Министерство образования и науки Российской Федерации
Федеральное государственное бюджетное образовательное учреждение
высшего образования
«Кузбасский государственный технический университет имени Т.Ф. Горбачева»

Кафедра иностранных языков

Coal Mining in Kuzbass
(Добыча угля в Кузбассе)

**Методические указания для практических занятий
и самостоятельной работы по английскому языку
для студентов специальности 21.05.04 «Горное дело»
всех форм обучения**

Составитель И. В. Батенко

Утверждены на заседании кафедры
Протокол № 11 от 22.06.2017
Рекомендованы к печати
учебно-методической комиссией
специальности 21.05.04
Протокол № 11 от 22.06.2017
Электронная копия находится
в библиотеке КузГТУ

Кемерово 2017

Предисловие

Методические указания **“Coal Mining in Kuzbass” (Добыча угля в Кузбассе)** составлены в соответствии с рабочей программой по иностранному языку специальности **21.05.04 “Горное дело”** и предназначены для студентов 1 курса, изучающих дисциплину “Иностранный язык”.

Рабочая программа дисциплины “Иностранный язык”, предусматривает освоение студентами такой общепрофессиональной компетенции, как ОПК-2 – владеть готовностью к коммуникации в устной и письменной формах на русском и иностранном языках для решения задач профессиональной деятельности.

Целью данных методических указаний является развитие и совершенствование практических навыков устного и письменного перевода текстов, формирование навыков поиска информации в тексте и усвоение лексико-грамматического минимума в объеме, необходимом для применения в будущей профессиональной деятельности.

Методические указания состоят из семи разделов:

- From the History of Coal Mining in Kuzbass
- Future of Coal in Russia and in Kuzbass
- Mining and Environment
- Safety is a Priority
- Innovations in Mining
- Outstanding People in the Field of Mining in Kuzbass
- My Future Profession

Материал, представленный в каждом разделе, способствует развитию всех видов деятельности: аудированию, говорению, чтению. Разделы пособия содержат тексты для изучающего, ознакомительного и просмотрового чтения. Разнообразные лексические упражнения помогают отработать специальную и общенаучную лексику. Задачу грамотного составления сообщений на заданную тему решают упражнения по составлению кратких резюме на основе прочитанного материала.

В каждом разделе есть задания, направленные на развитие общего кругозора будущего инженера-горняка и выработку навыков ведения самостоятельной работы при дополнительном изучении отдельных разделов дисциплины.

Методические указания направлены на воспитание патриотизма и развитие интереса к будущей профессии.

Unit I: From the History of Coal Mining in Kuzbass

1. Warming up.
Kuzbass will celebrate the 300-th anniversary of coal discovery. Do you know when?
Look at the pictures. Who do you associate these men with? Discuss.

1. 

2. 

3.

1. Daniel Gottlieb Messerschmidt
2. Mikhailo Volkov
3. Peter Aleksandrovich Chikhachev

2. Read and translate the following international words:
to summarize, information, geologist, geographer, deposit, role, basin, monument, centre, territory, material, group, region, chief, order.

3. Analyze and translate the derivatives:
to discover – discoverer – discovery; to mine – miner – mining; to explore – explorer – exploration; metal – metallurgy – metallurgical; science – scientist – scientific.

4. Form adjectives using the suffixes -al. Consult a dictionary if necessary:
industry, region, centre, practice, metallurgy, geology, geography.

5. Before reading the text "The Discovery of Coal in Kuzbass" try to answer the following questions:
1. When was coal discovered in our region?
2. Who discovered coal in our region?
3. Where was coal discovered?
4. The discovery of coal was of practical use in those days, wasn't it?
5. Did the discovery of coal play an important role in the fate of Kuzbass?

6. Now read the text below and get to know whether you were right or wrong.

The Discovery of Coal in Kuzbass

At the beginning of the 18-th century, the chief of the Urals and Siberian enterprises, V. Gennin, received orders from Peter the First "to find coal, as is done in other European countries".

Mikhailo Volkov's name appeared for the first time, when rich silver and copper deposits were found at the foot of the Altai Mountains by a group, headed by Kostylev in 1721. By February 1722 M. Volkov made his own claim – "Iron ore, discovered in the Tomsk region, is the coal".

The coal layer was discovered in the "burning hill" seven verst from the Verkhotomsk Fortress (крепость), in a rip of the steep right bank of the river Tom. Now this place can be found on the territory of the city of Kemerovo (opposite the old bridge connecting

both banks of the river). The first explorer has a monument dedicated to him standing in the central part of Kemerovo.

The discovery was of no practical use in those days. There was no way to transport coal to the Urals, and Siberia had no metallurgical industry at that time, including Kuzbass. The ore seeker Mikhailo Volkov was sent to the Podvolshny ore deposit in the Urals and lost out of history sight.

But his discovery played an important role in the fate of Kuzbass. A hundred years later, when Kuzbass had established several of its own metallurgical enterprises, the region was confronted with the same problem of fuel, as the nearby forests were burnt out and the question of coal once more became an issue (стал проблемой). Several layers of coal that showed out of the Tom river bank near Shcheglovo, the villages Atamanovo and Borisovo above Kuznetsk and on the river Inya were inspected by a group of explorers. It became clear, that the different deposits were part of a huge coalfield. The engineer-capitan Sokolovsky wrote in his logbook (журнал) in 1842, that this area embraced the basin between the Salair and the Kuznetsk Alatau and had a complete territory of 40 thousand square verst.

Peter Aleksandrovich Chikhachev, a known Russian geographer, arrived to the area in 1808. He summarized the information concerning the Kuznetsk coal starting from the banks of the Kondoma and Mrassu rivers in the south and ending at the banks of the Inya River in the north. The prominent scientist was astonished (удивляться) by the amount of "burning material" hidden in this land. As a result he made the first geological map of the basin. He was also the first man who suggested the place to be called the Kuznetsk coal basin (Kuzbass). "I call this region the Kuznetsk basin after a town located in its southern part", wrote the scientist.

7. Translate underlined Participle I and Participle II from the text into Russian.

8. Speak on the problem of coal discovery in Kuzbass. The following phrases can help you to organize the information:
First of all I'd like to say that …

Then, …
As for …
More over …
In fact …
If I am not mistaken …
In conclusion I'd like to say …

9. Render the information given below from Russian into English.
Make use of the following phrases:
to find coal in …;
to consider the place to be;
another version;
to be a naturalist, a Doctor of Medicine;
was sent to collect nature specimens samples;
went down the river Tom from…to…;
fire-breathing mountain;
by mistake he took a burning coal for volcano;
a month before;
he reported about his discovery in the same year;
took away the materials of the expedition;
found and describe only in …;
to serve as an impetus;
it took place in;

Кто в Кузбассе уголь нашёл?

Традиционно, берег реки Томи в Кемерово считается местом открытия Кузнецкого каменноугольного бассейна. Известен и его первооткрыватель – Михайло Волков. Но есть версия и о другом первооткрывателе угля – Даниле Готлибе Мессершмидте.

Мессершмидт был немецким натуралистом, доктором медицины. Пётр Первый пригласил его работать в академию наук. В 1719 г. государь отправил учёного в Сибирь собирать "экспонаты природы". В Кузнецк Мессершмидт отправился по реке из Томска в июне 1721 года.

Здесь немцу рассказали, что есть гора, из которой валит дым. Мессершмидт отправился осматривать её. В районе деревни Боровково он увидел огнедышащую гору. Но ошибочно он

принял горящий уголь за вулкан. Эти события происходили за месяц до того, как Михайло Волков заявил о своём открытии.

Почему же мы считаем Волкова первооткрывателем угля в Кузбассе? Волков в том же году сообщил в Томске и на Урале о своём открытии, а Мессершмидт после Кузнецка ещё семь лет путешествовал по Сибири. Когда он вернулся в Санкт-Петербург, Пётр Первый уже умер, а новая власть отобрала у учёного материалы экспедиции, не заплатила ничего и сослала на родину в Германию. И только в 1745 г. Ломоносов добрался до коллекции немца и описал образцы с кузнецкой речки как «каменное уголье».

Открытие Мессершмидта послужило толчком к тому, что именно Кузнецк стал первым местом в Кузбассе, где начали добывать уголь. Это произошло только в 1786 г., когда понадобилось топливо для работы Томского железоделательного завода (он находился на территории нынешнего Прокопьевского района).

А на месте, открытом Волковым, добыча началась почти 200 лет спустя, в 1907 г.

Adapted from ***"Аргументы и факты в Кузбассе", №1-2,2014"***

Photo ***www.russianlook.com***

Unit 2: Future of Coal in Russia and in Kuzbass

1. Warming up.

Do you think there is a future for the Russian coal industry? Why? Skin the information below and prove you answer.

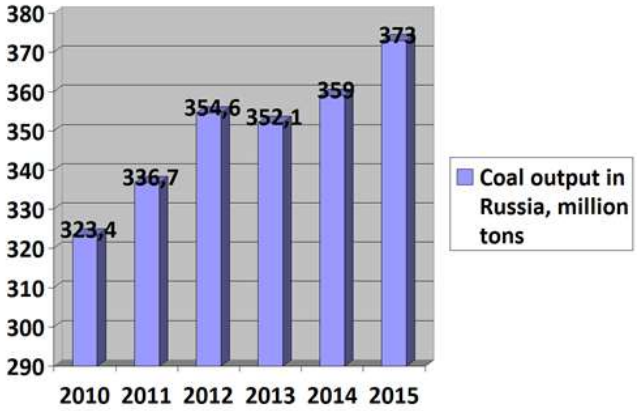
Only Facts

In Russia, the coal industry now employs around 151,000 citizens, and another 500,000 people work in related industries.

