova – E L Adviser

Humankind has long gazed toward the heavens, searching to put meaning and order to the universe around them. Unlike most other fields of science, astronomers are able to observe a system entirely from birth to death, the life of worlds, stars, and galaxies span millions to billions of years. Astronomy is one of the oldest natural sciences and the early civilizations in recorded history performed methodical observations of the night sky. However, the invention of the telescope was required before astronomy was able to develop into a modern science. There are many astronomers, but one of them is the most significant discoverer and his name is Edwin Hubble.

Edwin Powell Hubble (November 20, 1889 – September 28, 1953) was an American astronomer who played a crucial role in establishing the field of extragalactic astronomy and is regarded as one of the most important observational cosmologists of the 20th century. He began to classify all the known nebulae and to measure their velocities from the spectra of their emitted light. Also he made another startling find - all galaxies seemed to be receding from us with velocities that increased in proportion to their distance from us - a Hubble's Law. This discovery overturned the conventional view of a static Universe and showed that the Universe itself was expanding. Dr. Hubble showed that some of the numerous distant, faint clouds of light in the universe were actually entire galaxies – much like our own Milky Way. The realization that the Milky Way is only one of many galaxies forever changed the way astronomers viewed our place in the universe. In addition, he played a central role in the design and construction of the Hale 200-inch Telescope – one of the most powerful and largest telescope on Earth. Orbiting Hubble Space Telescope was named after astronomer Edwin Hubble and the choice could not have been more appropriate.

As a result of Hubble's work, our perception of mankind's place in the Universe has changed forever: humans have once again been set aside from the center of the Universe. Plenty of his observations have led to breakthroughs in astrophysics, such as accurately determining the rate of expansion of the universe.

BRANDS AS INFORMATION TECHNOLOGY IN ADVERTISING

K. Smirnova – Sumy State University, group RK-31

N. V. Maliovana – E. L. Adviser

In the advertising universe exists a large quantity of different techniques. The impact of branding, at its core, is the power to raise quality for buyers, advertisers, publishers, and the others. Relevance of the topic is that we face brands in our everyday life everywhere. Moreover, a strong brand has tremendous power and brings good income to its owners.

As a rule, every year, consumers have more and more difficulties because of a variety of goods, and it isn`t surprising when we`ll take into account how fast new brands appear at market. Nevertheless we shouldn`t forgot the main function of the brand, that it has an informational feature.

For the most part brands are significant because they affect people. To begin with, brand is a promise of good quality of commodities, and only then a set of design and logos. On the one hand, the brand is a pollicitation, it is able to instill trust in the minds of consumers. But on the other hand, the brand is an inviolable safeguard of that quality. To put it more simply, all of us get used to buy something with the bright reputation. Surely, first of all it`s because of our image, but the next, that attracts our attention, is quality of all well-known brands.

To my mind the reason of flourishing brands is the brand loyalty. It detects customer preferences to gain a brand. Consumers think that the brand offers exclusive features, and believe in high quality standards at the appropriate price. This faith of customers becomes a base for new buying habits. At the very beginning customers will purchase a brand for trial, after being satisfied, they will continue buying the commodity from the certain brand. One more and the most important thing is brand loyalty. It portrays an sustaining approach concerning a brand. Everybody understands that

as a result of such loyalty we get regular purchase of the brand for a long time.

Consumer behavior mainly sheds light on how demanders decides to spend their resources such as time and money on products and servises. Furthermore, it also sheds light on how the consumers value the commodities after the purchase.

It should be mentioned, that the prices on various commodities can vary, and of course brand products cost more, usually. But the main reason people want to own expensive things is that they feel themselves luxuriously, excellent and modern. For example company «Apple» constantly updates and improves its production its true. So for many people its mortally need to possess such iPhone. It doesn`t matter whether that phone is convenient or suitable, they just muddle money for brand name.

In brief, brands dictate lifestyle and behavior of consumers. Brands affect their culture and form their scale of values. In my opinion branding is one of the most genuine techniques in advertising, it has mainly informative aim. From a consumer perspective, the positive side of branding lies in pointing the specific properties of goods so, that buyers can easily choose what exactly they need.

To summarize, modern consumers depend on brands, sometimes they are not able to understand all features of the product, so the brand helps to clear up it. The main objective of the brand is to simplify choice. Every day the buyers face many similar products, and they don`t have time to compare all the reviews, so brands as information technology in advertising show merits of product and aid to make a right option.

WORLDS STUPIED INVENTIONS

A. A. Soshko – Sumy State University, group GT-21

T. V. Pochatko – E. L. Adviser

Each year people create new things in different fields: industrial machines, gadgets of high technologies, new kinds of art and so on. More of these things make our life easier and more interesting, but not all of them. Some creators use all their fantasy and creativity. As a result – the very strange inventions that can be not only useless, but also make people laugh.

To tell you about these inventions we decided to use the rating of "Daily News", the New-York's printed media that forms ratings in different topics. "Worlds Stupidest Inventions" consists of 49 position and most of them are really worth seen. For example, a solar hat, equipped with a solar panel atop your head and a plastic fan directly in front of your face, or pro thumb wrestling with the prescription to it: "Thumb wrestling is going pro with the invention of the officially sanctioned wrestling ring. How handy … and unnecessary!" ("Daily News").

We chose some positions of the rating for our research.

May be, the humanity has not been ready for such unpredictable things yet. That's why we cannot use them in our everyday life. May be, in some years we will be able to see them on the shelves of the shops but now they still are (fairly or not) the stupidest inventions in the world.

MARS ONE

S. S. Solovyov – group PM-41

I. A. Bashlak – EL Adviser

Mars One is a private project that offers everyone to visit the so-called Red Planet.But the main objectives of the project are to establish a permanent human settlement on the surface of Mars and broadcast everything that happens in the air. It's also very important that this project isn't for profit.

Organization Mars One assures that people can live in settlements on Mars without any problems using the latest inventions and technologies. This project uses the most trusted and easily accessible components to build rockets, satellites, settlements, rovers etc."The first footprint on Mars and lives of the crew will captivate and inspire generations; it is this public interest that will help finance this human mission to Mars"- such information is provided by the team Mars One.

The Mars One mission includes two stages. First stage consists of cargo mission and preparation of settlers residence using unmanned installation. Second stage is future settlers flight to Mars and arrangement of the crew in the settlement. In coming years, they want to organize a demonstration mission that will provide a video proof of the possibility of living beyond the Earth, namely on Mars. But first they have to put communication satellites on the way between Earth and Mars. These missions will change human imagination about space, and also will destroy a lot of myths and stereotypes.

A lot of attention is paid to finding future settlers. Mars One have already chosen the human crew for permanent habitation on Mars and now they train and prepare them. More than 200,000 volunteers have been registered for the first selection program by now..

TETYANA YABLONSKA
A. Svyatashova- Sumy State University, group KM-11

A.M.Diadechko, EL Adviser

Tetyana Yablonska was a painter of nature and scenes of the life and work of the Ukrainian people.

Tetyana Nilovna Yablonska was born in February 24, 1917, in Smolensk (Russia) in the family of teachers. In 1928 the Yablonski family moved to Odessa, in 1930 - to Kamyanets - Podilskyy, then to Lugansk, where in 1933 Yablonska Tetyana graduated from seven-year school and entered the Kiev Art College. From 1935 to 1941 she was a student of the Fine Art Department in the Kyiv State Art Institute (the studio of Professor Fedor Krychevskyy) and graduated with a degree "painter".

During the years 1944 – 1952 she was a teacher of drawing, painting and composition in the Kiev State Art Institute. During 1965-1966 she was a chief specialist of interior zone in Kyiv Research Institute of Experimental Design (KyivZNIIEP), 1966-1967 – an Instructor, In 1967-1973 – a Professor, 1966-1968 – the Head of the composition department, the head of monumental painting studio in the Kiev State Art Institute. During 1951-1958 she was a deputy of the Supreme Soviet of the USSR, 1956-1962 - a member of the Ukrainian Artists' Union, since 1963 – a member of the board of the USSR Artists' Union. She was a member of the Ukrainian Union of Artists since 1944.

Throughout her life she participated in numerous national, all -union and international exhibitions, including the most significant ones: in 1956 – the XXVIII International Art Exhibition in Venice (Biennale); in 1958 – the World Exhibition in Brussels, where Tetyana Yablonska won a bronze medal for the work "Bread" (1949). She had more than 30 personal exhibitions in Moscow, London, Budapest, Kiev and other cities of Ukraine since she was a student.

By the decree of the Ukrainian President Leonid Kuchma 140/2001, dated by 3 March 2001 the artist Tetyana Nilovna Yablonska was awarded the title of Ukrainian Hero for her dedication to Ukraine, and was given the Order of the State for outstanding creative achievements and merits, in the field of fine arts.

She lived in Kiev and died on June 17, 2005. In 2006, a street in Kyiv Solomyanskij area was renamed in honor of Tetyana Yablonska.

MOBILE BANKING

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Vor einigen Jahren Mobile Banking (SMS Banking) war als etwas nicht real, aber jetzt die Leute können eine Rechnungen durch Handy senden.

Vor zwei Jahren haben Experten schnelle Entwicklung von Mobile-Banking und die Erweiterung der Palette von Dienstleistungen für die Karteninhaber vorhergesagt. Diese Erwartungen basieren auf der Tatsache, dass die meisten Banken bereits Mobile Banking bieten, aber es muss verbessert werden. Alle modernen Banken versuchen so viel wie möglich, um ihre Mobile Banking zu entwickeln.

Für Kunden gibt es folgende Vorteile:

1. 24 Stunden Zugang zum Kartenkonto;
2. die Zeitsparsamkeit;
3. die Möglichkeit der Fernwartung und Steuerung der Ausgabe von Mitteln auf der Karte.

Ein Vorteil für die Bank ist, dass die operativen Dienste in den Selbstbedienungskanälen billiger als üblich im Filialnetz sind. Jetzt fast jede Bank bietet SMS-Informationen über Transaktionen durchgeführt oder Girokonto per SMS aktiviert werden. Um diesen Dienst zu verbinden, braucht man nur ein Handy.

Mobile Banking ist moderne und fortschrittliche Art der Geschäftsführung in der Finanzbranche. Die Verwendung von SMS-Banking in Finanzgeschäften macht ihre Dienste attraktiver für die Kunden, und erhöht die Sicherheit der Verwendung von Scheckkarten.

Experten glauben, dass in näherer Zukunft das Mobiltelefon eines der wichtigsten Instrumente der Kundenidentifikation für den Zugang zu Bankressourcen und die Zahlungen wird.

THE ALTERNATIVE VARIANTS OF PROCESSING OF THE WASTES

Natalia Valyuh, gr. Ems-41/1m,
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During the last two decades the population of Ukraine has decreased almost to 6 million people (or 12%) from the number of 51 million people in 1990, though the amount of consumer rubbish has been accumulating and increasing. For example, during last 10 years the amount of consumer rubbish, the wastes of the vital functions of every citizen in Ukraine has increased for 40%. Ukraine takes the first place in the world for the amount of rubbish per a person. In order to decompose paper in the environment it takes from 2 to 10 years, a cigarette takes a 100 years, a plastic bag – over 200 years and glass takes over 1000 years.

There are such alternative variants of utilizations of wasting in the world being used in our country:

- The separate sorting of rubbish (sorting at home and two-container sorting).
- The utilization of hard consumer wastes and building scrap (extracting gas).
- Burning, but more number of European countries refuses the given variant of the utilization of rubbish because it is ecologically dangerous, but it one sorts the wastes and then bring the sorted rubbish to the rubbish ground, it decreases the degree of danger to the health of population.

There is only one sorting complex «The Green.Co» in our country. One can decide a lot of such important tasks as the economy of the raw materials, the prevention of the pollution of reservoirs, soil and air basin, increasing of volumes of details and goods and putting the new goods for enterprises into production.

The experts point out the hard consumer wastes to be the real alternative to the fuel resources.The centres of energy utilization of waste product let Europe save billions litres of oil and gas every year. One ton of waste products is equal to 200 litres of diesel fuel.

One of the tendencies of the waste products usage is applying them while building the roads.

The method of producing the glass-ceramic goods for facing the floors and walls is worked out in the USA. This technology foresees using pieces of glass of any colors and forms without their purifying of labels, metal and other mixtures. The received material looks like a marble.

The perspective means of hard consumer wastes utilization is extracting gas. The broad putting into practice of gas-generative technologies will let solve two problems at the same time: to clean the vast territories of hard consumer wastes and utilize them with a purpose of getting energy. Nowadays the society encountered the important problem – electronic wastes. Their processing can be reached by reusing and modernization. Ecological and social benefits of reusing include the decrease of demand to the new production and the decrease of usage the raw materials, the decrease of amount of pure water and electricity for production, the decrease of production of wastes at the dumps.

The state must use such economy instruments as to decreasing of wastes formation.

- The scheme "Pay as much as you throw the wastes". It forsees the payment the services of the companies, which deal with removing and utilizing of wastes, according to the weight of wastes.
- Assignment/cutting the tax rate to burying and removing of wastes to the sum spent by the household and other household subjects to processing minimization of wastes to the sources.
- Burying utilization or/and transporting of wastes taxes. The taxes have a fixed rate.
- "The plans as to avoiding waste formation. They let point out the most economy effective ways of forming the wastes.
- "Goods certificates". It this or that consumer produces lesser amount of wastes he can sell his quota to the other consbmers.

ALTERNATIVE SOURCES OF ENERGY

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L.O. Denisova – E L Adviser

Today, energy policy is a priority development of energy supply and heating systems. According to the National Energy Program of Ukraine by 2010 demand of fuel resources by own production is less than 50 %, and the rest is imported.

There is a constant reduction of fossil fuels and thus increase in fuel prices in the world. It becomes one of the most important national problems.

One way to solve this problem is development and inclusion of alternative and renewable energy sources to the fuel balance of the country.