Coal companies are major enterprises for 31 Russian industry-based towns that have the total population of 1.5 million people.

In 2016, coal in Russia was mined by 169 companies, 107 of which dealt with open-pit mining and 62 underground mining.

Coal ranks fifth in the list of basic export products in Russia. 90% of exports accrue to thermal coal. Today, Russian coal is exported to 50 countries, including Japan, Cyprus, the UK, China, the Republic of Korea, Finland, Poland, and the Baltics.



Adapted from ***"Is there a future for the Russian coal industry?"***
By ***Bilan Uzhakhov*** – *Russian Coal Group Director General*
www.mining.com/web/future-russian-coal-industry

2. Read and translate the following international words:
to adapt, federal, complex, strategy, public, private, to produce, to extract, construction, to integrate, potentially, stage, reserve, association, organization, activity, center, privatization.

3. Translate the following English phrases into Russian. Use a dictionary if it is necessary. Write down your answers:

1. a long-term programme	
2. to reduce transportation costs	
3. to improve the efficiency of coal supplies	
4. to boost the local use of	
5. utilization of energy resources	
6. to shift towards	

7. new coal production facilities and modern equipment	
8. to meet growing domestic and global demand	
9. share of coal	
10. joint stock companies with private ownership	

4. Match the words in A with their opposites in B. Write down the answers.

A	B
1. to increase	1. unimportant
2. public	2. modern
3. main	3. to decrease
4. to reduce	4. private
5. to improve	5. minor
6. significant	6. to enlarge
7. outdated	7. to make worse

5. Read the text and answer the questions given below.

Coal Mining in Russia

At current production levels, coal reserves in Russia could help to support its coal needs for around 443 years. Russia, with a share of 18.2%, is second only to the US (27.6%) in terms of global proven coal reserves. Domestic coal reserves (totaled 157 billion tons), are spread across eastern Siberia (84%) and the far east of Russia (6%). The Kuzbass coalfield has the largest share of coal reserves (56%), along with the Kansko-Achinky coalfield (12%), Zabaikalsk area and Khakassia with 6% and 4%, respectively.

Coal mining in Russia is carried out in 129 pits and 86 mines spread across 16 coal basins in 25 regions in 85 Russian municipalities, with production capacity of 411.2 million tons per year. While the Kuzbass is one of the largest coal mining regions in southwestern Siberia, eastern Siberia, the Republic of Tuva, the Republic of Sakha and the Trans-Baikal Territory are also promising centers in terms of coal producing capacities.

Russian coal production was at 351.2 million tons in 2015, making Russia the world's sixth largest coal producer after China, the US, India, Australia and Indonesia.

The Russian Government approved a long-term programme for the development of the coal industry for the period up to 2030, framed by the Ministry of Energy in association with federal and regional authorities, and other and related organizations. The long-term plan expects domestic coal production to reach 355 million tons in its first stage (to 2015), 380 million tons in its second stage (to 2020) and 430 million tons in the third stage (to 2030).

The plan also emphasizes the development of new coal mining activity centers, including promising coal deposits for e.g. the Elga deposit in the South Yakutia Basin, the Mezhegeyskoe and Elegest field in the Republic of Sakha (Yakutia), the Ulughemskogo Basin (Tuva Republic), Apsat (Amur region) and the Mencherep deposit (Kemerovo region), among others. With the introduction of new production centers, the regional structure of Russian coal mining will shift towards the east. While western Siberia's share of coal will decrease from 58% to 45%, eastern Siberia will increase its share from 26% to 32% and the Far East region from 9.7% to 15.2%.

The restructuring of the Russian coal industry led to the privatization of coal assets (активы) and all coal mining is now carried out by joint stock companies with private ownership. This has led to the emergence of a number of large enterprises, management companies and holding companies owning coal assets.

The major companies sharing the Russian coal mining sector are: SUEK, Kuzbassrazrezugol, SUEK-Kuzbass, Sibuglemet, Southern Kuzbass (Mechel), Vorkutaugol (Severstal), Yuzhkuzbassugol (Evraz), Kuzbass Fuel Company, Yakutugol (Mechel), Belon (MMK), SUEK-Krasnoyarsk, Raspadskaya.

OJSC Siberian Coal Energy (SUEK) alone represents over 30% of the country's coal supplies and 25% of Russian thermal coal exports.

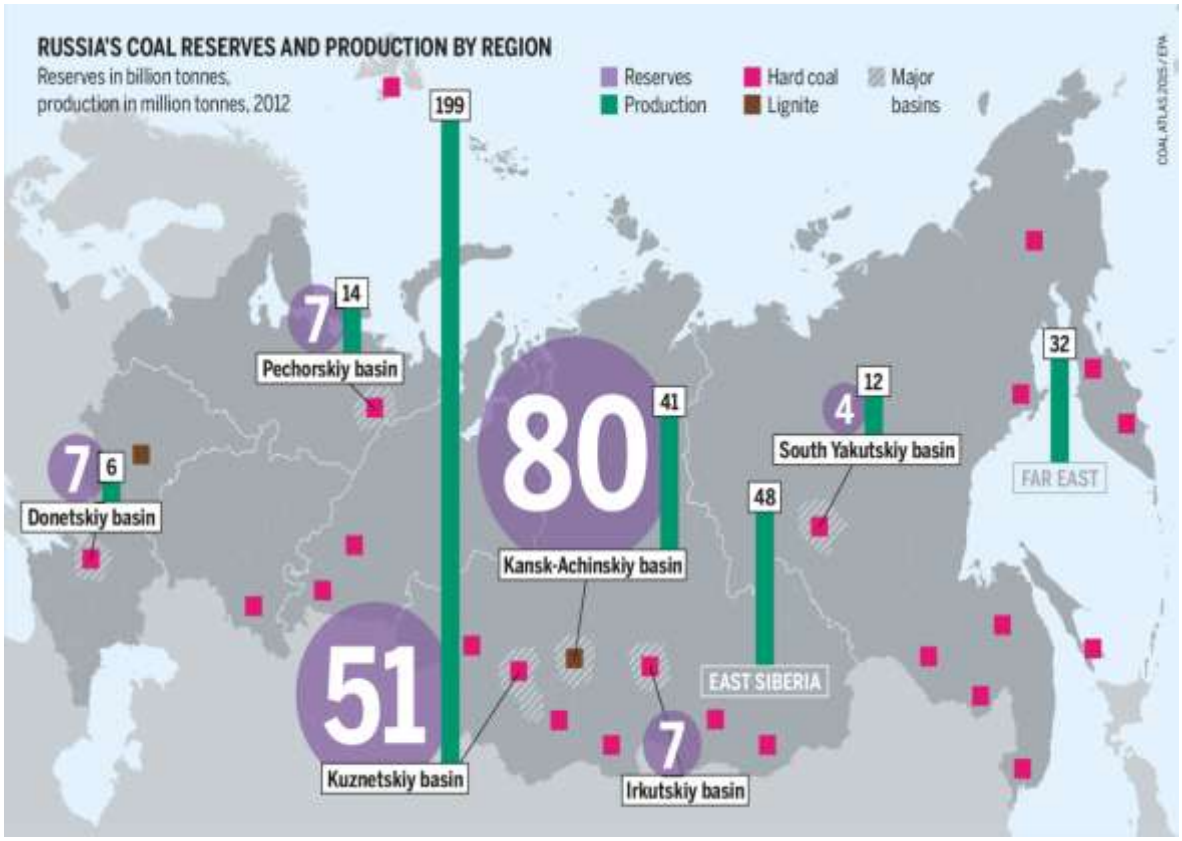
Adapted from ***"The mining landscape", World Coal, 2013***
https://www.worldcoal.com/coal/17102013/the_mining_landscape_part_one_140/

1. What place does Russia occupy in coal mining globally?
2. How great are Russian domestic coal reserves?
3. Where are they located?
4. What is the predominant method of coal mining in Russia?
5. Will the regional structure of Russian coal mining be changed in future?
6. Is coal mining in Russia in the hands of our state or in private hands?
7. What are the major companies sharing the Russian coal mining sector?

6. Look through the last three paragraphs of the text you have read. Find sentences containing Participle I and Participle II. Translate them into Russian.

7. Look at the picture below and discuss the given information. Work in pairs.

A: What are the main coal mining basins in Russia?
B: …
A: What is the largest of them in terms of reserves?
B: …
A: What is the largest of them in terms of production?
B: …
A: Where is lignite mined?
B: …
A: Where is hard coal mined?
B: …
A: Our region plays an important role in coal mining in Russia, doesn't it?
B: …



From *https://eu.boell.org/en/2015/11/18/russia-land-without-doubt-or-debate*

8. Translate the text in written form within 45 minutes. Use dictionary if necessary.

Coal is the Main Mineral Resource of Kuzbass

Kuzbass is one of the largest coal basins in Russia and the main, if not the only, supplier of raw material to the Russian industries. The reserves of black coal in Kuzbass exceed the total world's reserves of oil and natural gas by more than 7 times (when converted into equivalent coal) and reach almost 700 billion tons, of which over 200 billion tons account for coking coals (cf. coking coals reserves in the Pechora coal basin - 9 billion tons; in Karaganda – 13 billion tons).

Today, the reserves of coking coals in Kuzbass account for 73% of the total reserves of these types of coal in the developed coal basins of Russia, and over 80% of Russia's coking coals are mined in Kuzbass.

Non-coking steam coals account for 70% of the total coal reserves in Kuzbass. The rest of the black coals are unique as they have ability to cake and therefore can be used as both power-

generating and by-product-coking material, depending on the way of their preparation.