Alternative energy sources are tools and equipment designed to capture and accumulate the inexhaustible environmental energy. The main factor in assessing the feasibility of using alternative energy sources is the cost of produced energy compared with the cost of energy obtained by using traditional sources. Alternative sources are particularly important to meet local energy consumes.

Alternative energy sources include solar radiation, environmental heat, wind energy, biomass, hydropower of small rivers, energy of thermal waters, and energy of waves and thermal discharges of industry.

Alternative energy based on using the inexhaustible energy sources can be the way that will help Ukraine to become independent in gas and fuel sectors.

In Ukraine it is beneficial to develop wind energy industry based on using wind energy and converting it to mechanical, chemical, thermal or electrical energy. Wind is an environmentally friendly renewable energy.

Reconstructions of wind energy development in Ukraine - first of all, are large vacant land areas for construction of wind electric power stations, capacities of engineering plants – for manufacturing of high-performance wind turbines, skilled workforce. According to the analysts, wind turbines can be built on the shores of the Black Sea and the Azovskoe Sea, in the steppe regions, and in the Crimean Mountains and the Carpathians.

It is important that Ukraine has large reserves of almost all kinds of alternative energy, thus in the future it can become one of the most developed countries in the world.

AGATHA CHRISTIE

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S.G. Zolotova – E L Adviser

English writer, “Queen of Crime”. Agatha Christie was born on 15 September 1890, Torquay, Devon, England. After her father was dead, she took care of her mother. In 1914 she married a pilot Colonel Archibald Christie. During the First World War, Agatha Miller worked as a nurse in a military hospital and studied pharmacology. At the same time she began to write detective stories. In her own words, Agatha started to compose from imitation to sister, already published in magazines. A young writer believed that readers would react with prejudice to the fact that the author of the detective is a woman, and wanted to take the pseudonym Martin West or Mostyn Gray. The publisher insisted on preservation her own name and surname of the writer and assure her that the name Agatha was a rare and memorable. Novels that didn’t belong to the detective, were published under the pseudonym Mary Westmacott. Just under this pseudonym 10 novels were published. The first Agatha Christie’s novel “The Mysterious Affair at Styles” appeared in 1920. At the same time a private Belgian detective Hercule Poirot, trapped in a further hero of 25 detective novels of Agatha Christie "appeared". The debut of another "private detective" - Miss Marple - took place in 1930, when she published the novel “Murder at the Vicarage”. A real literary success came to Agatha Christie in 1926, when the novel “The Murder of Roger Ackroyd” was released on the shelves. The popularity of the writer was facilitated by the fact that her detectives were published not only as separate books, but they also appeared on the pages of the periodical press in Britain and the USA. In 1957 the first film based on a play by Agatha Christie “Witness for the Prosecution” was released. In 1926 Agatha’s mother died and her husband, Colonel Archibald Christie, demanded a divorce. The reaction of Agatha Christie was so unexpected that the writer could explain in the future with difficulty: Agatha disappeared. At the hotel she registered under the name of the woman, who was going to marry her husband. In 1928 the daughter Rosalind was born. In 1930 Agatha Christie married a second time, to the archaeologist Sir Max Mallowan. She spent several months a year in Syria and Iraq in expeditions with her husband. Agatha Christie died on 12 January 1976 in Wellington, Oxfordshire, currently the home of her grandson - Mathew Prichard, in England.

THE GREEN OFFICE AS PART OF THE IMPLEMENTATION OF SUSTAINABLE DEVELOPMENT

T.V. Yakushko – Sumy State University, group E-31
V.E. Pronyaeva - EL Advisor

The nation behaves well if it treats its natural
resources as assets which it must turn over
to the next generation increased, and not impair.
Theodore Roosevelt

In modern times humanity have realized the harmful effect of its activity and now is trying to reduce it. Perhaps everyone have heard about sustainable development, as the complex of actions, that are directed to set the balance between modern people`s needs and interests of future generations. Unfortunately, in Ukraine as in any another post-soviet country, the nature saving activities are believed to be the charge of authority and not to be concerned with everyday life of one person. But let`s be honest the problems connected with environment and social sphere affect the interests of everyone. As once Mother Theresa said: "Life is wealth, keep it", so no one accept us can help ourselves to live better and safer. The installation of sustainable development, as any big deal, starts in some small steps of everything, society and organizations.

If we consider, so to speak, cooperation between organizations and "green trend", as a part of implementation of concept of sustainable development, we`ll meet a big obstacle in it. The main task of any enterprise or firm is to bring the biggest profit, and so do the cost price of product as cheaper as possible. But the environmentally friendly methods are often more expensive. So, economically, for what should firm make the costs high?

Firstly, to make their brand more popular, so increase their sells. Nowadays people are ready to pay more for goods that are ecologically clean and made with care of customers.

Secondly, attention to ecology makes a good reputation of company. It attracts partners and new customers.

Thirdly, the eco-friendly policy of company influences on its workers. They work with pleasure and more productively. Let`s consider one of the way of implementation of "green initiative" on the enterprise, that is called "green office".

Green Office is a management concept of organization that can reduce the negative impact on the environment by maximizing the conservation of resources and energy and reduce wastes. [1] The main task of it is to promote sustainable lifestyle, which starts from the office, where people spend the biggest part of day.

Nowadays Green Offices are popular all over the world. It has 183 organizations, 523 offices and almost 65 800 employees in Finland (the fatherland of the Green Office) and 69 organizations, 89 offices and 15 800 employees in 11 countries. [2] Unfortunately in Ukraine it is not widespread, but such companies as OKKO, "Kyivstar", "Foxtrot", "Obolon" use the concept of Green Office.

So what does this program include? The main points of it are:

- ***Saving of energy.*** How can we do it? Elementary! First of all switch off the light, when you leave the office. To make the tracing of this rule easier companies can install sensors to automatically turn off lights, when people don`t need it. Making the most of natural light on a bright day can also bring great results of saving. By the way, to save energy more effective you shouldn`t use personal printers. It`s better to have a few multifunctional.
- ***Using of electronic documents.*** Firstly, you`ll save money that are used for printing, buying paper and ink, leasing the storage space for documents. Secondly, you will save time for finding the necessary document. Using the computer will make the search faster and easier.
- ***Using of eco-friendly means of locomotion.*** Try to avoid flights, but if it`s impossible choose the direct ones and efficient aircrafts. [2] Take trains or sea transportation. Try to use public transport, bicycles or walking journeys to work place.
- ***Paper.*** Buying the paper made of recycled materials with eco-label will save the whole forest. Print or copy documents

on the both sides of sheet. And certainly, use the paper only when it`s necessary. Besides as it have been mentioned already electronic documents also help to reduce the paper use. For example, the company “Kyivstar” states, that they are saving nearly 2 billion tons of paper annually, because of using of e-documents. [3] Moreover you can send not paper receipts, but use electronic ones.

- ***Water.*** Use as much water as you needed for consumption. Install modern equipment, which use water economically, with good filters, as follows, you will not need to waste your money for bottled water. Troubleshoot defects should be overcome in time. [1]
- ***Reduce, Reuse, Recycle.*** Reduce the amount of wastes by using all things economically. If it`s possible use the goods made of recycled materials. Sort all the wastes, so it can be recycled.

We have named only some of the rules of the Green Office, but even the compliance of these can help not only to decrease costs of production, but even to save the planet for future generation.

Summarizing all the above we can highlight the main trend in modern economy. It is the orientation on sustainable development, deepening the relationships with ecology. As a result the emerging of environmental responsibility, that is particularly appearing in the activity of Green Offices.

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SECTION 2

ARE WEAREABLE DRONES OUR FUTURE?

A. Babenko – Sumy State University, group IT – 32
S. Zolotova – EL Adviser

Unmanned aerial vehicles (UAVS), also known as drones, are aircraft either controlled by 'pilots' from the ground or increasingly, autonomously following a pre-programmed mission. When people firstly hear about drones, they think only about the ability to take a selfie or reconnaissance and surveillance purposes, however, there are bigger things on the horizon for little flying machines.

Drone technology is advancing rapidly, and these flying bots are already being used for a growing set of functions, from making agriculture more efficient to capturing dramatic video footage of a churning lava lake. Drones are becoming the eyes and ears of scientists by surveying the ground for archaeological sites, signs of illegal hunting and crop damage, and even zipping inside hurricanes to study the wild storms. Increasingly, drones are also being seen as a key way to deliver supplies to hard-to-reach areas during humanitarian crises. And as drones get smarter, their capabilities have begun to mirror those of smartphones. Drone technology has captured our imagination, giving birth to new perspectives in the various field of using. Such drones are available only for the army, not for daily life of the civil people. Curiously, in January 2015 new wearable drone Nixie was demonstrated. Nixie is the first wearable camera that can fly. At your cue, Nixie unfolds and takes flight. Nixie composes the perfect shot from an awesome perspective, capturing the moment without interrupting the moment. Also there are wearable drones, which navigate people. Although wearable tech is vulnerable to instability and compromise, for now the Department of Homeland Security worry how wearables can be a positive force that can potentially save lives due to the ability to increase personal security.

Undoubtedly, this technology is important and confident step in the future technology, because it gives us unprecedented opportunities of the new study.

FLYING CARS

M. Bezdidko – Sumy State University, group IT – 32
S.G. Zolotova – E L Adviser

We can say that car is the most popular method of transport. There are thousands of different models of cars. All innovations are moving forward and soon we will see cars that can fly.

Flying cars might help us to avoid too many crashes and tramps. We know that unusual plane was invented by American company a couple of years ago. This plane can ride on the roads and even can be parked in the garage. And a company from Massachusetts named "Terrafugia" began to develop this car. This car will resemble a helicopter. At the Bloomberg conference Toyota`s representative said that the company considers developing cars that can fly in the air. But this car will fly only a few metres above the road. Such cars will work like a hovercraft. This innovations will make friction lower.

On the Pioneers Festival a version of flying car named "AeroMobil" was presented. We can compare the sizes of Aero Mobile with car of the executive class. Flying cars in average can fly at a distance of 750 kilometers while the usual car can drive 850 kilometres. Scientists promise to start producing flying cars by 2020.

The design of flying car of the future should be safe for the driver, passengers and others. This can be only achieved with the control system in the form of autopilot that can independently control a flying car and correct human's mistakes.

In conclusion we can see that flying cars are our future. And they will be very useful for some jobs. First of all, flying cars can be very good ambulances even in big cities. So it will be a very big step to better life. We believe that humanity will make the age-old dream named flying car true in the nearest future.

TECHNOLOGY THAT MAKES OUR LIFE EASIER

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S.V. Podolkova – EL Adviser

Our present life is characterized by the increasing role of technology, especially in everyday life. People make a fuss mainly about technologies making their life easier and more convenient. It's a social networking that really can be referred to one of them.

The social network is a social structure made up of a set of social actors (such as individuals or organizations) and a set of the dyadic ties between these actors. The social network perspective provides a set of methods for analyzing the structure of whole social entities as well as a variety of theories explaining the patterns observed in these statements: 1) staying close to people who matter. It is very important to stay close to people, who matter and social networks can help to do it; 2) social networking is the base of nowadays life. It has never been so effortless and groovy to share with somebody your special joys of life, and, unfortunately, sometimes the sorrows too. Share life-events, pictures, videos and what not to get everyone involved in your life. What is better than sharing your thoughts? We would say nothing.

Among the most popular social networks are Facebook, Twitter, VK, Instagram, Google+. Like any modern technology social networks have both positive and negative sides. There are several arguments in favour of social networking: worldwide connectivity; commonality of interests; real-time information sharing; free advertising; increased news cycle speed.

There are also a number of disadvantages of online social communities. Face to face connections sometimes are endangered, because of possible cyberbullying and crimes against children, risks of fraud or identity theft, corporate invasion of privacy. In addition, absorbing hundreds of items of information leads to the waste of time. Nevertheless, computer networks combined with social networking software produces a new medium for social interaction. A relationship with a computerized social networking service can be characterized by context, direction, and strength. Social networks are the main reason of growing amount of time, spent on the Internet.

SMOKE DETECTOR

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Mulina N.I., Ph.D., El advisor

A smoke detector is made to alert people when the fire begins. It has already saved millions of lives and it is still rather promising for the future.

The first electric fire alarm was invented by Francis Robbins Upton in 1890. After many years of modifications in 1951 the first ionization smoke detectors were created and were placed in the market in the United States. They were used only in major commercial and industrial facilities in the next several years due to their high expense and large size. The first single-station smoke detector was invented in 1970. It was an ionization detector powered by a single 9-volt battery. It cost about $125 and sold at a rate of a few hundred thousand per year.

The two common types of smoke detectors which are used today are ionization detectors and optical ones. An ionization smoke detector uses a radioisotope such as americium-241 to produce ionization in air; a difference due to smoke is detected and an alarm is generated. The radioactive isotope americium-241 in the smoke detector emits ionizing radiation in the form of alpha particles into an ionization chamber (which is open to the air) and a sealed reference chamber. The air molecules in the chamber become ionized and these ions allow the passage of a small electric current between charged electrodes placed in the chamber. If any smoke particles pass into the chamber the ions will attach to the particles and so will be less able to carry the current. An electronic circuit detects the current drop, and sounds the alarm. An ionization type smoke detector is generally cheaper to manufacture than an optical smoke detector; however, it is sometimes rejected because it is more prone to false (nuisance)

alarms than photoelectric smoke detectors. It can detect particles of smoke that are too small to be visible.

The second type is an optical detector. The components of the light sensor are the light source (incandescent bulb or Light-emitting diode), a lens, and a photoelectric receiver (typically a photodiode). A wall-mounted unit emits a beam of infrared or ultraviolet light which is either received and processed by a separate device or reflected back to the transmitter/receiver by a reflector. Photoelectric alarms react slower to rapidly growing fires than ionization alarms, but laboratory and field tests have shown that photoelectric smoke alarms provide adequate warning for all types of fires and have been shown to be far less likely to be deactivated by occupants. In large open areas such as atria and auditoriums, optical beam smoke detectors are used.