Kuzbass coals are of unique quality. Their grades are from brown coals to anthracites. Their main characteristics are high calorific value (6250 kcal/kg), low sulfur content (0.4–0.6%), low moisture content (7.8–10%) and medium ash content (15.3–23.2%). These indicators are much better than the average ones in the Russian coal industry. Special attention should be given to such unique coal of Kuzbass as coal from the Barzas coal basin. It has a high percentage of low-phenol resin (up to 38%) and is a valuable chemical material for producing petrol products and asphalt concrete.

From *http://www.kemobl.ru/pasport/eng_mineral.htm*

9. Skim the text given below and say what the leading coal – mining company in Kuzbass is. Prove you answer.

One of the Leading Coal – Mining Company in Russia

Russia has 228 companies involved in mining. Among the leading Russian producers of coal are SUEK, Kuzbassrazrezugol, SDS-Ugol, Mechel-Mining, and Kubasskaya Toplivaya Kompaniya. In 2013 these companies accounted for nearly 70% of exports.

SUEK AG is the largest individual coal producer in Russia, with 24 mining operations made up of a combination of underground and opencast mines. The company operates mines in five regions of Russia for the export market.

In Kuzbass SUEK subsidiary (дочернее предприятие) OJSC SUEK mines high-quality hard coal. This coal is mainly supplied to energy companies in Europe and Asia and it is produced from nine underground mines and two open pits. See *Table I.*

Table I:

Underground mines:	Kirova
	November 7
	Polysaevskaya
	Komsomolets
	Rubana
	Yalevskogo
	Kotinskaya

Taldinskaya-Zapadnaya 1
Taldinskaya-Zapadnaya 2

Open pits: Zarechny
Kamyshansky

The coal from most of mines and open pits in this region has a calorific value of 5,800–6,100 kcal/kg.

The premium-quality coal mined at mines in Leninsk-Kuznestsky can be sold as semi-soft coking coal to the iron and steel industries.

Coal with a calorific value of 5,000–5,700 kcal/kg is mainly sold to Russian power generation companies, including Siberian Generating Company (SGK).

Coal is washed in five washing plants (WPs). They are: Kirov mine WP No.1, Kirov mine WP No.2, Komsomolets mine WP, Polysaevskaya mine WP and Taldinskaya-Zapadnaya 1 mine WP.

10. Now look through the text once again and give its short summary using phrases on page 58.

11. Click here and watch the video. Try to comment in English as much as possible.

https://ok.ru/video/12810650906

Unit III: Mining and Environment

1. Warming up.

Look at pictures and photos. Why do all these people want to keep coal in the ground?

From *https://yandex.ru/images/search?text=stop%20coal*

2. Now click here and watch video "What's Wrong with Coal?"

https://www.youtube.com/watch?v=9Wv2GKaukZU

Can you answer the question put in the video?
Make use of the following phrases:
to power country by burning coal,
highly dangerous,
to have an impact on the environment,
dirty, out-dated energy source,
the main contributor to climate disruption,
to generate million tons of wastes,
can cause health problem, made us sick.

3. Read and translate the following international words:
to signal, era, president, leader, global, moratorium, analysis, reason, instrument.

4. Analyze and translate the derivatives:
to protect – protection – protective – protector; to associate –

association – associative; to transit – transition; document – documentation – documentary; to operate – operator – operative.

5. Form adverbs with the help of suffix – *ly* and translate them into Russian:

principal – principally; gradual, usual, exact, essential, traditional, particular, cost, additional, strict, successful.

6. Read the following text and give its short summary using phrases on page 58.

Five Reasons Why the World Needs a Moratorium on New Coal Mines

In 2016 the Paris Climate Agreement signaled the end of the era of fossil fuels, particularly coal, – the dirtiest source of power.

Last year, the President of Kiribati, Anote Tong, called on world leaders to join him in a global moratorium on all new coal mines. New analysis commissioned by Greenpeace spells out (расшифровал) what a moratorium would mean for the world and five reasons why we need it now:

1. Land. If we put a stop to all new coal mines now, we would protect some 7.6 million acres of land from mining disturbance by 2050.

2. Health. Pollution associated with coal is a serious hazard and one of the reasons China has already introduced a 3 year moratorium on new coal mines. If no new coal mines are built, we could prevent about 10 million coal-related deaths, principally from air pollution, by 2050.

3. Jobs. In the short term, a moratorium would actually increase job security in mines: existing mines would become more valuable allowing time for a just transition to new jobs in a greener economy.

The industry will then gradually shrink (сокращаться), halving by 2030.

4. Finance. The world would save a massive US$80 billion between now and 2050 in clean up costs of coal mines. Imagine if we invested that in renewable energy.

5. Climate. While business-as-usual would consume the global carbon budget allocation for coal up to 4 times over by 2050, a moratorium is exactly in the middle of the range predicted to restrict warming to 2 degrees C. We must do more to keep temperature rises at or below 1.5 degrees, but a ban on new coal mines is an essential first step.

Could 2017 be the year we break free from coal? Urge leaders are to call a moratorium on new mines and join the movement to keep coal, oil and gas in the ground.

By ***Leanne Minshull*** *– a Climate and Energy Strategist for Greenpeace International, 2016*

Adopted from

http://www.greenpeace.org/international/en/news/Blogs/makingwaves/5-reasons-coal-moratorium-climate-agreement/blog/56214/

7. Now, look through the text once again and translate underlined Participle I, Participle II and Infinitive into Russian.

8. Skim the text given below and answer the question - Who Really Pays for "Black Gold" of Russian Kuzbass?

Coal Mining Impact: Who Really Pays for "Black Gold" of Russian Kuzbass?

Part I

Kuzbass is the largest coal mining area in Russia. Nearly 60% of all Russian coal is mined there. Kuzbass coal makes up 76% of Russian coal export. And both mining and export are growing and planned to grow further. Local people and nature are the ones who pay

high price for this growth. Kemerovo Region is among the most environmentally unfavorable regions in Russia.

Kuzbass air is contaminated with carbon oxide, nitrogen dioxide and coal dust resulting into continuous intoxication of the residents.

The Kuzbass rivers belong to the category of contaminated water bodies as concentrations of oil products, phenols, nitrogen, ammonia, iron, manganese, and copper in the rivers are several times above the allowed levels. 93.8% of drinking water sources in Kuzbass don't meet the sanitary, chemical and microbiological standards. Even Kuzbass snow contains sulphur compounds, nitrites, nitrates, chlorides, and potassium!

As for land disturbance, in the past ten years, the total area of lands disturbed as a result of coal mining operations reached 6 hectares per each 1 ton of coal produced. In Kemerovo Region, according to the regional Department for Natural Resources and Environment, the percentage of disturbed lands is ten times the national average. Displacement of massive amounts of rock (over 8 billion cubic meters in Kuzbass) to the surface leads to land subsidence and elimination of the established ecological communities. Meanwhile, coal companies are not interested in spending money for land restoration but preferring to claim in the project documentation that the nature will restore itself when mines are worked out.

Part II

Unfavorable living conditions in the region affect health of their population.

The average life interval of Kuzbass residents is several years shorter that the Russia's average.

Kemerovo Oblast is leading in child cerebral palsy among the Russian regions.

Tuberculosis rate is 1.7 time above Russia's average. Child mental disorder rate is 1.8 time higher, and child mental deficiency is 2.4 times higher in the region that the average in Russia. Female reproductive system anomaly rate is 3.3 times higher than the average in Russia. Kuzbass is the only region in Siberia where child infectious and parasitic diseases incidence is 2 to 3 times above Russia's average.

Only 3 out of 100 people in Kemerovo Oblast have satisfactory living conditions. Moreover, Kemerovo Oblast has the highest

professional diseases rate which has increased by 5% over the last two years.

Part III

For the indigenous people of Kuzbass, the Shor people, it causes the loss of native lands, trades and lifestyle. Open-cut mining turns natural landscape into moon-like surface, leads to destruction of forest and extinction of fur animals and fish, attacks the Shor villages.

This way, the Shor village of Kazas was actually wiped off the face of the earth. Most of the residents were forced to sell their houses to the Yuzhnaya Coal Company (part of "Sibuglemet" company) and leave, and houses of those a few active protesters were set on fire.

The villagers, unsuccessfully beating down doors of municipalities, prosecutor's offices, police, courts and other instances, have been for years in an unequal fight with coal companies that run their excavation and explosion operations right in several hundred meters from their houses. The local authorities are dependent from coal mining industry and ignore the damage to the environment and violation to the people's rights caused by coal mining in the region. According to Aleksandr Arbachakov, a representative of the Shor people, the local authorities understand protection of the indigenous people's rights as the development of their traditional songs, dances and museums, but became deaf when it comes to the rights of indigenous people for their native land.

Adapted from ***https://below2.ru/category/english/, 2015***

9. Now read the first part of the text thoroughly and fill in the table:

What is contaminated in Kuzbass	**Contaminates**
1. air	carbon oxide,…
2.	
3.	

10. Study the II part of the text and say how unfavorable living conditions in the region affect health of its population.

11. Translate the III part of the text in written form within 45 minutes. Use dictionary if necessary.

12. Find English phrases in the text you have just read and translate them into Russian:

1. local people and nature	
2. environmentally unfavorable region	
3. to be contaminated with	
4. continuous intoxication of the residents	
5. to be above the allowed levels	
6. to meet the sanitary, chemical and microbiological standards	
7. unfavorable living conditions	
8. to affect health of their population	
9. the average life interval	
10. destruction of forest and extinction of animals and fish	
11. protection of the indigenous people's rights	

12. Now click here and watch video. Summarize the main idea of what you have just seen.

https://www.youtube.com/watch?v=9ljeobc6B4o

Make use of the following phrases:
negative consequences of mining operations
pollution of land, water and air
one more problem is..
to run excavation and explosion operations right in several hundred meters from houses of …
violation to the people's rights caused by coal mining in Kuzbass
to respect indigenous people's rights

13. Discuss with your group mates.

According to co-chairman of *Ecodefense* Vladimir Slivyak, "The only way to influence Russian coal companies is international solidarity and cooperation. It would be impossible to make coal companies start dealing with negative consequences of their operations without pressure from the West, since the West is the place where they sell their coal to. The situation may change only if the western countries start asking Russian coal companies what they do to meet environmental standards or to respect indigenous people's rights."

Do you agree? Are there any other instruments to influence this state of affairs?

14. Skim the text given below and give its short summary using phrases on page 58.

Top 3 Ways to Make Mining More Eco-Friendly

Mining is a very important industry that contributes a lot of benefits to our society. But it can also be very harmful to the environment.

Green mining has become a popular and effective alternative for a lot of mining companies. This process requires a careful balance of the resources, investing in new equipment and changing old ways. This fresh take (новый подход) on mining can be costly and risky but beneficial on a long term scale.

Here are some ways making mining more environmentally friendly:

1. Shut down of illegal mines.

Illegal mining typically does not observe rules and regulations, making their processes undisciplined and very harmful to the environment. So, illegal activity and unregulated mines must be shut down and punished or fined. Additionally, standard mining regulations should be constantly improved to promote efficiency.

2. Dispose waste properly.

A lot of mining companies have been irresponsible in reporting and dumping their mining waste. Waste from mining is not just hazardous to the environment; it can also be harmful to public health if not treated properly. Appropriate measures should be implemented

to ensure safety and efficiency. When possible, invest in equipment and other technologies that help in turning waste into reusable material. Recycling waste can be a big step towards more efficient mining.

3. Implement efficient practices.

Nowadays, there are a lot of ways to implement efficient practices within the company. Make rules and regulations that incorporate small steps like recycling and proper waste disposal. Investing in renewable energy sources to use in the office is also one way to promote good practice. An example of a simple solution that can have a great effect is replenishing (восполнение) the environment with the resources lost. Replenish soils, trees, grasses and clean excess waste (чистые отходы) around you. This practice, when done religiously, can rejuvenate (омолодить) and repair a damaged eco-system in the future.

From ***Titan Mining, March 12, 2015***
http://www.titanuranium.com

15. Using prefix *re-* make new words from the following ones. Translate the newly-built words into Russian:
to use – to reuse, to equip, to cycle, to educate, to inform, to place, to train, to instruct, to construct, to fresh, to discover, to control.

Unit IV: Safety is a Priority

1. Warming up

Read the statement:

"Nothing is more important to the coal industry than ensuring people return home safely at the end of the working day."

By Kim Ryu

Do you agree with this statement?

Do you think safety is more important than profit?

2. Read and translate the following international words:
result, tragedy, collapse, mixture, methane, norm, to accumulate, gas, character, geological, social, procedure.

3. Form adjectives with the help of suffixes – *ful* and – *less* form the words given below. Translate them into Russian:
care, harm, doubt, colour, noise, use, power, success.

4. Translate the following English phrases into Russian. Use a dictionary if it is necessary. Write down your answers:

1. as a result of methane explosion	
2. mining safety rules	
3. collapse of rocks, fires and floods	
4. human interference in	
5. to violate safety norms	
6. to cause an accident	
7. an excessive level of	
8. to assume (assess) the risk	
9. to depend on output	
10. to conduct preventive operations	
11. to get profit	

5. Read the text given below and answer the question put in the title of the text.

After Vorkuta: Why are Russian mines so dangerous?

A total of 36 people have died as a result of an explosion in the Severnaya mine in the northern Russian city of Vorkuta. The tragedy has once again raised the issue of safety in Russia's mining industry.

What caused the accidents?

This is far from the first accident to have occurred in Russian mines in recent years. Often they occur due to the collapse of rocks, fires and floods. However, the most tragic cases are related to

explosions of methane and coal dust mixtures, which happen because of safety norm violations (нарушения).

In 2013, a violation of the ventilation system in the Vorkutinskaya mine led to an accumulation of coal gas and methane, which resulted in an explosion that killed 19 people.

More over accidents in Russian mines occur because of human interference in the automatic gas control system. So the biggest accident in the history of modern Russia occurred at the Ulyanovskaya mine where 110 people died tragically in 2007.

According to a preliminary theory, the accident at the Severnaya mine bears "a natural character and is a mining and geological case." But it is not excluded that the accident took place also because of violations of safety norms.

Why do miners ignore the dangers?

Darya Tryasoi, daughter of one of the miners who died in the Severnaya mine in Vorkuta, wrote in social networks that three weeks before the tragedy her father had complained of an excessive level of methane concentration in the mine.

"Often miners intentionally assume the risk," said a miner who asked to remain anonymous.

"Our salaries depend on output. That is why we often turn a blind eye to the insignificant safety violations, so that we don't lose working days on various checks. We have to feed our families, pay our mortgages and survive."

Fewer accidents

And yet the number of accidents in Russian mines is generally decreasing. While in 2004 there were 33 accidents that took 148 lives, by 2014 the number had declined to 8, with 26 deaths. However, the figures are still far higher than in many other countries. See ***Box 1.***

Box 1: Mining disasters around the world

Every year around 20,000 people fall victim to mining disasters.

No country comes close to China in terms of the numbers of mining accidents and miner deaths. In 2015 alone more than 900 people lost their lives in Chinese mines.

Mining disasters also frequently take place in India, Turkey, Russia and Ukraine.

The world's last large-scale mining disaster happened at a mine in the Turkish city of Soma in May 2014, in which 301 miners perished.

The last significant mining accident in the United States occurred in April 2010 at a mine operated by the company Massey Energy in West Virginia, resulting in the deaths of 29.

In the UK there have been no mining disasters in the last few decades!

In order to reduce accidents in Russian mines it is necessary to regularly conduct preventive operations. If timely (своевременно) preventive measures had been carried out at the Severnaya mine, which belongs to the category of mines with high risks of rock bursts and sudden methane explosions, the tragedy would have been avoided.

By ***Ekaterina Chulkovskaya***
From ***RBTH, March 2016***

6. Read the text once again. Mark the statements true (T) or false (F).

1. Accidents in Russian mines often occur due to the collapse of rocks, fires and floods.
2. The most tragic cases happened because of safety norm violations.
3. Miners ignore the dangers because their salaries depend on output.
4. The number of accidents in Russian mines is generally increasing.
5. No country comes close to the UK in terms of the numbers of mining accidents and miner deaths.
6. Mining disasters also frequently take place in India, Turkey and Ukraine.
7. In order to reduce accidents in Russian mines it is necessary to invest into technical re-equipment of the mines

7. Now analyze the information from the table below and say if large accidents at Russian mines are rare. Has our region been often mentioned? What caused these accidents?

Date	Location	Victims	Cause
Dec. 1, 1997	accident at the Zyryanovskya mine (Novokuznetsk, Kemerovo Region)	67 deaths	methane explosion
Jan. 18, 1998	explosion at the Tsentralnaya mine (Vorkuta, Komi Republic)	27 deaths	methane explosion
April 10, 2004	accident at the Taizhina mine (Osinniki, Kemerovo Region)	47 deaths	methane explosion
March 19, 2007	accident at the Ulyanovskaya mine (Kemerovo Region)	110 deaths	methane explosion due to violation of safety rules during mining operations.
May 8-9, 2010	accident at the Raspadskaya mine (Kemerovo Region)	91 deaths	violation of dust regulations, lack of checks on signs of spontaneous heating of coal and unstable electric power supply.
Feb. 11, 2013	accident at the Vorkutinskaya mine (Vorkuta, Komi Republic)	19 deaths	violation of safety rules

8. Match the words in A with their opposites in B. Write down the answers.

A	B
1. natural	1. observation
2. safe	2. unimportant
3. violation	3. man-made
4. significant	4. to result in
5. to lead to	5. dangerous

9. Match the words in A with their synonyms in B. Write down your answers.

A	B
1. often	1. to decrease
2. to occur	2. extreme
3. excessive	3. to happen, to take place
4. to withstand	4. to survive
5. to decline, to reduce	5. frequently

10. Using prefixes *in-*, *im-*, *un-*, *ir-*, *il-*, *non-*, make opposites to the following words:

correct, significant, stable, effective, possible, regular, fortunately, comfortable, equal, proper, regulated, responsible, manned, legal, human, disciplined.

11. Translate the text "Accidents Rate and Safety" in written form within 45 minutes. Use dictionary if necessary.

Accidents Rate and Safety

There is an exceptionally high rate of accidents and occupational illnesses affecting workers in Russian coal mines. In Soviet times there was a safety target of less than one death per million tons of coal, which has not been achieved since 1998. Since 2002 the coal industry has claimed 180–280 lives per year.

Coal mining accounts for 84% of all occupational illnesses in Russia. Workers suffer from respiratory diseases, most commonly followed by problems with the peripheral nervous system, vibration

sickness, and musculoskeletal system, caused by problems from vibration, dust, noise, and physical overexertion.

Health risks associated with adverse ecological impacts are considered to be the highest for pregnant women and children. In the past decade the morbidity rate among pregnant women in the Kemerovo Region has increased by almost five times, with maternal mortality being twice as high as the average across Russia. This is where two thirds of all Russian coal operations are concentrated.