Ionization detectors are more sensitive to the flaming stage of fires than optical ones, while optical detectors are more sensitive to fires in the early smouldering stage. Although optical alarms are highly effective at detecting smouldering fires, they do provide adequate protection from flaming fires. Ionization ones as a rule are made for civil houses or little shops, because their active radius is only 20 meters. You can find optical ones in bigger shops or large facilities.

SAFETY ISSUE

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There is no doubt that in the age of informational technology the importance of saving and protecting personal data is growing rapidly. Many places such as companies, banks, hospitals or even your personal gadgets need their data to be protected well. Because of these reasons more and more money are invested in security programs. So what can be a target of cybercriminals?

Talking about hospitals, not many of them on the territory of Ukraine changed their systems into electronic ones, even though it can lead to loss or damage to your medical card. Electronic ones can be interesting to criminals because of personal identifiable information where they can find your name, address and the number of insurance. In different companies, devices are connected by one network that includes apparatus that help and control information transfer. This networks have different data exchange protocols and when they turn on it is very difficult to monitor whether it's a data-stealing attack or not. The way of stealing credit cards has been changed. Now thieves are not only stealing but also reprogramming them in the way that they loot not only money, but also information on terminal, where all data can be found. So starting with a small card, criminals can find all personal info.

And last but not least, mobile security. As a common user of smart-phone, we do save different stuff on our gadgets as well as download applications such as organizers, social networks, shops, games. Just few people check where programs have accesses. Some of them want to be connected to Facebook account, where all data is clearly presented. Even though there is a password to account, it can be hacked and as a result you start to be not the only user.

To conclude, all aspects of our lives are electronically connected with data, and on global market there should be a program that will provide us with security. Main characteristics of it should be an agility so that it can quickly find and react to danger, flexibility to match all OS and being applied to different fields, foreseeing and analyzing threats in order to block attacks and exclude their effect on the system. Some examples of companies that work on it are SPHERE Technology Solutions, FireEye, Symantec, Fortinent, CheckPoint.

MOBILE PHONES IN OUR LIFE

O. O. Khytrenko– Sumy State University, group SU–31
D. O. Marchenko – E L Adviser

Technology is growing rapidly in our modern life. Every day people create new and new devices, tools that make our existence more comfortable and pleasant.

A mobile phone is a device that is used by everyone very often. At present such phones have become ingrained in our everyday lives and the majority of people can hardly imagine themselves without cell phones.

The history of mobile phones began in 1947, when the Research Laboratory of Bell has proposed to create a mobile phone. In 1973 the first prototype of a portable cellular phone was released. It is believed that the first call on this phone was made on April 3, 1973.

Is it just a tribute to fashion or a necessity of a modern person? It isn't a secret that today many people feel quite helpless if they have left their mobile phones at home. First of all cell phones give us an opportunity to keep in touch with people in any place and at any time (it's especially important for businesspeople). Besides, modern mobile phones are multi-functional: they provide access to the Internet, have various games, cameras, memory sticks, etc.

A mobile phone is one of those items, the benefit or harm of which is determined by the intelligence and literacy of their use. We can't deny that mobile phones provoke a range of problems. People have started to see each other less frequently. Mobile communication requires quite a lot of money and people have to control the amount of money on their accounts constantly. But the greatest disadvantage of cell phones is certainly their harmful influence on people's health, as they can lead to hard diseases.

At the present time everyone understands that mobile phones are an integral part of life of any person and we can't stop them. Most of people need them in everyday work and to communicate with friends and relatives. We must remember about the harmful effect of the waves on our mind and try to use them only in need.

SMART WATCHES IN OUR LIFE

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D. O. Marchenko – E L Adviser

Technology touches almost everything and everybody today. It brings great changes in our life. Once technology enters someone's life, nobody can resist its influence. Even if you try to do that, you will fail, because technology is an irreplaceable part of the modern society.

One of the most interesting and promising field of technology is wearable electronics, especially smart watches. The history of this direction started in the early 1980s and each next year different companies began to improve their devices. Inventors started from simple watches with user-programmable memory to real "smart" devices with complex electronic mechanisms, coloured LCD displays and huge memory stores. Each self-respecting company in the market of mobile devices does not miss an opportunity to show off their new inventions. In the case of smart watches, as a quite new sphere in technology, there is a place for competition between such giants as Google, Apple and Motorola.

A smartwatch (or smart watch) is a computerized wristwatch with interesting and useful functionality. Such kind of devices can easily substitute mobile phones or even computers. It is not surprising because all smart features make smart watches look like a small computers.

There are different kinds of smart watches and everybody has a great chance to find something for himself or herself. Companies try to design their products so they can attract more and more customers. They sell watches in all shapes and colours to make people want them. Such a kind of marketing is very successful and promising.

Nowadays, many people like to go in for sports and to monitor their health. Therefore, the significant part of manufacturers implement various sensors into their devices to monitor the health status of the owners.

The conference among the smart-device manufacturers takes place each year. Such an event gives participants the opportunity to test new devices and share impressions and experiences. Journalists all over the world come to the conference to make reviews of new devices. In other words, companies make great efforts to promote smart watches, because the future belongs to them.

DEEP WEB

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E.D.Nebohina – E L Adviser

We got accustomed to the fact that all the information on the Internet instantly could be found by search engines. They know everything about everyone. But is it really so? It turns out there are areas in WWW, neither Google nor Yandex have access. Moreover, according to most experts, their size is hundreds of times greater than the size of the rest of the internet. This secret web called deep web.

But is it possible? For example, the search engine cannot find a page that does not contain any hyperlinks. Such web pages are dynamically created on database queries and they do not exist according to search resource, as well as indexing closed sites.

The question is, why it is necessary to close something from search engines? Some corporates websites owners of many companies see no sense in indexing, as the entrance to the site is carried out only by a password and accessible only to a limited number of persons who already known its address. Some networks, who create site only to train and support their team, also do so.

But it is not very deep web, there are much more hidden areas where law-abiding citizen should not enter, and to be honest, he'll likely never know about the existence of a secret web. Deep internet area population often consists of journalists making interview with wanted persons, military, special government agent, law enforcement authorities and all kinds criminal elements etc. Deep content let buy drugs, weapon, hire professional assassins and even buy or sold people. Specified structure of deep web, and web of accessing the sites can compromise you while surfing deep web even if you don't do anything illegal.

According to analytics reports, in-depth Internet content is about 90 percent of all content, stored on the web. Others believe that the number of sites in the deep web can be from 1 to 10 million. You can find dozens of radically different points of view, researching and figures - there is no lack of opinion over the deep web. One thing is clear: the exact of deep web can not be underestimated.

IT CAREER

Y.O. Liubyvy – Sumy State University, group IT-41
V. S. Kurochkina – E L Adviser

Importance of learning English:

Impossibility of living in a modern world without foreign relations.
People can understand each other to cooperate.
English is the language of technical documentation.
Development of international business and trade.
Use of the necessary widespread computer programs.
Work with programming languages.

Developing of IT-sphere:

Creating projects using advanced and modern computers.
Continuous improvement.
Realization in different fields of science: physics, engineering, architecture, chemistry, social sphere.
Use in study and entertainment.
Providing international connection and conferences in real time.
Conducting interactive arrangements with new technologies of information presentation.

Advantages of IT-specialties:

Bigger chance to find a well-paid job.
Possibility to realize creative abilities.
The highest demand for IT-specialists.
Development of big international IT-companies and computer firms such as HP(Hewlett Packard), Intel, Samsung, Microsoft, Oracle, Google, Autodesk, etc.

My plans for IT-career:

I'm studying computer sciences to develop my spatial imagination in engineering-projecting way. I want to realize my idea as to transformation of cities into new view with futuristic concepts.

In conclusion:

So, I can advise you to continue learning both English and computer sciences. These are the most essential prerequisites for your successful career and interesting life full of events. It is necessary to be persistent and try to do all your best in order to receive a good job in the future, to become a demanded specialist, to implement your ideas and to make a good career.

HISTORY OF MICROSOFT

D.A. Nesterov – Sumy State University, group IN-41
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In 1972 Bill Gates and Paul Allen established their first company, Traf-O-Data, which sold a rudimentary computer that recorded and analyzed traffic data. Inspired in 1975 by an issue of *Popular Electronics* that showed the new Altair microcomputer kit just released by MITS Computer, Gates and Allen wrote a version of BASIC for the machine. Later that year Gates left college to work full time developing programming languages for the Altair, and he and Allen relocated to Albuquerque, New Mexico, to be near MITS Computer, where Allen took a position as director of software development. Gates and Allen named their partnership Micro-soft. Their revenues for 1975 totaled $16,000.

In 1981 the company was incorporated as Microsoft, Inc., with Gates as president and chairman and Allen as executive vice-president. The company closed the year with 128 employees and revenues of $16 million. Two years later Allen left Microsoft after being diagnosed with Hodgkin's disease. He remained on the board of directors and continued to hold more than 10 percent of the company's stock. Also in 1983 Microsoft launched a word processing program, Word 1.0, in an effort to supplant the category leader, WordStar. Simpler to use and less expensive than WordStar, Word used a mouse to move the cursor and was able to display bold and italic type on the screen.

Before 1990 Microsoft was primarily a supplier to hardware manufacturers, but after 1990 the bulk of the company's revenues came from sales to consumers. That year Microsoft became the first software company to reach $1 billion in revenues, closing the year with 5,600 employees.

In August 1995 Microsoft launched its next version of Windows, called Windows 95, which sold more than one million copies in the first four days after its release. In 2000's, they released their most popular OS called Windows XP. Nowadays Microsoft is known as a leading software and hardware developer.

10 STEPS TO A NET-ZERO HOME

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S.V. Mikhno – E L Adviser

What makes people buy home automation products? About 60 percent of those people do so because they consider energy efficiency as among the most attractive benefits offered by these home devices and services.

It is clear that all home owners want to lower monthly electric consumption and save money. But you need more than just a smart home to save money.

A net-zero home is the home that consumes the same amount of energy that it produces. It is possible! Here are some rules, that can help people who want to transform their homes into a net-zero ones:

Change your gas habit for solar power – by installing solar panels in your home you can lower your dependence on the power grid or lower your cost significantly.

The proof is in the roof – do not use highly reflective paint or tiles for you roof, a sheet covering or shingles can cool roofs by up to 50 percent which means the inside of the house remains cool without using up more energy.

Use energy recovery ventilator – it can help you not only reduce energy consumption but it also cleans indoor air.

Replace your single-pane windows with double-pane ones as it gives better insulation.

Get smart about your thermostat – swap your old thermostat for a smart thermostat that is able to identify patterns of when to turn the temperature up or down, saving you up to 30 percent on your energy bill.

Change your bulbs to CFL and LED bulbs. It is more expensive than incandescent bulbs, but those bulbs work longer.

Replace old water heaters with tankless water heater to save space as well as use less energy or opt for a solar water heater.

The presence of net-zero homes is increasing today, because alternative energy sources are becoming cheaper and the cost for traditional fossil fuel is rising.

These have been some rules for you to help you make your home smarter and control your bills. Your home will monitor energy consumption, save it wherever possible and help you save money.

QUANTUM DOTS.

Shliahetskiy A. A., IN-41
Bashlak I.A. ELAdviser

The investigation of semiconductors quantum dot began in 1981 by Alexei Ekimov. Scientists started interested in quantum dot after the quantum effects were discovered in spectrum of many nanocrystals. The term “Quantum dot” appeared in 1988.

Quantum dot is a quantized electronic structure which properties differ from properties of volumetric material of equal structure. The particles inside it are located in a potential well that's why quantum dot have well-defined energy levels and its energy spectrum is really discrete. And this spectrum is more alike spectrum of individual atoms. That is why they sometimes are named artificial atoms.

A quantum dot can be any sufficiently small piece of metal or semiconductor such as cadmium, zinc, tellurium, selenium and sulfur. The point should be small enough for significant quantum effects. There are two main ways to make quantum dots. They are colloidal synthesis and epitaxy.

Due to the electroluminescence quantum dots are capable of generating light with high efficiency in a narrow frequency range, in addition they can be configured, selecting the size. It became possible to improve the picture quality on the display while reducing power consumption.

A lot of scientists and engineers started to work to create a real quantum computer, after the Richard Feynman’s publication about the possibility of quantum computing. Quantum computer uses qubits that can be a 1 or a 0 or both at the same time.

Various kinds of organic dyes are used in medicine. A demand for a wider choice of colors grows each year. Quantum dots filled this field, because of their brightness, stability, narrow spectral bands and low toxicity (now investigated).

One of the latest discoveries was the possibility to use quantum dots as an instrument for controlling illegal copying of production.

GLOBAL POSITIONING SYSTEM

Y. S. Streletskiy – SumyStateUniversity, group SU – 31
D. O. Marchenko – E L Adviser

Space exploration has a great meaning for mankind. There are many space technologies that have been explored for space, but then transformed for human everyday use. One of such technologies is GPS navigation.

Global Positioning System (GPS) is a satellite-based navigation system that consists of 24 satellites in six orbits. Satellites rotate around the earth at an altitude of about 17 000 km above the Earth. Each satellite makes two complete revolutions in less than 24 hours.

One of the major advantages of GPS is the all-weather capability. Satellite navigation system measures distance and time and determines your place in the global coordinate system WGS 84.

The basic principle of GPS devices is positioning by getting the signal from the navigation satellite. GPS-receivers get the signals and compute the location. The receiver compares the time distance between signal sending and receiving. The difference between these values allows a receiver to calculate the distance to the satellite. Knowing the distance from several satellites, GPS-receiver can determine its location and display it on the electronic map. Constantly tracking the location for some time, the device can also calculate the speed and direction of movement.

GPS was designed and built for military purposes. In the early 1980s Ronald Reagan announced the GPS to be available for everyone but the best accuracy only for the military purposes. That restriction was achieved by using so-called Selective Availability. SA – a special algorithm – decreases the accuracy of civilian GPS-navigators for 100 meters. Later there appeared an information about deciphering of algorithm by some companies and in 2000 Bill Clinton cancelled SA.

So, we can conclude that GPS is useful for mankind technology. Many sides of human life can’t exist without GPS nowadays.

THE TECHNOLOGIES OF VIRTUAL REALITY

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I. A. Morozova – E L Adviser

Virtual Reality is a simulated environment that can imitate real or imagined world, recreating sensory experience: sight, sound, touch, taste and smell. The technology of virtual reality is constantly in progress. In 1860's was invented one of the first examples of virtual reality – 360-degree art through panoramic murals. Nowadays the amount of different devices strikes the imagination.

The most of virtual reality environments are displayed on special screens (but it also can be a usual computer screen). This simulation includes sight and sound information, some advances have tactile information. Also in these latter days was appeared a head-mounted display, a 3rd Space Vest, systems of motion capture, eyetracking, wired gloves, 3d controllers etc.

There are plenty of fields where people can use the technology of virtual reality. Heritage and archaeology, education, art, games, music, therapy, training, design – we can find application of virtual reality for all of these departments of life.

Objects of virtual reality usually act like analogic objects of real world and user can affect them in agreement with the real laws of physics: gravitation, water characteristic, contact, friction, reflection etc. Nevertheless, for entertainment purposes it also provides an opportunity to do more that is possible, for instance, flying.

The most popular realization of virtual reality is the "Second Life" – online virtual world with elements of social network that have more than one million active users.

Summing up all of the above, we can say without doubts that the technologies of virtual reality have a great potential. It progresses very fast; many IT-specialists predict that in a few years it will penetrate into all spheres of life. Regardless of whether they are right or not, virtual reality is probably one of the most amazing information technology of contemporary life.

SOCIAL NETWORKS

O.M. Tarasenko – Sumy State University, group IT-41
V. S. Kurochkina – E L Adviser

Nowadays millions of people use social networks. They got used to surfing on the Internet because it is quick and very easy to discover anything you wish. You don't need to think of suggestions and ideas. At least what you need is to be able to type correctly.

I think, social networks help disabled and lonely people very much. Such people can create their accounts and start communicating with other identical partners. Most of social networks are used by people to meet friends with similar interests and hobbies. Very often close-minded persons find each other on the Internet. Although people live far away from one another any network can unite them. Writing and receiving correspondence with the help of post is a long process. It takes time and money. Moreover, a letter can be lost. But e-mail can't be lost and doesn't take much time. Social networks is a very useful invention of the 21st century. Thanks to modern technologies people can not only write different kinds of letters to their partners all over the world, but talk and see them by means of a web camera.

And now I would like to present the most popular social networks:

- Facebook;
- Twitter;
- Vkontakte;
- Google+;
- Odnoklassniki.

But on the other hand, social networks are a great trouble. They made people forget traditional heart-to-heart talk. Sometimes you can't see the eyes of your partners and feel their emotions. It is possible to say that social networks have brought much solitude into people's life. Besides, social networks are full of aggressive, cruel, violent and dangerous videos for children. Many uncertain persons try to raise their self-confidence using social networks.

So, social networks can bring not only considerable benefits to our lives, but loss of sociability as well.

GOOGLE GLASS

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Modern technologies are developing so fast that it is impossible to follow them all. Google Glass is something new in the technology – something, that can change our life in the nearest future. It's a child of Google Inc.

Google Glass – it's a wearable computer with an optical head-mounted display (OHMD) that has been developed by Google. It can be used like a garniture for your Smartphone or as a self-supporting gadget. It's very compact and useful. The operation system of Glass is Android 4.

It gives you many opportunities: you can read news, use the Internet, speak with your friends, send messages and do many other useful things.

On the main menu of the screen you see time and a phrase "ok glass". It's like a password for glasses. When you say these words, you will see a list of commands. You should use it as a controller of glass. For example, you can do search in Google, take photos, record videos, send messages, etc. One of the most interesting advantages of the glass is a translator. You can translate all phrases you say into any language of the world.

Google Glass has great modern design. It's very nice, useful and compact. There are five color styles for Glass at the moment: black, red, grey, white and blue. You can use Glass at home, at work, at the meeting, at university and many other places. Glass is strong and you do not have to be afraid, that it can be broken. The main parts of Glass are: battery, speaker, microphone, camera, prism, and, of course, CPU.

Glasses wearers are no longer at disadvantage now when Google Glass prescription lenses and frames have officially been made available.

To sum up, I want to say that Google is working to improve Glass. And in future it can be even better.

ELECTRIC CARS

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Electric car is a car driven by one or more electric motors, powered by an independent source of electricity (batteries, fuel cells, and so on) rather than an internal combustion engine.

Electric car appeared before the internal combustion engine came into use. The first electric car as a truck with an electric motor was established in 1841. Initially, the speed of the electric and gasoline cars was about the same. The first electric car used lead battery of Bari system, which had 36 cans (voltaic posting). It demanded recharging every 64 km. The total capacity of the car was 4 horsepower. Development of the crew was borrowed from the model of the American firm "Morris Salom," which had been producing vehicles since 1898. Electric car changed speed from 1.6 to 37.4 km / h. They used motor working from AC for recharging. It rotated the generator shaft, to which the batteries of the electric car were attached. In recent years, due to the continuous rise of oil prices, electric cars began to gain popularity again. In the CBS News report "Could The Electric Car Save Us?" it is said that in 2007 the industrial deployment of electric cars was re-started.

The Advantages of electric cars include:

- Absence of harmful emissions at the location of the car
- The ability of charging from the electric mains (outlet)
- Low fire- or explosion- proof in the case of accident
- Higher reliability in comparison with other cars

The Disadvantages of electric cars include:

- The hard process of production and disposal of batteries
- High cost of lithium batteries or high weight of the batteries
- Low mileage of electric car on a single charge
- The considerable weight of batteries

WEB BROWSERS

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V. S. Kurochkina – E L Adviser

Rothschild said: “Who controls the information, he rules the world.” Although it was two hundred years ago, now, in the twenty-first century, the century of incredible discoveries and the rapid development of information technology, this phrase became even more truthful. Nowadays, the only person who knows how to find, manage and distribute information can achieve success.

But what is the largest and the most extensive benefit of information around the world in the twenty-first century? Of course this is the Internet. And the ability to choose the right tools on the Internet, web browsers is an essential part of the effective use of Internet resources.

So, what’s a web browser? Web browser is a special software program used to retrieve and open different files from remote web servers.

The first web browser was invented in 1990 by Sir Tim Berners-Lee. It was called World Wide Web and was later renamed Nexus. In 1993, browser software was further innovated by Marc Andreessen with the release of Mosaic, “the world’s first popular browser”, which made the World Wide Web system easy to use.

Each web browser contains or may potentially contain the following elements:

- Every web browser has an HTML rendering engine designed to read the embedded HTML tags and use those tags to arrange content and format the text on the web page.
- When a web browser downloads a web page, it stores that web page in a special location on the computer called the cache.
- To help you find things again later, most browsers offer a bookmark function to allow you to store the address of the page in a list of favorite sites.
- Plug-ins are software you can download and install on your computer that extends the functionality of your web browser.

The skillful use of web browsers is a prerequisite for qualitative work of all IT specialists.

VIRTUAL REALITY TECHNOLOGY

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Modern technology grows faster and faster. A lot of new gadgets and devices appears in our everyday life. Huge corporations compete for being the first in the fields of technology. Indie developers try to invent something new. All these things lead humanity to prosperity.

Mostly all fields of technology take their roots from old times. Virtual Reality (or additional reality) concept was made in 1860s, using panoramic murals to firstly introduce 360-degree art. Nowadays we use complex systems based on variety of hardware and software to get as much realistic virtual world as possible. And it's only the beginning of Virtual Reality (VR) technology path.

The companies working in their VR sector influence a technology in different ways. There are three categories of it: software development, hardware production, content creation. The most famous prototype is Oculus Rift, which was made by small group of developers and now belongs to Facebook. Consumer version is announced to be ready in 2016, for now it's only possible to buy developers kit version which is called "Crescent Bay", it's price varies from 200$ to 300$ depending on the version.

Modern society has different views on a VR progression. We can distinguish three main ideas about VR influence in future. The First one is "Integration" – VR will be integrated into our daily life and activity, and will be used in various ways to meet the human needs. The other point of view is "Additional Reality" – using VR to complete the real world. It will be used to cure different psychological diseases or phobias and won't be used on a daily basis like in the first scenario. The third one is "Migration" – full migration of the humanity or part of the humanity to the virtual world, resulting huge changes in the society and general worldview.

Companies giants like Microsoft, Google, Sony, Samsung announce their own versions of Virtual Technology products to stimulate progression in that sphere. The most famous prototypes are "Samsung Gear VR", "HTC VIVE" by HTC, "Project Morpheus" by Sony. Many technological conferences, forums are held each year, so even a single enthusiastic developer can find a team for his own invention. Our future is in our hands.

LILIANE BETTENCOURT

A.A.Yakovenko,Sumy State University, group IT-11
A. M. Diadechko - E.L. Adviser

Liliane Bettencourt is perhaps one of most talked about billionaire socialite in France. A proportion of that fame comes from her position as biggest shareholder in L'Oréal and one of biggest individual shareholder in Nestle.

Bettencourt was born in Paris, France, the only child of Eugène Schueller, the founder of L'Oréal, one of the world's largest cosmetics and beauty companies. Her mother died when Liliane was 5 years old, and she formed a close bond with her father. At the age of 15, she joined her father's company as an apprentice, mixing cosmetics and labelling bottles of shampoo.

In 1950, she married French politician André Bettencourt, who served as a cabinet minister in French governments and rose to become deputy chairman of L'Oréal. Bettencourt had been a member of La Cagoule, a violent French fascist group that Liliane's father had funded and supported and that collaborated with the Nazis during World War II. After the war, her husband, like other members of La Cagoule, was given refuge at L'Oréal despite his politically inconvenient past. Liliane Bettencourt inherited the L'Oréal fortune when her father died, becoming the principal shareholder of L'Oréal.
She is one of role models for rich in terms of her discipline and hard work. Even at this age of eighty plus she goes for long walks daily. Throughout her life she has maintained a rigorous routine which starts at 4 am and includes hours of exercise and activities including cycling, swimming, walking etc. She has also been a generous philanthropist and promotes science research through various scholarship through her trusts for which she was also awarded "La Légion d'honneur", the highest civilian decoration of France.

FILE SYSTEM

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Nowadays, many people use electronic devices. For example, it is can be cameras, mobile phones, computers and others. The file system is a very important component of any device that works with the file.

In computing, a file system is used to control how data is stored and retrieved. Without a file system, information placed in a storage area would be one large body of data with no way to tell where one piece of information stops and the next begins. By separating the data into individual pieces, and giving each piece a name, the information is easily separated and identified. The structure and logic rules used to manage the groups of information and their names is called a "file system".

A main tasks of the file system: naming files; programming interface for working with files; the organization of the file system to the stability of power failures, errors of hardware and software; the contents of the file settings required for its proper interaction with other objects in the system (kernel, applications, and so forth.).

File system types can be classified into disk/tape file systems, network file systems and special-purpose file systems.

There are many different kinds of file systems. Each one has different structure and logic, properties of speed, flexibility, security, size and more. Some file systems have been designed to be used for specific applications.

File systems can be used in many different kinds of storage devices. The most common storage device in use today is a hard drive. Other media that are used are magnetic tape, optical disc, and flash memory.

In conclusion, we can say that the file system is an integral component of many electronic devices. Maybe you do not know about its existence, but it helps to make our life more comfortable.

OCULUS RIFT – CHANGE THE GAMING FOREVER

M. F. Yousupova – Sumy State University, group MK-41
T. N. Plokhuta – E L Adviser

The creator of one of the most talked-about VR goggles is a young virtual-reality enthusiast Palmer Luckey. His passion about games and dream to play video games in simulated 3D-worlds helped him to become the owner of one of the largest collections of head-mounted displays in the world in search of the experience of actually being in the game. However, there was nothing to bring the experience from dreams to reality. Luckey set up to change it.

With Oculus Rift, you can feel that you are actually inside the world of the game. What sets these goggles apart? It is the immersive stereoscopic video rendering, massive field of view and ultra-low latency 360° head tracking. What makes the experience even more deeply engaging is the tactile feedback and user control of navigation.

Vast sums of venture funding, which already surpass $91 million, speak for themselves. And on the top of it all is the Facebook deal. Facebook bought the Oculus VR Company for $2 billion in spring 2014.

Virtual-reality headsets could have been found in 90-s of the 20th century either, but the technology was not good enough. Blocky graphics and narrow diagonal field of view leaved much to be desired for the technology. The ultimate goal of creating the Rift is making high VR-reality experience available to the average player. Reduced price of components helps to make the goggles affordable in contrast to preceding model. For comparison, suchlike goggles are sold at the price of $100 000, while developers can currently purchase the Oculus Rift and the developer kit for $350!

In addition, players complained of experiencing nausea with inclination to vomit after long exposure to the goggles of previous models. Moreover, after multiple exploiting of the head-mounted devices gaming in goggles does not feel so thrilling and exciting anymore.

Does Oculus Rift have such problems? Some users did feel nausea after durable usage of the goggles. The developers are already working on elimination of this issue in the consumer version of the Rift.