The cancer rate in the Kuzbass region is also as much as eight times greater than in other parts of Russia.

In 2013 18 miners working for Evraz died in a mine accident.

12. Skim the text given below and give its short summary using phrases on page 58.

Seven Safety Tips to Reduce Mining Accidents

Working in mining is risky business. If you're considering a career in mining, it is crucial that you take the following safety measures to keep your time in the mines as trouble-free as possible.

1. Don't ignore the danger

The first step toward keeping yourself safe is to recognize the fact that working in mining is hazardous. Stay alert (будь настороже) at every moment. Watch out for your colleagues as well and never let your guard down. Accidents with major impact can occur at the moment of carelessness.

2. Dangerous tasks require planning and communication

When planning tasks, don't think only of completing them as efficiently as possible. Spend extra time and money for safety requirements. All risks should be assessed, including the possibility of accidents. Try to eliminate risks as much as possible. Where a risk still exists, provide your team with clear instructions and educate them on how to mitigate it.

3. Get professional training

All team members should undergo regular safety training. This should not just apply to new team members. Even long-standing employees should attend refresher courses. Safety training sessions containing theory and practical components can be very helpful.

4. Always wear safety equipment

There is a basic safety equipment that mining workers use for their protection, from helmets to safety glasses and gloves. It is essential that all workers wear the necessary safety equipment at all times. There have been countless stories of workers being saved by helmets, for example.

5. Supervise your team

All team members should follow safety instructions with no exceptions. A supervisor must also be diligent about following up and enforcing the rules. Never allow more people to enter a site than are allowed. Supervisors also need to know the whereabouts of all team members throughout each shift. Likewise, all workers should be informed about what their fellow team members are doing throughout the day.

6. Document your safety procedures

When accidents happen, all team members should know exactly what to do. Safety procedures must be clearly defined. When documenting the safety procedures, describe the various incidents that might occur, what needs to be done and whom to contact. Safety procedures should be displayed prominently in locations that can be easily accessed by team members.

7. Follow the latest safety standards

Ensure all safety equipment is serviced regularly and satisfies all the latest safety standards. Never try to save on safety equipment even if this means increasing expenses or delaying a project. Never allow staff to use outdated safety equipment, even for a short period of time.

Unfortunately, the risks in mines can never be eliminated completely. So, follow these tips and don't repeat the mistakes that have been made by others.

By ***Michala Maly***

From *http://reliableplant.com/Read/29927/mining-safety-tips*

13. Now discuss with your partner if we can mine coal without blood in Russia.

Make use of the following phrases:

preventing accidents; to be the priority; an endless job; to avoid any risks; to keep a work place tidy; 150000 employed in mining; don't learn by accident, to value human life above all.

14. Read the safety slogan below. Try to write your own one.

Keep the message very clear ***Make 2018 the safest year!***

Unit V: Innovations in Mining

1. Warming up

Discuss the following with your group-mates:

1. Innovation in mining is fundamentally different from innovation in many other industries.
2. There are a number of features of mining that make technological changes difficult.
3. Such factors as working in remote (удаленный) areas and on a huge scale, extreme hazards are the reason for slow innovation in mining. Do you agree?

2. Read and translate the following international words:

intellectual, complex business, utilization , functional, to integrate, innovative, effect, stable, technology, budget, element, infrastructure, functional, original, incubator, project, investor, potential, structural.

3. Translate the following English phrases into Russian. Use a dictionary if it is necessary. Write down your answers:

1. major areas of activity	
2. secondary energy resources	
3. cost-effective use of energy, materials and resources	
4. environmental management and life safety	
5. an innovative project applicant	
6. in the form of investment, new jobs and tax revenues	

7. a fully equipped infrastructure and comfortable working environment	
8. a comprehensive on-going support of their business projects	
9. business incubator residents	

4. Read the text and answer the question given below.

Kusbass Technopark as the Element of Kusbass Region Innovative Infrastructure

Kusbass Technopark was founded in 2007. It got its name after Kusbass, the short of Kemerovo region.

The main purpose of Kusbass Technopark is to unite scientific, intellectual and industrial potential of the region for connection between science and business and for achievement of stable development of the region.

The task of Kusbass Technopark is to provide the innovative project with system of complex support, including the search of potential investors. Due to the huge mineral resources (coal, iron ore, magnesium, silver, gold, molybdenum and others) our region has become one of the largest industrial centers in Russia where the leading coal mining, metallurgical, machine-building and chemical enterprises are located. So, Kuzbass Technopark's major areas of activity focus on the development and use of technologies in the following sectors:

- production, delivery and processing of coal, ore and non-metallic minerals;
- designing of high-tech mining machinery;
- production, utilisation and processing of new functional and structural materials, secondary energy resources (mine methane, waters and air) and waste, and cost-effective use of energy, materials and resources;
- medicine, education, environmental management and life safety;
- creation of an integrated information environment in the Kemerovo Region.

Today, 32 companies among innovative project applicants have a status of a Kuzbass Technopark resident, which offers them an opportunity to receive state support. This, in turn, has a positive effect on the regional economy in the form of investment, new jobs and tax revenues to all budgets and off-budget funds.

As for Kuzbass Technopark itself, it set up a data base of more than 100 innovative projects in the field of functional and constructional materials production, usage of secondary power energy recourses, processing of production wastes, etc.

In 2012 Business Incubator of the Kusbass Technopark was opened. It is a modern complex building with a fully equipped infrastructure and comfortable working environment. The purpose of Business Incubator is to provide favorable conditions for new innovative companies to make a reality of original scientific and technological ideas into business. All business incubator residents can enjoy a reduced rent, a free use of all the resources available in the business incubator and a comprehensive on-going support of their business projects.

During the period of 2010-2015 more than 600 events have been conducted on the Kuzbass Technopark's basis; the number of participants exceeded 20 thousand people.

1. When was Kusbass Technopark founded?
2. What is its aim?
3. What are major areas of its activity?
4. How many companies have a status of a Kuzbass Technopark resident?
5. What are the opportunities of a status of a Kuzbass Technopark resident?

5. Match the words in A with their synonyms in B. Write down your answers.

A	B
1. purpose	1. to combine, to link
2. to connect	2. progressive
3. to provide	3. to assist
4. innovative	4. technique

5. to support	5. to supply
6. to locate	6. goal, aim
7. to set up	7. to place
8. engineering	8. to found, to establish

6. Form adverbs with the help of suffix *-ly* and translate the new words into Russian:

close – closely, accurate, quick, correct, consistent, great, high, constant, comparative, additional, easy, efficient, regular, fundamental.

7. Read the text given below and speak about the benefits of mining automation.

The Benefits of Mining Automation

Automation, or the use machines and other control systems is becoming commonplace in mines around the world. Automation gives mines greater control over their production processes and, as a result, allows them to produce a higher quality finished product. Moreover, automation is making mining safer for workers in a number of ways.

Automating mining processes allows the mine environment as a whole to be more tightly monitored. For example, such hazard as air quality can be assessed quickly and with a great degree of accuracy, if and when dangers to workers arise.

In addition, automation allows for the machines themselves to be monitored more closely for issues such as signs of wear and tear (амортизации). These problems can then be diagnosed and resolved before they become potential safety hazards to human workers.

The greater degree of control over the mining process offered by automation allows mines to assess their environmental impact more accurately. By more closely controlling the production process, some environmental effects can be reduced or

eliminated altogether. Limiting waste produced by the mining process and reducing emissions caused by the unneeded operation of equipment are just a few of the ways in which automated technology can help mines to become greener.

When parts of the mining process are automated, fewer human workers are required. As a result, fewer workers are exposed to the potential hazards found in a mine. Automation also ensures that tasks are completed correctly and consistently every time. As a result, the "human error" factor caused by the incorrect operation of a machine or a lapse in attention can be eliminated.

In the past, single machines may have required multiple human operators, greatly increasing the chance of human error. However, by automating many of the same tasks, fewer operators are needed, the risk of injury is lessened and operation itself becomes much simpler.

From *http://www.mainlandmachinery.com/mining-automation/*

8. Click here and watch the video. While watching try to remember as much as possible.

https://www.youtube.com/watch?v=GryLNuX0oCA

9. Now, render the information given below from Russian into English. Speak about geochod.

Make use of the following phrases:

to created a prototype of a device for working underground,
was made on the basis of,
the prototype is a cylindrical body … meters in diameter and … meters in length,
its main advantage is in
it uses geo-environment to create traction and pressure,
there are no analogues to … not only in Russia, but also in the world,
project cost is,
it is made almost entirely from domestic components,
geochod may be used in.

Геоход прошел первые испытания

Ученые Томского политехнического университета создали опытный образец аппарата для работы под землей. Геоход был

изготовлен на базе Кемеровского опытного ремонтно-механического завода (КОРМЗ).

Прототип геохода представляет собой цилиндрический корпус 3,2 метра в диаметре и 4,5 метра в длину. Главное его преимущество перед существующей сегодня техникой в массе и габаритах. Весит геоход всего около 20 тонн, в отличие существующей горной техники, он использует геосреду для создания тягового и напорного усилий.

На сегодняшний день аналогов геоходу нет не только в России, но и в мире.

Стоимость проекта составила 200 миллионов рублей, это собственные средства КОРМЗа и средства, выделенные Министерством образования и науки РФ. При запуске геохода в производство себестоимость агрегата будет составлять порядка 40 миллионов, причем он изготовлен практически целиком из отечественных комплектующих.

После испытаний аппарат может быть выпущен в различных модификациях. Он готов стать основой мобильного комплекса для спасения людей из-под завалов, быть полезным в метростроении, быстрой и качественной прокладке коммуникаций, а также возведении подземных сооружений различного назначения.