SECTION 3

ANTI-LOCK BRAKING SYSTEM

D.Batyoha, S.Kirichenko-Sumy State University, group IN-31
A.N.Diadechko – E L Adviser

Anti-lock braking system (ABS) is an automobile safety system that allows the wheels on a motor vehicle to maintain tractive contact with the road surface according to driver inputs while braking, preventing the wheels from locking up and avoiding uncontrolled skidding. ABS generally offers improved vehicle control and decreases stopping distances on dry and slippery surfaces for many drivers. Typically ABS includes a central electronic control unit (ECU), four wheel speed sensors, and at least two hydraulic valves within the brake hydraulics. The ECU constantly monitors the rotational speed of each wheel; if it detects a wheel rotating significantly slower than the others, a condition indicative of impending wheel lock, it actuates the valves to reduce hydraulic pressure to the brake at the affected wheel, thus reducing the braking force on that wheel; the wheel then turns faster. Conversely, if the ECU detects a wheel turning significantly faster than the others, brake hydraulic pressure to the wheel is increased so the braking force is reapplied, slowing down the wheel. A 2004 Australian study by Monash University Accident Research Centre found that ABS reduced the risk of multiple vehicle crashes by 18 percent and decreased the risk of run-off-road crashes by 35 percent.

POWER OF SOUND WAVES

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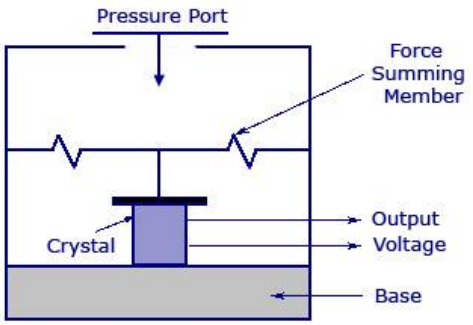
Nebogina E.D. – E L Adviser

Have you ever thought about what that energy can be produced out of thin air. Street noise source generously. The energy of such noise can reach such an extent that can be used as an alternative energy source. Scientists, University of London Queen Mary (Queen Mary University of London), together with Nokia developed a prototype smartphone that is capable of charging using sound waves. Employment of this ustroysta based on the piezoelectric effect. Crystal strain in capable of internally at one end to create a potential difference that is current. Scientists have taken advantage of this and as a subject of deformation were sound waves, their amplitude and energy is sufficient to highlight the voltage for charging the phone and phone devices. This idea can be useful for producers and consumers of smartphones, whose autonomy is literally infinite



Piezo-Electric Transducer

www.InstrumentationToday.com

MOTIVATION POUR SAUVER DES RESSOURCES D'ENTREPRISE

Etudiante Pronikova Zh., group Ems-41/1m
Prof. Aleksakhina T.

Aujourd'hui, dans l'intégration de l'Ukraine dans la communauté européenne, la question de l'utilisation rationnelle et efficace des ressources par les entreprises nationales est prioritaire. Ressources dans la société doit être considérée comme un processus complexe - de la conception à la vente, tandis que dans l'économie des ressources comprise comme l'économie des ressources et leur utilisation rationnelle.

Il ya de grandes zones de ressources: la réduction de l'énergie et la consommation matérielle des produits, la réduction et l'élimination des pertes de matières premières et de l'énergie, d'améliorer la qualité des produits, l'implication des ressources secondaires en circulation. Expérience des principales sociétés occidentales montre que l'épargne et l'utilisation rationnelle des ressources ne est possible qu'avec l'introduction de nouvelles technologies de pointe, l'équipement, la main-d'œuvre et de la production. Une grande importance est donnée à la motivation, à cause du niveau approprié d'incitations morales et matérielles des gestionnaires et des employés dépend du niveau de mise en œuvre des facteurs mentionnés ci-dessus.

Nous savons que en termes de psychologie pour les effets sur la formation et d'activation des motifs de distinction entre la motivation externe et interne (VM). En direction motivation externe est divisé en motivation externe négative (RM) et la motivation positive externe (ZPM).

Comme le montrent de nombreuses études sociologiques pour haute performance d'une activité est un rapport plus favorable entre les trois types de motivation VM> ZPM> RM.

La motivation externe pour ressource apparaît à recevoir des avantages économiques pour l'entreprise sous la forme d'économies directes des ressources, la réduction des paiements de la pollution de l'environnement, améliorer la qualité des produits, réduire les coûts de stockage et de transport, des incitations matérielles pour les économies.

La motivation interne est basée sur le fait que les entités conscientes du problème des ressources limitées, comprendre leur responsabilité pour leur sécurité aux générations futures, alors essayez de faire l'utilisation la plus efficace et efficiente des ressources disponibles, en dépit de l'impact économique de tels événements.

En Ukraine les besoins économiques fondamentaux de la personne (salaires adéquats, stabilité des bénéfices) sont pas pleinement satisfaits, il est donc évident que dans de telles circonstances, il est difficile de passer d'une avantages purement économiques de ressources à des fins morales. À notre avis de créer un système efficace de ressources de la motivation pour les entreprises nationales ne est possible en combinant les méthodes de motivation externe et interne.

SAFETY AND TOXICITY OF CARBON NANOTUBES IN OUR FUTURE LIFE

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I.A. Morozova – Adviser

Carbon nanotubes take the form of cylindrical carbon molecules and have novel properties that make them potentially useful in a wide variety of applications in nanotechnology, electronics, optics and other fields of materials science.

The most important and useful properties of nanotubes are different for different areas, like strength, hardness, it's kinetic, optical, electrical and thermal properties

Safety and toxicity

The toxicity of carbon nanotubes has been an important question in nanotechnology. Preliminary results highlight the difficulties in evaluating the toxicity of this heterogeneous material. Under certain conditions CNTs can enter human cells and accumulate in the cytoplasm, causing cell death.

But there are also advantages of using CNT and some possible just in future practical application, like biomedicine, solar cells, hydrogen storage, textile(uniforms for the military etc), acoustics, elevator into space and so one.

Conclusion

The discovery of carbon nanotubes are the most important in modern science. This form of carbon in its structure is intermediate between graphite and fullerenes. However, many properties of carbon nanotubes have nothing to do with graphite or with fullerenes. This allows us to consider and explore nanotubes as an independent material with unique physical and chemical characteristics.

GRAPHENE MAKES OUR LIFE EASIER

D. Yurchenko – Sumy State University, group EL – 41
I.A. Morozova – Adviser

Graphene is one of the most perspective modern materials. Graphene is an atomic-scale honeycomb lattice made of carbon atoms and discovered only a few decades ago.

How can we get it? There are two methods: mechanical and chemical. Technically, we can make graphene by sticking a piece of tape onto the “lead” of a graphite pencil and then peeling the tape off. Graphene is not particularly useful in that form, however. Researchers want to make large sheets of graphene, which could then go next-generation electronics.

How can we use it? Potential graphene applications include lightweight, thin, flexible, yet durable display screens, electric circuits, and solar cells, contaminant removals, water filters, waterproof materials, various medical, chemical and industrial processes enhanced or enabled by the use of new graphene materials and many others.

Graphene sheets perforated by small holes have first been explored by researchers at MIT as potential candidates for water filtration. Holes with a diameter of 1 nanometre are big enough to let water molecules sift through, however small enough to stop any undesired chemicals.

Pacific Northwest National Laboratory scientists are getting prepared to test graphene-enhanced lithium ion batteries that can charge your cell phone and power tools in minutes, not hours.

Nobody has made night-vision contact lenses yet but here's a glimpse at how that technology might work, if it ever comes to be. University researchers have invented new graphene-based material that detects and emit a stronger infrared light. Graphene sensors have two advantages compared with the standard. The first one is that the optical sensors based on graphene require ten times less energy for work. The second advantage of graphene sensors is that they are 1,000 times more sensitive.

Graphene can be used as a very sensitive sensor detecting individual molecules in the air. The scheme of this sensor is that different molecules can be donors and acceptors, which changes resistance of graphene.

In May 2013 the creation of solar paint comprising graphene was announced. It absorbs energy from sunlight and transforms it into electricity. Solar paint was developed by scientists at the University of Manchester in cooperation with specialists from the National University of Singapore. It can cover the walls of houses and office buildings to generate electricity.

Could you imagine a bulletproof vest with graphene? Not so easy to check the strength of the thin material through direct shots. Scientists from the University of Massachusetts have developed a miniature ballistic test to check the stability of graphene. It showed that graphene is in two times better than Kevlar.

If equipped 300-seat Boeing 777 airliner with ultralight aerogels graphene-based parachutes, its weight would increase only by 60 kilograms. Scientists estimate that a ready device will weigh lighter than shirt. The porous material, created by a team of researchers led by Professor Gao Chao from Zhejiang University in China, consists of dried carbon oxide and graphene. Today, graphene aerogel is the lightest solid material in the world.

On the other hand, we have health risks. Research at Brown University found out that graphene flakes are able to pierce cell membranes in solution. They were observed to initially enter via sharp and jagged points, allowing graphene to be internalized in the cell. The physiological effects of this remain uncertain, and this remains a relatively unexplored field.

Every epoch has its own greatest discovery, which sets the pace and direction of progress many years ahead. For example, the metallurgy was the basis of the industrial revolution; invention of semiconductor transistor in the XX century made it possible the emergence of the modern computerized world. Will graphene be this miracle material of the XXI century and will we create graphene-based devices, which we now can't even imagine? It may well be. Moreover, recently, Samsung announced that its scientists have discovered an inexpensive way for mass production of graphene.

SECTION 4

CHOCOLATE TOOTHPASTE FOR A SWEET TOOTH

A. Batyuk, Sumy State University, group SM-403
N.G. Horobchenko, EL Advisor

What do we mean saying “a beautiful smile”? Well, first of all, it is a sincere smile. What makes it beautiful? – White and healthy teeth. The most important helper for us is a toothbrush. A toothbrush is used with a toothpaste, and the choice of it is rather important, too. As a rule, toothpaste contains various antimicrobial, deodorizing, bleaching, medical and other components. The main task of paste is to clean, fresh your mouth, make brushing more enjoyable, to keep gums healthy, to prevent the development of cavities and whiten our teeth.

Do you brush your teeth with chocolate, vanilla or caramel? Creators of toothpaste from chocolate and mint promise that it will be a pleasure for everyone to use it, particularly for a sweet tooth. It is believed, that chocolate is bad for your teeth. However, Corporation Procter & Gamble introduced a toothpaste “Mint Chocolate Trek”, which is in line Crest Be, and it promises to all comers "rich chocolate flavor creamy taste to satisfy the most diehard sweet tooth." One would expect to read such description of a cake, but not of a toothpaste, I should say. The corporation says that the creation of toothpaste was a response to the wishes of a great number of consumers who consider modern toothpastes "boring". At present you can find a new product in the United States. The most difficult part for the creators was to observe the right combination of taste. They used their proprietary technology of flavoring and cooling by means of which they achieved the necessary effect. Cocoa powder, which can be found in many sweets, baked goods and other products, can protect teeth from decay. Specialists claim that it can replace fluoride contained in toothpastes. It does not only strengthen tooth enamel but also makes positive effect on the body.

So, I can say that soon oral hygiene will be better than morning dessert.

INNOVATIONS IN MEDICINE

A.Boyko –Sumy State University, group LS-305
Y.S. Hrebenyk – E L Adviser

There are a lot of innovative technologies that are developed nowadays. They are: A Robot Surgeon, Testing Genetic Diseases, Non-Invasive Glucose Monitor. One of them is modern technology that is called Transcranial Magnetic Stimulation.

About two million adults in the United States suffer from bipolar disorder, a form of depression that is characterized by extremely high and low mood cycles. Transcranial Magnetic Stimulation or TMS is a kind of the magnet therapy that is being used to treat depression. TMS is a good way to treat a patient's depression and the effects of bipolar disorder [2].

This method was developed by Professor Dr. Mark George of medical University South Carolina. But what is Transcranial Magnetic Stimulation (TMS), and how does it help to treat depression? TMS activates certain parts of the brain by using electrical energy passed through a coil of wires to create a powerful magnetic field. During the procedure, energy from this magnetic field is transferred into a patient's brain by means of the coil device applied to the head. Unlike direct electrical energy, energy from the magnetic field passes through skin and skull, activating the brain painlessly and without surgery or sedation. TMS affects brain functions and chemical activity resulting in dramatic improvements in depressed patients.

One of the benefits of TMS is its accuracy. It allows practitioners to target very specific parts of the brain, leaving other areas alone. In fact, by getting rid of the depression, patients' ability to think and function actually improves. TMS patients notice that they feel "themselves" better [1].

TMS treatment in the United States is taking place only as part of clinical trials. TMS is still considered an experimental treatment for depression in the United States [3].

I am sure that this method has more advantages than disadvantages. It helps to treat people without surgery. The USA is a highly developed country that tries to find new methods of helping people.

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CANCER IMMUNOTHERAPY

Dadi Cecilia N. – Sumy State University,GP 419
N.O. Simonenko – EL Adviser

Over the years we have resorted to radiation, chemotherapy and surgery in fighting cancer. Unlike the latter mentioned forms of therapy cancer immunotherapy is one of the more recent approaches. Cancer immunotherapy focuses on enhancing the body's immune system in fighting cancer.

The body's immune system has limitations when it comes to fighting cancer because the body thinks of cancer tumor as 'self' for cancer cells are derived from the body's own cells. Cancer immunotherapy works by providing an external stimulus or rendering the immune system with cancer vaccines. Immunotherapy's mode of attacking the cancer cell offers long term protection against the disease and brings about minimal or no side effects because the focus is attacking the cancer cells only and not the healthy cells where as the other forms of cancer therapy tend to eliminate even the healthy cells.

There are several forms of immunotherapy that can be employed and they can be categorized as passive immunotherapy and active immunotherapy.

Passive immunotherapy employs antibodies created outside of the body to fight cancer.

- Monoclonal antibodies.

Active immunotherapy triggers the immune system to recognize and destroy the cancer cells.

- Cancer vaccines
- Cellular therapies
- Adjuvants

Cancer immunotherapy evident to have brought wonderful results to many patients, it has shown minimal side effects and the results of immunotherapy may be apparent in a short time. Immunotherapy is critical to bringing new and potentially lifesaving treatments to more patients with more types of cancer, and may represent the greatest hope for patients currently facing the disease.

CHEMICAL STRUCTURE OF NON-APATITIC ENVIRONMENT OF THE NANOCRYSTALS TRABECULAR BONE

E. Husak – Sumy State University
S.G. Zolotova – E L Adviser

Non-stoichiometric apatite crystals are the mineral fraction of bones. The apatite surface plays a crucial role in biological bone behavior. The bioapatite crystals have a multilayer hydrate shell, which contains impurity ions such as magnesium, sodium, potassium. Nowadays the qualitative and quantitative characteristic of non-apatitic environment of the nanocrystals is not clear yet. Water is the major component of non-apatitic environment in bones. That is why, we studied the surface of nanocrystals from trabecular bone in healthy rats under the water deficiency.

During the experiment, we have used an adult laboratory rats (8-month age), removed the calcaneal bone, cleaned it from muscles and tendons and dried it to the constant weight. The specimen was burned under the temperature from 560 to 760 ^{0}C and treated with ultrasound in deionized water. This solution was checked on the amount of calcium, magnesium, potassium and sodium by atomic absorption method.

Pyrolytic degradation of crystals surrounding at 680 º C causes a rise of soluble Ca^{2+} concentration that was significant higher in case of dehydratation. This effect shows a high Ca^{2+} concentration in the non-apatitic component and a defect structure of apatite crystals.

Mg^{2+} ions moves from the bound to a labile state on the nanocrystals surface at 700-750 ºC. It may indicate an increase of the crystallites size, disappearance of lattice microdeformations and decomposition of carbonate biomineral complexes. The concentration of the “labile” Ca^{2+} decreases significantly at the same temperatures. That may indicate their transition from the surface layer to the apatite grate. Counter migration of Mg^{2+} and Ca^{2+} begins at a lower temperature in the cases of the experimental pathology ("dehydration") then in control samples. Active mobility of K and Na confirms the fact of defective crystal structure in the cases of dehydration.

Thus, our research has shown the ability of replacement the vacant places of water by the trace elements. That may affect structural integrity of bone apatite.

BCLI POLYMORPHISM OF GLUCOCORTICOID RECEPTOR GENE IN PATIENTS WITH BRONCHIAL ASTHMA AND OBESITY

V. Kmyta, PG student, internal medicine department, SSU
S. Zolotova – E L Adviser

Certain investigations showed that genetic factors of bronchial asthma (BA) and obesity overlap each other, this indicates that they have common genetic predisposition. Thus, BA and obesity are associated with the genes, which encode β-adrenergic receptor, insulin-like growth factor, IL-1α, leukotriene A4 hydroxylase, glucocorticoid receptor (GR), uncoupling protein, etc.

The objective of this investigation was to analyze possible association between BclI polymorphism of GR gene and obesity among patients with BA.

Materials and methods. 188 patients with BA have been examined. The control group consisted of 95 apparently healthy adult individuals. We measured body mass, height, body mass index (BMI). The determination of allelic polymorphism in the second exon of the GR gene, Bcl1 (C647G) - rs41423247, was performed by polymerase chain reaction (by Fleury I. et al.) with modifications.

Results. Among patients with BA, normal body mass (NBM) was found in 50.5% of individuals, overweight - 15.4%, obesity-34%. In the control group, 76.8% of the investigated had NBM, 20% had overweight and 3.2% had obesity. It has been demonstrated that obesity occurs more often among BA patients, than in the control group. The patients with BA had higher BMI parameter, than the individuals in the control group (27.2+0.44 kg/m^2 VS. 23.5=0.29 kg/m^2; P<0.001). The obtained data showed that BMI values didn't significantly differ in carriers with different genotypes for BclI polymorphism in the control group (P=0.9126). However, dependence between BclI polymorphism and BMI parameters was found among patients with BA: G/G genotype carriers had higher BMI (31.3=0.74 kg/m^2).

Genotypes distribution for BclI polymorphism among patients with BA showed a statistically significant difference between patients with different BMI unlike the control group. G/G homozygotes had higher BMI, than those in the control group or with other genotypes. BMI didn't much differ between C/C and C/G genotypes carriers.

CATASTROPHE DE TCHERNOBYL 20 ANS PLUS TARD. CONSEQUENCES.

Etudiant Kosuk A., group LS 309
Prof. Aleksakhina T.

La pertinence de ce thème est d'étudier des problèmes de thyroïde, maintenant et dans l'avenir pathologie, la réponse des cellules cancéreuses à des radiations qu'ils sont liés à l'explosion de la 1986 a Tchernobyl. Qui ne l'abus chez l'homme est apparu, et combien de temps nous nous sentirons pour vous-même. L'objectif était de savoir quels systèmes du corps les plus vulnérables au rayonnement de rayonnement, et les enfants de tous âges ont le plus souffert. Suivez la progression de tendance des changements pathologiques selon le temps. établir des indicateurs qualitatifs et quantitatifs qui reflètent les changements pathologiques. Pour répondre à ces questions tous été groupe de contrôle créé des personnes âgées de 15-20 ans à partir de 2010.

De différentes régions de l'Ukraine. Observé au cours de chaque année de leur traitement de routine destiné basée sur les plaintes de patients pour principe de tykym et formé le groupe. Au moment de l'étude, il était possible d'identifier plusieurs facteurs, je pense, qui a touché les victimes: Etes glande thyroïde si vulnérable à la carence en iode; Communauté ; Etat psycho-émotionnel affecté

Avec cette étude, nous avons constaté que peu importe où vous êtes tragédie cèdre a laissé sa marque sur nous tous. Nos résultats ont confirmé que la glande thyroïde, les enfants de 5 ans plus souffert au moment de l'accident. Cela nous permet d'affirmer que même une maladie cancéreuse de longue date ne agressif et tenace affecté notre jeune génération basé sur notre recherche, nous pouvons dire que, en l'absence d'un traitement approprié et la prévention sera une tendance à poursuivre l'apparition de la maladie chez les enfants. Cela continuera jusqu'à ce pas un terme défini en raison du fait que le métabolisme prolongée qui sera hérité pourrait conduire à des anomalies génétiques qui conduisent à un traitement permanent. Les conséquences de la catastrophe nous aspirons à sentir et à vous observer en cas d'inactivité. Basé sur notre recherche en l'absence de traitement approprié et la prévention sera une tendance à poursuivre l'apparition de la maladie va continuer à un terme défini en raison du fait que le métabolisme prolongée qui sera hérité pourrait conduire à des anomalies génétiques qui entraînent un traitement.

CHEMICAL STRUCTURE OF BREAST CANCER CONCREMENTS

M. Lyndin – Sumy State University, PhD student
S.G. Zolotova – E L Adviser

The process of pathological biomineralization plays an important role in tumor growth morphogenesis. The role of heavy metal salts in pathological mineralization of breast cancer tissue should not be ruled out taking into consideration their ability to enter in covalent bonds with calcium salt molecules.

Objectives. To study microelement composition of breast cancer calcifications and find out heavy metals participation in their formation process.

Material and Methods. Materials for research were 20 specimen of breast cancer tissue where calcifications were found out by histological study (hematoxylin-eozin and alizarin red S staining). Chemical composition was studied by scanning electron microscope with energy-dispersion spectrometer.

Results. Alizarin red S staining detected the presence of concernments in tumor tissue and a ring of calcification around these deposits. Microelement composition of bio mineralizes, studied with energy dispersive spectrometry, showed that along with calcium and phosphorus its structure contains such microelements as iron, zinc, copper, chromium and nickel. They can substitute calcium ions in exterior part of the hydroxyapatite molecule. It will cause hydroxyapatite molecule’s molar weight increase, its solubility decreases and increases the chances to deposit in tumor tissue. This implies an increased intake of heavy metal's salts in organisms and can lead to pathological mineralization of breast cancer tissue.

Conclusions. Excessive amount of heavy metal salts ingression in women’s body causes their involvement into progression of pathological breast cancer mineralization. It happens due to their bonding to hydroxyapatite molecules, direct sedimentation of proteins and increasing degenerative-necrotic changes in breast cancer tissue with their further petrifaction.

LITHOTHERAPY

V. V. Mishura – Sumy state University, group LS -402
G.S. Ilyina – EL Adviser

From the Greek lithos (stone), lithotherapy is a gentle form of therapy. Lithotherapy consists of the use of stones, gems, quartz and crystals to obtain a therapeutic effect.

Lithotherapy in history

The Greeks used marble powder against the stomach ache, or red jasper as a tonic.

In Chinese medicine numerous minerals are supposed to balance and stimulate energy.

In the East, antimony was regarded as a medicine against infectious diseases and food poisoning.

American Indians using the benefits of clay and antiseptic effects of copper,

In India, iron sulfate was a vermifuge and diuretic saltpeter.

Each stone has special properties.

Nowadays, because it hasn't been studied enough by the scientific community and thus unproved yet, it is not used as much as in the past. Lithotherapy is a branch of unconventional medicine. This type of non invasive medicine proposes that stones and minerals contain healing properties, and can help balance the body and mind to achieve optimum health.

How does lithotherapy works?

1) It acts by the colors emitted, colored vibrational waves. The energy of the color has a strong action on our senses and on physiological functions.

2) Lithotherapy acts by enzyme reactions: gems in contact with the skin transmit their properties through enzyme reactions. They diffuse infinitely small doses of minerals, copper, lithium, silicon, etc. that are identical to the minerals in our bodies.

3) Lithotherapy acts as piezo-electricity: a quartz necklace creates a frequency phenomenon around the neck that regulates nerve influxes, removing stress and inflammation problems.

The benefits of stone properties can be seen in different ways.

Lithotherapy can be used as a complementary therapy to cancer treatment. Cancer can be generally defined as uncontrolled cell growth. From a more subtle perspective, cancer can be seen as on over-stimulation due to a "damming up" of unhealthy and "unchecked" energies. Stones can help re-established an equilibrium through a process of purification, release, and calming of these energies which have translated themselves into physical disease. Lithotherapy is not a replacement for traditional medical treatments but rather a support for one already receiving medical care. Green stones and minerals are the most beneficial for cancer as the color green is known to purify and balance. It is the color that elevates the body above the vibration of illness. The placement of stones will depend on the location and type of cancer, though it is important to always treat the solar plexus, the center of emotional life, regardless of the particulars of the diagnosis. an appropriate stone can be placed at the plexus for intervals of about 15 minutes at a time only, yet an appropriate stone can be worn close to the afflicted area, held in hands, or worn as jewelry for extended periods of time. It is recommended to avoid colors that over-stimulate such as red, yellow, and orange. Clear quartz should be avoided as it is known to be highly stimulating.

Illness is often viewed with dread, yet mineral kingdom offers us an opportunity to see it as a chance to grow and liberate ourselves from stagnant energies and patterns.

Stone massage is an ancient Oriental technique that consist in applying hot and cold stones to fight joint and muscle pain. This massage helps stimulate blood flow, promoting oxygenation and relaxation.

Many studies showed that stones and crystals have many properties that can help the body defense itself from the external environment. It is said that it helps the skin to live longer, for example.

Lithothrepy is an interesting technique which should be studied in
more details. May be, in future, hospitals will use stones to heal people.

THE INNOVATIONS IN MEDICINE AND MODERN LIFE

M. Nestoruk, LS-304
O. Fihurna, LS-304

Health and helping people are priority now. Young inventors and entrepreneurs don't want any more to earn by selling more comfortable life: they want to save people, to put paralyzed patients on their feet and give hope to childless families. There are a lot of innovations that are very interesting and helpful.

Improving health through genome. It took more than 13 years and $ 1.5 billion for the first time to decipher the human genome. Today, the full human genome can be installed in one day and less than 1 000 dollars. New research will increasingly expand our understanding of hereditary diseases in humans.

Application to fight infertility. Designed for women Glow app allows you to plan conceiving for childless couples, and those who suffer from infertility - get medical help. Once connected, each user pays a monthly fee of $50. If over the next 10 months, pregnancy does not occur, you can go to the clinic for an examination of infertility treatment - and the company Glow First covers the costs. As part of pregnancy planning application allows you to take into account not only the calendar cycle, but also the degree of emotional discomfort, weight, daily body temperature and other parameters. Glow also calculates the daily probability of conception as a percentage, reminisces that you need to take prenatal vitamins and performs other tasks that woman writes in the application.

Cardiac Alive Cor allows ECG using iPhone: anywhere and at any time. Application for Alive Cor can freely download in the Apple App Store. To make an electrocardiogram, is enough to turn a smartphone into a horizontal position and press the fingertips to the

sensors, or attach it to his chest in the heart area. ECG saved as PDF, can be printed or sent via e-mail to your doctor.

Online consultation with a doctor. HealthTap mobile app empowers anyone, anywhere in the world (of course, if there is internet) to ask doctors the questions related to health and medicine. Experts answer in text format, as in social network. One question can be answered by many physicians. For pregnant women and mothers there is a special section Doctor Moms, where questions are answered by the doctors, who have their own children.

Scientists created a molecule that kills cancer. American scientists from Maine announced the creation of a molecule capable of provoking self-destruction of cancer cells. According to them, they developed the technology that had more effect than chemotherapy. It had good results in the treatment of leukemia. Unique molecule discovered in the course of genetic research, worked on the principle of "gene vacuum cleaner", finding and destroying the "bad" cells. It integrated into the defense system of the cancer cell and provoked it to self-destruction, while healthy cells stayed untouched. After studying the genome of cancer cells, scientists were able to create a "molecule-killer", which responds to the genes responsible for the protection of cancer cells, and, therefore, the very protective system.

So, as we see, medicine does not stand still. It improves and develops everyday more and more. Thanks to young researchers who want to help people we have a lot of innovations, that help us to fight diseases or get healthier.

E-DURA IMPLANT

T.A. Palij – Sumy State University, group SM – 404
O.I. Nefedchenko – E L Adviser

Researchers from all over the world every day try to find new ways to improve medical equipment, release patients' pain, make life of injured people more comfortable.

A group of researchers from the Ecole Polytechnique Fédérale de Lausanne has developed a solution that will get back on their feet paralyzed people with spinal cord injury.