Adapted from **“*Наука и техника: Технологии и разработки”, 15.02.16***

http://www.strf.ru/material.aspx?CatalogId=222&d_no=114493#.WQHwmpAa3ct

10. Work in two groups.

***Group I*: read the text “KuzSTU Miners are Russian Gold Reserve”**

***Group II*: read the text ""An International Scientific and Technical Conference at the St. Petersburg Mining University".**

Then discuss with you opponents how the teaching staff and the students of the KuzSTU make their contribution in scientific activity of our University.

1

KuzSTU Miners are Russian Gold Reserve

Kuzbass State Technical University named after T.F. Gorbachev students won the federal stage of "SUEK Gold Staff Reserve".

Two of the five best Mining Institute students' works have reached the final and were awarded diplomas and prizes.

Among the winning projects is the fifth year student's project on the evaluation of mineral reserves at existing mines. This work won first place in the category "Coal at the industry of the XXI century". Technique, which was developed by a student, Eugenia Ryzhaya, led by Professor Dr of Technical Sciences, S.V. Shakleina, allows them to determine the reserves at the Kuzbass mine and any coal region more accurate. The project is ready for implementation.

The fourth- and fifth-year students of the Mining Institute, Alexander Kononov, Pavel Prosvirnin, Maxim Shmatov, Denis Babunov and Sergei Volkov, took the third place in the "Smart service in the service of man". Led by Dr. of Sciences, Professor L.E. Mameteva and Senior Lecturer, A.Y. Borisov, "golden" five authors on the basis of know-how of scientists of the department of mining machines and systems developed special design drives. They are constructive elements to the executive bodies of tunneling machines. Their aim is to improve the safety of mining operations and to reduce the likelihood of explosions at the mine. Such projects have already been implemented at the Kuzbass mines. Mining Institute Director, Dr. of Sciences, Professor Alexei Alekseevich Khoreshok, who together with students was at the award ceremony "Gold SUEK Staff Reserve" in Moscow, said that there were no the first and second places.

In general, the jury noted the traditionally high level of KuzSTU students' works. During the first contest, which was held in 2011, future KuzSTU miners were among the best, taking the top three prizes. Subsequently, the winners became the employees of JSC "SUEK-Kuzbass".

From ***UTime news team, February 2015***
http://utimenews.org/en/news/nedelya-gornyaka-2015/

2
An International Scientific and Technical Conference at the St. Petersburg Mining University

The international scientific and technical conference "Innovations and perspectives of development of mining mechanical engineering and electromechanics: IPDME-2017" was held at the St. Petersburg Mining University in April, 2017. Scientists, heads of industrial enterprises and service companies of Russia, Germany and other countries gathered at it. The KuzGTU was represented by the Director of the Institute of Energy, Irina Semykina, Dr. Tech. Sciences.

The conference served as a platform for the exchange of the latest knowledge in the field of innovation in the engineering, mining and energy industries. Representatives of major companies discussed the most urgent tasks facing the mineral raw materials complex, including in the field of import substitution.

Director of the Institute of Energy (KuzGTU), Dr. Tech. Sciences Irina Semykina presented three reports at the conference on approaches to the creation of a robotic tunneling combine in the conditions of a deserted mine, the tasks of controlling the synchronous electric drive of the gearless motor-drum of the belt conveyor and the problem of reliability of the external power supply of coal mines. The report on the reliability of external power supply of coal mines was recognized as the best and recommended for publication in the scientific journal "Notes of the Mining Institute".

Irina Yuryevna also held talks with the representative of the Technical University of Madrid Liliana Pežić, as a result of which an agreement was reached to expand joint international activities and cooperation in the field of mining electromechanics.

JSC "SUEK-Kuzbass" and LLC "Izhorskiy plant-KARTEKS" were official partners of the forum. Reports were also made by foreign specialists from Germany, Spain and Belarus.

Adopted from *http://utimenews.org/ru/news/v-gornom-universitete-obsudili-innovatsii-v-mashinostroenii-2/*

11. Read the following text and give its short summary using phrases on page 58.

Innovative Development of Kuzbass: from Regional Cluster to Three-Level Model of Transformation of Coal Industry"

The model of Kuzbass development (elaborated in the 2000s) allowed the region to strengthen the role it plays in the economic security of the Russian Federation and to find new markets for its products. However, in the modern context, new approaches to regional development, new points of growth and new drivers of innovation development are required.

The organization of a regional cluster for the extraction, processing and use of three types of raw materials: coal, oil and gas (methane) produced from coal seams is the most preferable for Kuzbass. "Innovative transformation" should be a fundamental principle of creating the cluster and its functioning.

Table 1: **A model of the three-level innovative transformation of Kuzbass coal industry**

The first level (the current level, step A) – a basis of the three-level model of innovative transformation of the coal industry. It is based on the "adaptive"	**The second level (step B)** – is the transition to the production of coal products with new consumer properties through "diversification" technologies.	**The third level (step C).** The main objective of innovation is the progressive development of power engineering and 181 power and chemical complexes with a variety of marketable

technologies for coal processing with improving the quality of the developed types of coal products.		products. The "transformative" technologies of coal processing are the innovative core of this stage of development.

It should be noted that the technological base of each subsequent level of the model of coal industry transformation does not exclude the technological base of the previous one but rather complement it.

However, along with this model it is necessary to introduce innovations in business processes of each company. Only in this way the "innovative transformation" of the region as a whole can be achieved.

By ***Y. Friedman, G. Rechko, E. Loginove, N. Oskina***
Adapted from ***"Innovative Development of Kuzbass: from Regional Cluster to Three-Level Model of Transformation of Coal Industry"***
http://lib.ieie.su

12. Read the following text and speak about the benefits of using a technology that allows unmanned coal mining.

First time in Russia operational lava for unmanned coal mining is launched

Polysaevskaya coal mine of OJSC "SUEK-Kuzbass" has gone out into operation with new №1747 lava.

This lava is unique for the coal mining industry. For the first time it runs a technology that allows coal mining without people involved. The system is based on joint developments of specialists from OJSC "SUEK-Kuzbass", MARCO (Germany) и EICKHOFF (Germany).

Monitoring and control of downhole equipment is managed by the operator from the nearby roadway through the use of multiple sensors mounted on the processor, power hydraulic roof supporters, as well as specialized cameras, including those operating in the infrared range.

A computer program is fully capable to automatically identify and produce the most efficient movement of the combine, bolt roof supports, process of downhole transport sector.

The main advantage of unmanned method of coal extraction is safety in the lava, the lack of human potential traumatic areas and better quality of extracted rock.

As developers say, such technology is only used at one other mine in the world – in Australia.

To operate this and other lavas at the mine, a new surface technology complex is introduced, that include pithead inclined shaft with the conveyor gallery, coal storage, and weight-house. A new conveyor line with a total length of five kilometers and width of 1200 mm is installed to transport the coal from the bottom of the warehouse.

The lava consists of 176 sections of mine roof supports FRS Glinik-12/25 (Poland). The Polish equipment includes face conveyor FFC-9 Glinik, gate-end conveyer FSL-9 Glinik, swing-mobile device FBE-1200 Glinik, crushing plant FLB-10G Glinik, pumping stations. The lava is equipped with the SL 300 EICKHOFF (Germany) shearer.

From ***EnergyLand.info, August, 2015***

http://www.energyland.info/analitic-show-138664

13. Now click here, watch video "HD Mining - Fully Mechanized Longwall Coal Mining Technology" illustrating what you have just read about.

https://www.youtube.com/watch?v=KkN2XHy4LGs

Unit VI: Outstanding People in the Field of Mining in Kuzbass

1. Warming up.

It is almost impossible to name a branch of science or industry in the development of which the Russian scientists and engineers haven't played a great role. Mining is not an exception. Of course, you've heard such names as T. Gorbachev**,** L. Zapadinsky, V. Bragin, V. Kozhevin, L. Reznikov, I. Baronsky, E. Drozdetsky, M. Naidov, V. Melnik, V. Vatokin, E. Kosmin. **Do you know who is who? Where did they live and work?**

2. Translate. Mind the derivatives:

to found – founder – foundation, to achieve – achievement, science – scientific – scientist, to describe – description, to drill – drilling, to prospect – prospection, to invent – inventor – invention.

3. Find synonyms. Match A with B. Write down your answers.

A	**B**
1. outstanding	1. to get
2. sphere	2. field
3. to include	3. work
4. activity	4. to unite
5. importance	5. significance
6. purpose	6. aim
7. to obtain	7. colliery
8. mine	8. prominent
9. to combine	9. to involve

4. Study the expressions to be remembered. Match English (A) and Russian (B) phrases. Write down your answers.

A	**B**
1. to take an active part in	1. заниматься
2. to construct a number of large mines	2. разработка толстых крутопадающих угольных пластов
3. to be a founder of the	3. быть членом -

mechanical self-advanced roof support	корреспондентом Академии Наук
4. thick steep coal seams mining	4. правительственные награды
5. under one's participation	5. принимать активное участие в…
6. to be a corresponding member of the Academy of Sciences	6. быть создателем механической самодвижущейся крепи
7. to engage	7. при участии
8. governmental awards	8. построить ряд крупных шахт

5. Read the text about T. F. Gorbachev carefully and be ready to do the test below.

Timofey Fedorovich Gorbachev (1900 – 1973)

There are many outstanding scientists in Kuzbass but I want to tell you about one of them, namely Timofey Fedorovich Gorbachev.

Gorbachev was born in the village of Troitskaya, Tambov region on July 23, 1900. In 1928 he graduated from the Mining Faculty of the Tomsk Technological Institute and for more than 20 years had been working in Kuzbass.

He took an active part in the organization of the construction of a number of large mines in our region and was one of the founders of the mechanical self-advanced roof support for coal mines. He modernized the system of mining thick steep coal seams. For some time he studied the problem of rock mechanics and rock pressure.

The Siberian Branch of the USSR (now Russian) Academy of Sciences was founded under his participation. From 1954 to 1972 Gorbachev was a Vice-president of this branch. And in 1968 he was elected a corresponding member of the Academy of Sciences.

Timofey Fedorovich was not only a prominent scientist, but also an outstanding organizer of science, instructor and educator of youth. He had numerous pupils who are now engaged in scientific research.

Gorbachev was the author of more than 60 printed works, among them his fundamental paper “Mining of coal deposits in Kuzbass” (1959).

As you know he was the first rector of the Kemerovo Mining Institute who headed the KMI from 1950 to 1954.

For his work Gorbachev was given many governmental awards. For example, in 1945 he became a Hero of Socialist Labour and in 1949 a USSR State Prize Winner.

6. Test yourself. Choose the right answer.

Test

1. T.F. Gorbachev was born in	a) 1900. b) 1945. c) 1973.
2. In 1928 he graduated from the	a) Moscow Mining Institute. b) Tomsk Technological Institute. c) Kemerovo Mining Institute.
3. He was one of the creators of	a) new mining transport facilities b) new stratigraphy of Russia.
	c) mechanized self-advanced roof support.
4. T. F. Gorbachev improved a system of mining	a) thin coal seams. b) inclined coal seams. c) thick steep coal seams.
5. For some time he studied the problem of	a) rock mechanics and pressure. b) fire damp. c) coal gasification.
6. From 1954 to 1972 he was	a) a President. b) a Vice – president. c) a corresponding member of Siberian Branch of the USSR Academy of Sciences.
7. T.F. Gorbachev was not only the prominent scientist but also	a) an honorable citizen of Kemerovo. b) an organizer of science, instructor and educator of youth.

	c) an outstanding person of Kuzbas.
8. He was the author of 60 printed works, among them his fundamental paper	a) “Coal mining machines and complexes”. b) “Mining of coal deposits in Kuzbas”. c) “The Kuznetsk Coal Basin”.
9. T.F. Gorbachev headed the KMI from	a) 1941 to 1945. b) 1950 to 1954. c) 1950 to 1960.

7. Now, using the answers to the test above tell your classmates about Gorbachev’s life and activities.

8. You are going to read about the man in the photo below. Do you know who he is? Read the text and think why we call L.M. Reznikov an outstanding figure in the coal industry of Kuzbass.

Lev M. Reznikov (1918 – 1991)

Lev M. Reznikov is an outstanding figure in the coal industry of Kuzbass, the State Prize Winner of the USSR, an organizer and leader of the Kuzbass biggest production unit extracting coal by the surface method.

Lev Reznikov was born on August 24, 1918 in the village of Omelnik, Kremenchug district, Poltava region. Having left secondary school, he began working as a draftsman. In a year he became a student of a workers’ high school, and a year later entered the Donetsk Industrial Institute, Mining Faculty. During the Second World War, in 1942 the Institute was evacuated to Prokopyevsk. Since that moment Reznikov’s life is tightly connected with Kuzbass. Having graduated from the Institute he worked as a chief’s assistant of the ventilation section at the Kalinin underground mine, then he became the chief of the section and the deputy chief engineer.

1947 – the chief engineer of the “Redakovo-Severnaya” mine;

1949 – director of the Dimitrov underground mine in Novokuznetsk;

1951 – director of the “Abashevskaya” underground mine.

In 1954 he leads the biggest “Kapitalnaya-1” underground mine in the Kuznetsk coal basin.

In 1960 Lev M. Reznikov was the deputy chief engineer of the “Kuzbassugol” group of mines, since 1961 he was the manager of the “Kiselevskugol” trust.

In 1964 “Kuzbasscarierugol” group of mines was founded; Lev M. Reznikov was appointed its head.

In 1975 the group of mines was renamed the “Kemerovougol” production unit, Lev M. Reznikov was appointed its general director. He occupied this post till December 1984, and then became the leader of the Kuznetsk branch of the Scientific Research Institute of Opencast Mining.

In 1989 he retired. Lev M. Reznikov died on March 11, 1991.

Lev M. Reznikov’s Awards

1945 – Medal “For Valour in Labour in the Great Patriotic War”
1954. – Medal “For Distinction in Labour”
1957. – Order of Red Banner of Labour
1966 – Order of Lenin
1970 – Jubilee medal “For Valour in Labour on the Occasion of the 100th Anniversary of Lenin’s birthday”
1971 – Order of the October Revolution
1976 – Order of the Red Banner of Labour
1981 – Order of Lenin
1984 – Rank of a Laureate of the State Prize of the USSR

Departmental Awards

Rank of an Honored Miner
Medal “Miner’s Glory” of III degree
Medal “Miner’s Glory” of II degree
Medal “Miner’s Glory” of I degree
Medal “For the Special Contribution in the Kuzbass Development” of I degree (posthumous)

9. Skim the text below. Choose the best title to it.

1. A Miner from Kuzbass among the first Russians awarded the title Hero of the Russian Federation of Labour
2. Hero of Labour of the Russian Federation became a Kuzbass miner

3. A machinist of mining excavation machinery at "Kotinskaya" mine – Hero of Labour of the Russian Federation

Vladimir Melnik, a foreman of the record-breaking Kotinskaya mine (Kiselevsk), was presented with the title of "Hero of Labour of the Russian Federation" by President Vladimir Putin on May 1, 2013. The award is given to recognise Melnik's outstanding achievement in public, social or economic activity.

The ceremony took place at the Constantine Palace in St. Petersburg. Each Hero of Labour of the Russian Federation was conferred a gold medal and a diploma. "It was a difficult task - to choose the first winners of the title Hero of the Russian Federation of Labor (Valery Gergiev, Yuri Konnov, Alexander Konovalov, Konstantin Chumanov were among them), because we have a lot of talented, successful people. In my opinion, this option has been very successful", — Putin said at the awards ceremony. "Your work - is an example for many of us, especially for the young who believe and understand that our country can and must achieve outstanding results of the global level and that these results will be marked by attention", - said Putin.

Vladimir Melnik gave to the mining industry more than 28 years. He was born on January 3, 1963. After finishing school he had different jobs in coal mining industry. He thinks that profession of a miner is both responsible and honourable.

Since 2003 Vladimir Melnik has been working on Kotinskaya mine in Kemerovo region where together with his brigade he set up some records in coal mining.

In 2006, "kotintsy" for the first time in the history of coal mining industry in Russia extracted more than 4 million tons of coal from one face. The most successful year for the team was 2007. They set up two coal-union records: monthly – 552 thousand tons and annually – 4 million 414 thousand tons of coal. In March 2010, the team set a new record of monthly production – 707 thousand tons of coal, but the record of annual production has not yet been broken.

For achieving best results and contribution to the development of the coal mining industry, Vladimir Ivanovich Melnik was awarded the regional and professional awards. The most important are the titles of "Hero of the Kuzbass", "Honored miner of the Kuzbass" and the gold and silver medals "Miner's prowess".

As for his last award Vladimir Melnik said that "the title of Hero of the Russian Federation of Labor" - is the reward of his whole miner's brigade of Kuzbass miners who work for the good of Russia.

Also Vladimir Melnik is actively engaged in public activity. He was a deputy of Kiselevsk city council of People's Deputies. Now he is a State Duma deputy.

From *Encyclopedia of safety*,
http://survincity.com/

10. Now look through the text once again and give its short summary using phrases on page 58.

11. Render the text given below into English. Use the following words and word combinations:

miners' veterans;
to film a series of documentaries;
Regional public fund;
to call to inform the young generation of Kuzbass;
to be planed;
Honorary workers of the coal industry of the region;
to show once or twice a quarter on the channel;
memories of their colleagues, friends, relatives,
commentaries of historians and specialists;
to be dedicate to.

Легенды Земли Кузнецкой

О ветеранах шахтерского труда в Кузбассе снимут цикл документальных фильмов.

Департамент угольной промышленности совместно с Кемеровским областным общественным фондом "Шахтерская память" имени В.П.Романова готовит материал для съемок цикла "Легенды земли Кузнецкой", призванного проинформировать молодое поколение Кузбасса о героическом прошлом отцов и

дедов. Снимать документальные фильмы об известных шахтерах региона будет команда ГТРК “Кузбасс”.

Уже запланированы фильмы о 20 героях. Это заслуженные шахтеры РФ, Герои Социалистического труда, Герои Кузбасса, почетные работники угольной промышленности Кемеровской области. Среди них Леонид Западинский, Егор Дроздецкий, Аваскаль Карлос Барредо, Анатолий Булгаков, Виктор Брагин, Александр Орищин, Виктор Бочаров, Исаак Баронский, Тимофей Горбачев, Лев Резников, Владимир Воробьев и другие.

Премьеры будут показывать 1-2 раза в квартал на телеканале “Россия 24”. Фильмы будут состоять из историй жизни, рассказанных самими героями, воспоминаний их коллег, друзей, родственников, комментариев историков, специалистов.

Первая серия была показана в декабре 2016 года. Она была посвящена Герою Кузбасса Михаилу Найдову.

Планируется, что полная коллекция фильмов будет сформирована к 300-летию открытия кузнецкого угля, которое будет отмечаться в 2021 году.