Researchers have created an implant poses called e-Dura. This device can replace the damaged areas of the spinal cord. The implant is a flexible tape which equipped with electrodes. It is set along the spinal cord. The implant e-Dura is flexible enough to bend with the tissue located next to the spine, and not cause discomfort in the patient.

The relationship between different parts of the spine is lost as a result of injury. The implant is capable to transmit electrical signals between parts of the spine due to the current electrodes and conductive compounds. Also, the device is able to transmit medication. E-Dura implant is made of silicone and coated with gold conductive tracks. They can stretch and bend. The electrodes are made of silicone and platinum microscopic beads, which can also be bent in different directions without disconnection.

Researchers have conducted experiments on paralyzed rats. After surgery to implant e-Dura rats were able to walk again after only a few weeks of training. In the future, the researchers intend to initiate clinical trials with humans. As expected, the implant can remain in the human body to perform its function, and for over 10 years without requiring replacement. The apparatus is so effective, since emits soft tissue around the spine, also known as the dura (dura mater), whereby the implant body does not reject.

Finally, there is a drug-releasing component in the implant. This component is used to reanimate nerve cells.

Though e-dura implant allowed only the rats to run when they had been previously paralyzed, the scientists hope to use it for people in future. They do all necessary researches.

THE EVALUATION OF PROTECTIVE AND ADAPTIVE MECHANISMS OF STUDENTS WHO HAVE DIFFERENT LEVELS OF PHYSICAL EXERCISE

Tatyana Polishchuk, Kharkiv Medical University
Oksana Gladchenko, Sumy State University
Antonina Siryk, Sumy State University

The adaptation of youth to emotional and physical activity has an actual value in the system of training of medical students. Staying of students in the new learning environment, at different clinical sites of the city,long duration journeys, many new disciplines and essential term of the learning process require appropriate adaptive response of the body, which is closely linked to physical and mental health .

An important aspect of this problem is the study of monitoring criteria for assessing homeostatic functions of the body in the system of physical training as reliable indicators of students' professional success. The availability of reliable performance indicators allows you to monitor the dynamic changes of physical training depending on the particular mode of learning process for operational support of student life conditions.

Dynamic monitoring control of testing of physical condition of students is one of the important tasks aimed at ensuring homeostatic functions, the important role in which belongs to the integrative systems - the nervous, the endocrine and the immune. They support such basic physiological functions as circulatory, respiratory and thermoregulatory ones and also metabolism and energy . These systems support the reliability of the metabolism of cells, organs and the whole organism at the optimum level, its self-renewal and reproduction. They restrict, prevent and normalize violations arising under various external and internal factors that accompany learning activities of students and the high level of mental stress. In this regard, the searching of these criteria which are significant and adequate indicators for assessing health is important in the diagnosis of violations under load in the system of physical education and creating an enabling environment of students successful activity.

The aim of this paper was to evaluate the adaptive and protective mechanisms of homeostatic functions of the body of students engaged in physical education in general high school curriculum and who combine studying with game sports.

This paper investigated the state of some metabolic parameters in monitoring the students of the first and the second year of study in a medical college, aged 18 to 22 years. Of all amount of students 95 students were engaged in a comprehensive program of physical education (50 males and 45 females.) They were included in the first group of supervision. The second group included students who were motivated by the desire to further engagement in game sports such as volleyball and basketball (16 males and 15 females.).

Research Program provided the determination of the creatinine, urea, epinephrine, norepinephrine, dopa, dopamine, melatonin, sodium and potassium in the urine of students of the first and the second year of studying in medical university.

Epinephrine, norepinephrine, dopa, dopamine were determined with the help of flourometrychnym method, which works on the principle that under the influence of catecholamines oxidants transfer in adrenochrome and noradrenohrom. Under the influence of light they convert into aminolutine which fluoresces in ultraviolet light.

The results of the study revealed the dynamic content of changes in urine of students of the first two courses in high school. The analysis of students engaged in high school physical education program showed the decrease of creatinine after two years on 31.01% and 27.12%, respectively, in men and women. The reason for these changes may be poor nutrition of students, accompanied by insufficient intake of protein and vitamins, high levels of emotional stress and the lack of exercise, which together resulted in a decrease of creatinine .The analysis of dynamic changes shows that more students exercise improves nitrogen and energy metabolism, activates adaptive and protective mechanisms to ensure homeostatic functions, which can be a positive factor that affects the training of students and their physical condition.

I HAVE THREE PARENTS

A. Profatylo – Sumy State University, group PS-401
Y.S. Hrebenyk – E L Adviser

Genetics must be improved. Today we have got many innovations. Britain scientists think up a new method of three-person babies' conception. This research can free the mankind from a lot of genetic pathologies, such as heart disease, muscular dystrophy, blindness [2].

In order to prevent the transmission of a pathologic gene, the researchers have developed an experimental technology of IVF (In vitro fertilization), which involves cells of the father and two women - mother and donor [1].

The procedure consists of some phases. The healthy DNA is extracted from an ovum and then the healthy ovum is transplanted the mother of the unborn child [3].

I think this exploration has got advantages and disadvantages. First of all it destroys many diseases, helps to bear children. To tell the truth that's great, a lot of babies will be born! But can you explain your child why he has two moms and father? In my opinion it's very difficult. It is the main disadvantage.

In addition I can say that people will misapply this new method. For example transplantation of different organs or people will create their future children. I think it is a bad idea because just our nature can create and form all live organisms. We don't know that these children will be born healthy or mutant. We can safely

assume that conception of three-person babies will create new genetic pathologies which mankind cannot treat. And we will have new problems. In conclusion I can say we reach a colossal progress, but it is important to know that it destroys the rule of the nature. The creator of human's life is the nature and to change it is a great mistake.

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BODY MASS INDEX IN PATIENTS WITH BRONCHIAL ASTMA DEPENDING ON β_2 – ADRENOCEPTOR Gln27Glu GENE POLYMORPHISM

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It is known, that obesity and excess body mass significantly increases the risks of the emergence of various comorbidities, including bronchial asthma (BA).

Because of prevalence and medical social values BA and obesity belongs to global problem of health guarding. The level of morbidity and dissemination of BA increased recently among adult population, who are suffering because of obesity. Obesity is a contributing factor of BA development. As explanations to the links between obesity and BA genetic predisposition has been considered. Obesity complicates the BA control and decreases positive results of the treatment.

The purpose of the investigation was studying the dependence between body mass index and Gln27Glu polymorphism ADRB2 gene among patients with BA.

Materials and methods. 188 patients with light, moderate and severe persistent BA at the age from 18 till 70 have been examined. The diagnosis was made according to GINA recommendations (2011) and The Order of Ukraine Ministry of Health №128 19.03.2007. The control group consisted of 87 almost healthy humans without allerhopatology without allergic history.

Determination of allelic polymorphism of 1 exon β_2 – adrenoceptor Gln27Glu gene (rs1042714) was made using method of polymerase chain reaction with following analysis of restriction fragment length.

Results of investigations. During the investigation it was defined that among patients with BA Gln27Gln genotype carriers average BMI was 24,9 ±0,5 kg/m^2, the carriers of Gln27Glu genotype – 28,2 ± 0,8 kg/m^2, the carriers of Glu27Glu genotype – 34,5 ± 0,6 kg/m^2 (p=0,0001). The average BMI was 23,4 ±0,4 kg/m^2, Gln27Glu – 23.7 ± 0,5 kg/m^2, Glu27Glu – 23,2 ±0,4 kg/m^2 (p = 0,8) in almost healthy carriers of Gln27Gln Genotype. So, the patients with BA and Glu27Glu genotype have higher level of BMI (34,5 ± 0,6 kg/m^2).

Conclusions: The connection between Glu27Glu polymorphism ADRB2 gene and BMI among patients with BA have been found. Glu27Glu genotype is associated with obesity among patients with BA. The frequency of Glu27Glu genotype among patients with normal BMI was 69,7%, with overweight – 18.2 %, and with obesity – 12.1 %; carriers of Gln27Glu genotype – 53,8 %, 2,9 % and 43,3 %; carriers Glu27Glu genotype – 9,1 %; 4.5 %; 86,4 % respectively (p = 0,0001). This tendency was not noticed (p = 0,8) in the control group.

THE SKIN

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The skin is our body's envelope, acting both as a protection and as a means of interacting with the outside world. Its structure is complex and divided into three layers: the epidermis, the outermost layer, the dermis, and the deepest, the hypodermis, each of which fulfils precise functions.

The skin is a complex organ - with each square centimetre of skin, on average 3mm thick, containing 10 hair follicles, 100 sweat glands, and up to 2,500 sensory cells as well as 3 metres of lymphatic and blood capillaries, 12 metres of nerve fibres, etc.

The epidermis is the skin's outer structure serving a protective function. It is the ultimate result of the keratinisation process and marks the final stage of a 4 to 6 week journey undertaken by the keratinocytes. Human skin is continually being renewed, in contrast with that of reptiles who moult. The desquamation of cells on the skin's surface should naturally be compensated for by renewal of the epidermis, a process undertaken by the keratinocytes. These possess two properties which successively come into action - the ability to actively divide and the ability to differentiate.

The keratinocytes divide in the skin's mitotic layer. The innermost part of the epidermis, this is made up of a single line of keratinocytes held together and to the underlying dermis by desmosomes, a sort of "press stud" structure. Each keratinocyte divides to produce two identical daughter cells. One remains static in order to divide again while the other migrates to the upper layer, the differentiation layer, where it will undergo a number of morphological and biochemical changes. The melanocytes are dendritic cells only found in the deepest layer of the epidermis. Their function is to produce melanin, the pigment which gives the skin its colour, and to transfer it to the surrounding keratinocytes by means of cytoplasmic processes. Since they account for 5% of the cells in the epidermis, each melanocyte has to supply melanin to 35

keratinocytes.

Merkel cells (6-10% of the cells in the epidermis) situated between the keratinocytes in the renewal layer, remain in contact with a nerve ending. They can be isolated or grouped together in clusters called Merkel corpuscles. They serve as mechanoreceptors and are involved in the function of touch.

The dermis is 10 to 40 times thicker than the epidermis. At the junction with the epidermis, its surface bristles with fibrous, vascular and nervous projections - the dermal papillae.

The fibroblasts are the main cells in the dermis. They are essentially located in the dermal papillae close to the epidermis, and found only in very low numbers in the deep layers of the dermis known as the reticular dermis. They are specialised in producing two types of protein fibres, collagen and elastin fibres constituent of the extra-cellular matrix.

The reticular dermis accounts for the greater part of the dermis. On this level, the elastin and collagen fibres are multidirectional, whereas in the dermal papillae the elastin fibres are mainly oriented perpendicular to the skin surface.

The hypodermis is the innermost and thickest layer of the skin. It is essentially composed of a type of cells specialised in accumulating and storing fats, known as adipocytes. These cells are grouped together in lobules separated by connective tissue.

Each day the skin suffers multiple attacks, whether physical or mechanical, from undesirable micro-organisms or the sun. In addition to its protective function, the skin also has a metabolic function, and a sensory function. Finally, in order to play these roles perfectly, it must maintain its integrity by repairing itself.

Hairs, sweat glands, sebaceous glands and nails are structures associated with the skin. They have their roots in the dermis or even in the hypodermis.

The skin is home to a variety of glands of which the main function is to synthesise substances which cool down the organism, protect the skin or make it more supple, lubricate the hair, or eliminate mineral elements or cholesterol.

CANCER TREATING NANOTHREAD

O. Rudyka –Sumy State University, group LS – 421
O. A. Chuiko – E L Adviser

The problem of cancer has become very relevant. Unfortunately this disease affects many people of all nationalities, genders, and ages. Scientists of different countries are looking for a universal medicine and treatment methods of this disease.

The word *nano* frequently appears in the headlines reporting another scientific bombshell. Japanese National Institute for Materials Science has invented an innovative cancer treatment technology. They created the so-called "grid", a unique thread made of nanofibers 500 nm thick. Placing this thread on the surface of malignant tumours with the help of a special drug it completely destroys cancer cells. The effectiveness of chemotherapy has increased by 7%.

This thread should be placed in a special capsule. The drug is sutured into the body close to the expected tumor. The capsule is good dissolving. The nanothread which defines pathological cells comes from the capsule. The nanothread is put on the cancer tissue and covers it. It starts the work with destroying the cancer cell structure. It is of high importance that nanothread does not induce immune response, since it is placed in a capsule with the pre-human (patient’s) leukocytes T-helper cells.

Now the scientists work on creating nanothread frameworks to induce regeneration of bones and cartilages due to built-in vitamin D and stem cells due to built-in vitamin A.

The new method promises to improve the delivery of the medicine directly to the target tissue when treating cancer, cardio-vascular diseases, Alzheimer's disease, regenerating tissues, bones and cartilages. Moreover this innovative technology finds its application not only in medicine, but in microprocessor industry when creating thin and high-performance microprocessors for computers and other electronics.

PROGRESS IN NEW TECHNOLOGIES IN MEDICINE

A. Shkreben - Sumy State University, group GP – 423
N.G. Horobchenko – EL Adviser

Medicine doesn't stand still; scientists from all over the world are working to create new medicines and ways of treatment of different diseases. New openings and technologies give them a chance to combat those illnesses which earlier seemed to be incurable.

I'd like to tell you about new modern technologies in medicine that can become an ordinary thing very soon and make our world safer and smarter. In the medicine of future cell technologies will be open for everyone and will be needed, too. Even now scientists offer an effective way of gene diagnosis, prophylaxis of hypertonic disease, atherosclerosis, diabetes, AIDS, etc. Results that we have now give us a great hope. But today the global usage of these methods is impossible. Fortunately, scientists say that it will not face any problems in future and will spread throughout the world. Cells technologies are much safer than prosthesis, for example. Although their spreading will be accompanied by difficulties and great problems, inventors are sure of this. One of the new technologies is the organs grown in the tubes. Another main goal of medicine is to prolong a life span. British scientists have entered a special bacterium into the muscle and soon the process of aging of the cells stopped completely. Scientists of the California University after the long work could slow down age processes through the way of activation of the gene which provides the cells with energy. This method showed unexpected results and started a new era in genetics because of the successful starting of the clinical trials. It has been found a special gene with the ability to block the main cause of strokes. Moreover, genetic experiments and therapy have gone beyond the walls of the laboratories. But something we're really waiting on is a remedy for cancer and AIDS. It would really change the world if it could become the reality. So, we have to do this, we can't stay aside, we shouldn't forget that the main medicine in our life is kindness and love.

DEVICES FOR THE DISABLED

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V. S. Kurochkina – E L Adviser

Some people are not able to use “standard” devices that we use in our daily activity. Some devices have been especially developed to lower these differences. Some disabilities mean that the input devices need to be placed at convenient location for person.

A person who is limited in using arms, can use a foot mouse. It consists of two segments: the first to control the cursor, the second to select. Most of them include straps.

A person who can’t use a hand or a foot to operate a mouse and a keyboard can take the advantage of an eye typer. A camera is set to focus on the user’s eye, it determines where the user is looking and monitors movements which are made by eyes. Mouse clicks are done with a slow blink.

Brailee is a writing system for blind and visually impaired people. It’s made up of raised dots that can be “read” by touch. Brailee display is a piece of equipment that is connected to a computer.

Speakers can be useful for visually impaired people. A text can be converted into speech and reproduced by the speaker in a sound format.

Dennis Hong developed a car that actually can be driven by the blind. The aim is to integrate several computer systems, sensors and cameras to observe the environment around. Also, it designed to provide alternative forms of sensory input, including sound and vibration. This may include seat vibrators, pulsing vibration signals in gloves, worn by the driver.

Prosthetic arms with control can even peel a grape. The arm supports a number of customizable controls and modular components, making it easy to do individual needs.

These days, people try to help each other by means of making so complex and unusual devices. Using a computer and up-to-date devices must be not just for the able-bodied, but for everyone.

CHANGES OF IMMUNOREGULATORY INDEX AMONG YOUNG CHILDREN SUFFERING FROM ROTAVIRUS INTESTINAL INFECTION

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Rotavirus infection occupies an important place in the structure of infectious diseases and is the main reason of morbidity and mortality in young children. According to WHO experts, almost every child suffers from rotavirus gastroenteritis during the first five years of life, regardless of social and economic status and place of residence. Children under the age from 6 to 24 months suffer from rotavirus infection the most often. According to WHO, the incidence in different countries ranges from 250 to 3,000 per 100,000 children. More than 111 million cases of rotavirus gastroenteritis are diagnosed every year. The course of the disease mostly depends on the immune system of the patient. A special place here belongs to the cell role, namely the immunoregulatory index, which is the ratio of CD4 + to CD8 + T-lymphocytes and is an indicator of body's defense system against infections.

The aim of our study was to determine changes of immunoregulatory index among young children with rotavirus intestinal infection.

Materials and mehods: 26 children under the age from 1 month to 5 years have been examined: 14 patients were hospitalized with rotavirus intestinal infection and 12 were healthy children. The results of the research showed a significant decrease of the immunoregulatory index of serum among sick children. CD4 + cells are the major regulators of the immune response. T-helper cells activity influences the immune response and its efficiency. CD8 + cells are affect cells of the immune response which make the final impact on the targets of the immune aggression. An indicator of cell immunity is reduced because of the participation of T-helper cells and T-suppressors in the immune response to virus infection.

Thus, a significant decrease of the immunoregulatory index among sick children proves the immune system activation in response to the entry of a foreign agent. At the same time it is necessary to continue the study of cell immunity to clarify its role and to find out the diagnostic and prognostic markers of rotavirus infection course.

BIOPRINTERS

Svyrydenko D.,Yurchenko V. LS-304
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Scientific and technological advances are rapidly changing conditions of human existence. Modern information technology is increasingly used in the health care industry.

Bioprinter

3D printing is widely used for manufacturing a variety of plastic and metal products. This technology may cause production revolution in the world.

Technology of bioprint

They artificially create living tissue, imposing living cells layer by layer. Currently, all experimental bioprinters are, nevertheless, in the future they will revolutionize medicine. Bioprinter can have various configurations, but the principle of operation is the same: they take cells from the printhead that moves left and right, back and forth, up and down to place the cells where required. Thus in several hours organic substance consisting of large number of very thin layers may be obtained. In addition to the conclusion of cells, most bioprinters also derive soluble gel to support and protect the cells during printing.

Several experimental bioprinters have already been created.

For example, in 2002, Professor Makoto Nakamura saw a drop of ink in a standard inkjet printer that is about the same size as human cells. After that, he adapted the technology and in 2008 established a working bioprinter model that performs printing biotubes similar to blood vessels. Professor Nakamura hopes that in time it will be possible to print just internal organs, ready for transplantation.

Surprisingly, nature takes its toll and slowly merges into spheroids. As a result we have a tissue or organ, printed by bioprinter.

Over the past 20 years the use of computers in medicine has increased enormously. Practical medicine is becoming more and more automated.

A REVOLUTION IN MEDICINE: 3-D PRINTER

V. Synyuka – Sumy State University, group LS – 406
O. A. Chuiko – E L Adviser

A number of fields formed in the new millennium opened up new possibilities for the use of new information technologies. These include: nanotechnology, biomedical research, combined with mathematical and computer modeling, energy multifactorial influences in diagnostic and therapeutic purposes in the system, organs and tissues, microanalysis of biological fluids and tissues, artificial organs and tissues.

3-D biological printer or three dimensional print of living tissue is a new method in medicine, which is still at the early stages of development.

Scientists of the Institute for Regenerative Medicine in 2012 created a hybrid 3D-printer that was able to produce viable cartilage implants for patients who needed them. The basis of this technology is layered deposition of living cells from hydrogel which plays the role of ink in jet printers. The problem of printed structures durability was solved by the combination of living cell tissue and synthetic polymer to build a frame. This combination resulted in obtaining viable cartilage that had higher mechanical strength than natural materials. The cells precipitated from the traditional hydrogel create favorable environment for proliferation of tissue implanted in the patient.

The experiments conducted on mice showed that after eight weeks of implants being in the body, the new cartilage tissue was created, the structure and the properties did not differ from those of an ordinary elastic cartilage.

Scientists hope that the new technology will produce human tissue of simple structure for toxicological tests. This will allow medical researchers to test drugs on models of liver and other organs and therefore reducing the need for animal testing.

THE ROLE OF EVALUATION SCALES IN THE DIAGNOSIS OF MENTAL AND FUNCTIONAL DISABILITIES IN PATIENTS ON MULTIPLE SCLEROS

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On the basis of SRCH fifteen patients have been examined and diagnosed with multiple sclerosis. One patient has primary-progressive type, fourteen others - secondary-progressive type of flow. All patients noticed the first symptoms of the disease at the age from seventeen to forty years.

To assess mental status the scale of Mini-Mental State Examinations was used. The relation between the severity of the disease, its duration and the number of points was investigated (from 28 points to 20, which is an indicator of the dementia presence). Those patients who had progressive type of illness got from 26 to 20 points – a number of exacerbations up to 4 points per year and the duration of the disease from five to fifteen years, and up to 26 points received those patients who were ill for 2-3 years with the number of exacerbations up to 2 per year.

The level of depressive disorders was assessed using hospital scale of anxiety and depression (HADS), the maximum score was given to those patients (up to 20 points, which is an indicator of depressive disorders severe), which had a heavy type of occurrence or duration of illness from five to twenty years and the minimum (from 7 to 10, which is an indicator of norm or rate "on the edge") - those who had 2-3 years, had the secondary - progressive type of disease and the number of exacerbations once every two to three years.

Two patients underwent immunological blood tests, which revealed an increased amount of circulating immune complexes, increased total phagocytic activity of leukocytes, increased phagocytic index that indicates the presence of an autoimmune process in the body.

Thus, the study shows that quantitative indicators of hospital scale of anxiety and depression scale, Mini-Mental State Examinations depend on the type, duration of course of multiple sclerosis and the number of exacerbations during the year .

QUALIFIED MEDICAL ONLINE CONSULTATION

C. Til – Sumy State University, group LS-420
V. E. Pronyaeva – E. L. Adviser

Every year, nearly 13% of the Ukrainian population perish due to the ill-time medical help. To prevent such situation a new innovative on-line programme 'Start_up' was implemented. This programm provides and ensures qualified medical care for oll patients without leaving home.

Using "Start_up" programme gives possibility to every person having a computer, tablet or smart phone to get necessary medical instructions and advice on time. Besides they can be in touch with their physical parameters,can get DNA test quickly and cheaply and control their health state and so on.

Due to survey, provided in Ukraine, the results about the importance.of this 'Start_up' programme were positive. Medical staff and ukrainian patients are ready to use and to implement this programme in nearest future. According to the survey, it is interesting to note that 68% of the population aged 20 - 45 years are ready to implement this programme. But due to some difficulties and peculiarities of modern medicine state in Ukraine, the transition on new innovative level of medical aid will be delayed.

Thus, the importance and necessity of this innovation was proved. Ukrainians need this programme. But due to unreadiness of Ukrainian health service (poor financial situation, lack of specialists in this sphere) the programme 'Start_up' has been delayed.

WE AND MEDICINE OF FUTURE

S. Udovychenko – Sumy State University, group GP-421
N.G. Horobchenko - EL Advisor

There is a real need for innovation in health care delivery, as well as in medicine, to address related challenges of access, quality, and affordability through new and creative approaches. Health care environments must foster innovation, not just allowing it but actively encouraging it to happen anywhere and at every level in health care and medicine - from the laboratory, to the operating room, bedside, and clinics. This paper reviews the essential elements and environmental factors important for health-related innovation to flourish in academic health systems. The authors maintain that innovation must be actively cultivated by teaching it, creating "space" for and supporting it, and providing opportunities for its implementation. The authors seek to show the importance of these three fundamental principles and how they can be implemented, highlighting examples from across the country and their own institution. Health innovation cannot be relegated to a second-class status by the urgency of day-to-day operations, patient care, and the requirements of traditional research. Innovation needs to be elevated to a committed endeavor and become a part of an organization's culture, particularly in academic health centers.

Promoting healthy lifestyle is a challenge for many primary care practices. Although most patients understand the importance of physical activity and healthy eating, many seem unable to change their unhealthy behaviors to reduce weight and improve chronic conditions. Medications often take a predominant role in the treatment of these patients, even though medications alone are rarely completely effective for chronic conditions, and lifestyle changes have been shown to significantly reduce morbidity and mortality rates for most chronic diseases. In addition, patients can feel embarrassed and ashamed of their situations, and physicians can feel pressed for time, causing them to avoid the very dialogue they need to embrace in order to facilitate a breakthrough in improved health.

Diabetes self-care is a pain—literally. It brings the constant need to draw blood for glucose testing, the need for daily insulin shots and the heightened risk of infection from all that poking. Continuous glucose monitors and insulin pumps are today's best options for automating most of the complicated daily process of blood sugar management – but they don't completely remove the need for skin pricks and shots. But there's new skin in this game. Echo Therapeutics (Philadelphia, PA) is developing technologies that would replace the poke with a patch. The company is working on a transdermal biosensor that reads blood analyses through the skin without drawing blood. The technology involves a handheld electric-toothbrush-like device that removes just enough top-layer skin cells to put the patient's blood chemistry within signal range of a patch-borne biosensor. The sensor collects one reading per minute and sends the data wirelessly to a remote monitor, triggering audible alarms when levels go out of the patient's optimal range and tracking glucose levels over time.

With the most deadly form of skin cancer, melanoma, a huge number of dangerous-looking moles are actually harmless, but has always been impossible to know for sure without an invasive surgical biopsy. Today dermatologists have new help in making the right call — a handheld tool for multispectral analysis of tissue morphology. The optical scanner is not for definitive diagnosis but rather to provide additional information a doctor can use in determining whether or not to order a biopsy. The goal is to reduce the number of patients left with unnecessary biopsy scars, with the added benefit of eliminating the cost of unnecessary procedures.

As far as nutrition is concerned, the subject of it is massively wide and deep. There is so much to learn and there are so many seemingly contradictory theories on the subject of nutrition and its relationship with human physiology and mental function that it requires a great deal of time for discussion. To my mind, medicine of the future will no longer be remedial, it will be preventive; not based on drugs but on the optimum nutrition for health.

THE NEXT GENERATION OF BIONIC LIMBS

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S. Zolotova – E L Adviser

At present due to the rapid technological progress and the enormous scientific advances a wide range of different adaptive, auxiliary equipment for people with disabilities are offered. Nowadays there is a rapid development of new achievements and developments in this area. The main purpose is the desire to bring the function of real hands and feet to an artificial limb.

Yet, all the bionic devices do not fully resemble their natural prototypes, but scientists are engaged in hard work to solve this problem and further improvement of prosthetic limbs. The main problem of outdated designs today is the lack of flexibility and a problem to be well connected to the human body, as well as the fragility and unnatural, unsightly appearance. Prostheses, which in the old days replaced the arm / leg, can not work as their full-fledged prototypes - the relevant parts of the body, and are not able to approach the capabilities of their natural counterparts.

Hugh Herr, inspired by nature's own design, has been working out the next generation of bionic limbs and robotic prosthetics. Herr Hugh lost both legs in a climbing accident 30 years ago. Now, as the head of the MIT Media Lab's Biomechatronic group, he shows his incredible technology in presentations— with the help of a ballroom dancer Adrianne Haslet-Davis, who lost her left leg in the 2013 Boston Marathon bombing, and performs again for the first time on the TED stage. This behavior is both technical and deeply personal.

Nowadays one can find the newest devices and spare parts for disabled people at the consumer market like the prosthetic leg model consisting of two key elements - the foot and knee module and equipped with built-in microprocessors. These devices can have special programmes for more natural, relaxing walking and other movements.

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Наукове видання

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