Adapted from “***КузПресс”, 20.10. 2016***
http://kuzpress.ru/society/20-10-2016/48598.html

12. Click here and watch films about three outstanding persons in the field of coal mining in Kuzbass. Make presentations about anyone of them. Present your work in the class.
http://newsvideo.su/video/5879850

http://vesti42.ru/spec/legends/33039/

http://vesti42.ru/spec/legends/34361/

http://vesti42.ru/spec/legends/36195/

Unit VII: My Future Profession

1. Warming up.

a) Match the jobs in the box with the pictures. Which job is not shown?

1) miner 2) surveyor 3) geologist 4) safety engineer 5) mining electrical engineer

b) Do you have a “dream job”? What is it?

2. Read, translate and try to memorize the words and word-combinations. Write down your answers.

prestigious	
solve different problems	
take after parents	
to be highly competitive	
to be responsible for	
to develop skills	
to have an opportunity	
to make a career of	
to put into practical application	

3. Match the words in A with their synonyms in B. Write down your answers.

A	B
1. to get	1. versatile
2. flexible	2. work, occupation
3. job	3. to connect, to unite
4. application	4. to obtain
5. to combine	5. employment

4. Read through the list of reasons why students decide to get higher mining education. Now rate the reasons according to those most / least important for you (1-9)

	to be well-educated
	to have an opportunity to find a good work in future
	to find out what you are really interested in
	to please your parents
	to learn how to study
	to have fun
	to get general knowledg
	to meet other young people
	to get prepared for a future job

5. Work in pairs. Compare your rating and say what the most / the least important reasons in your pair are. Use a model:
The most important reason for me is …
The least important reason for me is …

6. Click here and watch the video "Just the Job – Miner". Find out why the young man wants to be a miner.

https://www.youtube.com/watch?v=d1uIr_KyRr4

Useful phrases:

- to work indoors (outdoors)
- to develop smth.
- to put smth. into practical application
- to combine work and science

- to use universal language of science
- to have an opportunity to solve different problems
- to make a career of
- to develop your practical and management skills
- to be useful all over the world

From "***A Career in Coal Mining "***
https://www.youtube.com/watch?v=d1uIr_KyRr4

7. Read the text "Mining Engineering – Inspiring and Flexible", look at the list of questions below and make a conclusion if mining engineering is right for you.

Mining Engineering – Inspiring and Flexible

It's important to choose a career that you will love. Who wants to do something they hate for the rest of their life? Luckily, mining engineering is a really versatile career, so after you graduate there are plenty of different areas of mining engineering in which you can specialize.

Mining engineering is about extracting minerals from the Earth in a safe, efficient and responsible way. There are many parts to this, and many different tasks mining engineers perform to get to the end result. Mining engineering thought starters

If you aren't sure whether mining engineering is for you, take a look at the list of questions below. They are about the skills you require to be a great mining engineer – and answering them might just help you dig deeper:

1. Are you good at Maths and Science?
2. Do you like problem solving?
3. Have you got an interest in natural resources?
4. Are you interested in the effects of mining on the surrounding environments?
5. Do you want to know how things work?
6. Are you a good communicator?
7. Do you like the outdoors?
8. Are you interested in working underground?

Now, check your answers:

Chances are if you say "yes" to most of the above, you'll make a good career in mining.

8. Act out dialogues.

1. My institute and my subject

- Would you introduce yourself?

- Of course. I'm a first-year student. My subject is mining.

- Oh! Are you from the KSTU?

- Yes, I'm. I study at the Mining Institute.

- Will you speak about your Institute?

- Our Institute was founded on the basis of the Mining Faculty - the oldest at our university. Nowadays about 1000 students study there. The stuff comprises 136 lecturers and researchers, 44 of them having scientific degrees.

- I see. Thank you.

2. Choice of a specialty

- You study to be a mining engineer, don't you?

- That's right.

- Why have you chosen this profession?

- Because I take after my parents. My father and mother graduated from the Kuzbass Polytechnic many years ago. They like their job. I think mining is important and interesting. And what about you?

- As for me, I enjoy solving problems and putting my ideas into action. More over I am curious about how things work and how to make them better.

- Then, I think mining engineering may be the perfect career for you!

3. Mining Engineering

- What is mining?
- Mining is a very broad professional field.
- What are the areas of mining engineers' interests?
- Mining engineers plan mining operations and design underground and surface mines. They also design mining equipment and supervise technicians and workers who use it.
- I see. What subjects do you study as a future mining engineer?
- As a future mining engineer I study such subjects as geology and geodesy, the methods of coal extraction and mining equipment, rock mechanics, ventilation, surveying, economics and management, mine safety, environmental protection and computer applications.
- When will you graduate?
- In five years.

4. The duties of a mining engineer

- What are you?
- I am a student.
- What is your subject?
- My subject is mining.
- Do you know what the duties of a mining engineer are?
- A mining engineer is responsible for the whole process of coal mining and for the maintenance of the equipment. Besides, his

function is to organize the rhythmical work of the mining team and personnel training.

- I see. To my mind the duties of a mining engineer are very important.

9. Work in pairs. Discuss the question: *Why have you chosen your field?*

Useful phrases:

it is interesting for me,
I take after my parents,
I follow my family tradition,
I keep on my family tradition,
it is important for our region,
it will be easy to find a good job in future.

10. Read the text below. Put ten questions to it. Discuss career option as a mining engineer working in pairs.

Career Option as a Mining Engineer

Mining Engineering is a combination of engineering and geosciences. That is, Mining Engineering is a field of geosciences where engineering principles are used for the exploration of mineral ore, petroleum and oil deposits on earth's surface and for the subsequent extraction of minerals and oils by using advanced mining technologies and sophisticated mining equipments.

Career as a Mining Engineer is a highly prestigious career and it is comparatively difficult to get a position as a mining Engineer as this field has become highly competitive nowadays.

Mining Engineers are responsible for the survey of the mining sites; exploration of the sites for the mineral and oil deposits; designing and development of the life support system for underground mines; researching and designing most cost effective mining equipments and mineral extraction technologies.

Mining Engineering can be a challenging and risky profession but this career is highly rewarding in terms of job satisfaction and

career advancement. Plenty of career opportunities are available for qualified Mine Engineers in the fields of

- Mine designing;
- Mine construction;
- Mine management;
- Mining equipment designing
- Mineral extraction technology.

Prospective employers include private and public sector petroleum mining companies; oil companies; mining finance houses; mine research organizations; mineral production firms and other similar organizations.

Career aspirants in this field are expected to have at least a bachelor level qualification in Engineering with a specialization either in Mining Technology or in Mineral Engineering.

Adapted from ***"Study discussions"***
http://www.studydiscussions.com/career-option-as-a-mining-engineer/

11. Now summarize all information you have got and write a few words about your study and your future activities as a mining engineer. Begin your answer with the following:

My name is …, my surname is … .
I study at the …
I'm a first-year student of the … Institute.
Our Institute is as …as the University itself.
I study to be a … .
I specialize in … .
I think … is very important for Kuzbass because … .
Our region is a great coal-mining area of … .
There are a lot of … .
I've chosen this field because … .
The full course of study lasts ... .
We study many … subjects and … ones.
In … years we'll defend our … and get … .
… … … is perspective.
I think it'll be (not) … for me to find a good job in future.
After graduation from the …. I'll plan to work … .

Appendix I
Phrases you need to summarize the information from a text or an article

1.	The title of the article (text) is …	Заглавие статьи (текста) …
2.	It was published in …	Она была опубликована в…
3.	The author of the article is …	Автор статьи …
4.	The article (text) deals with the problem (question) of …	Статья (текст) имеет дело с проблемой (вопросом) …
5.	It also touches upon …	Она также касается …
6.	The article (text) says in detail about …	Статья (текст) говорит в деталях о …
7.	The article (text) gives facts (figures, names) illustrating …	Статья (текст) дает факты (цифры, имена), иллюстрирующие …
8.	It should be noted that …	Следует отметить, что …
9.	In conclusion the author says that …	В заключении автор говорит, что …
10.	I think the most important fact in this article (text)is …	Я думаю, что самый важный факт в этой статье (тексте) это …
11.	I find the article (text) … interesting useful important for me informative hard (easy) to understand	Я нахожу статью (текст) ... интересной полезной важной для меня информативной трудной (легкой) для понимания

Appendix II

Click here, watch the presentation and summarize all the knowledge you've got about coal.

1. http://www.authorstream.com/Presentation/Nevada-33126-COAL-Types-Continued-Physical-Properties-Chemical-Composition-Used-as-Entertainment-ppt-powerpoint/

2. Угольная промышленность | Бизнес | Телеканал «Страна» https://www.youtube.com/watch?v=aGmZsWzfsaI

3. Coal 101 https://www.youtube.com/watch?v=iN6LvH_4Q3g

4. Фильм о КузГТУ https://www.youtube.com/watch?v=6FckshMtxPc

Содержание (Content)

Составитель
Ирина Владимировна Батенко

Coal Mining in Kuzbass
(Добыча угля в Кузбассе)

**Методические указания для практических занятий
и самостоятельной работы по английскому языку
для студентов специальности 21.05.04 «Горное дело»
всех форм обучения**

Рецензент П. А. Стрельников, доцент кафедры иностранных языков КузГТУ, кандидат педагогических наук

Подписано в печать 03.07.2017. Формат 60×84/16.
Бумага офсетная. Отпечатано на ризографе. Уч.-изд. л. 3,1.
Тираж 10 экз. Заказ .
КузГТУ. 650000, Кемерово, ул. Весенняя, 28.
Издательский центр УИП КузГТУ. 650000, Кемерово, ул. Д. Бедного, 4А.