Державний навчальний заклад «Южноукраїнський професійний ліцей»

Навчальний посібник

для професії «Електромонтер з ремонту та обслуговування електроустаткування»

2014

Викладач англійської мови,
спеціаліст вищої категорії
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Укладач: Куришко Ганна Василівна викладач англійської мови, спеціаліст вищої категорії.

Даний посібник – це збірник текстів із завданнями, підібраними відповідно до програми з іноземної мови для учнів професійних навчальних закладів, які навчаються професії «Електромонтер з ремонту та обслуговування електроустаткування»

У збірнику наведений широкий діапазон професійної лексики, спрямований на розширення словникового запасу та розвиток мовленнєвих навичок у професійному спілкуванні. Для учнів професійних навчальних закладів. Може бути використаним для широкого кола осіб, що вдосконалюють свої знання з англійської мови.

Іноземна мова з професійним спрямуванням

Посібник призначений для проведення уроків англійської мови для учнів І-ІІІ курсів ПТНЗ, що навчаються за професією «Електромонтер з ремонту та обслуговування електроустаткування».

Зміст

UNIT 1

NATURE OF ELECTRIC CURRENT

1. Pre-text exercises.

Pronounce the following words and memorize them.

1. current n — ток
2. matter n — речовина, матеріал
3. constitution n — будова, склад
4. nucleus n — (атомне) ядро
5. surround v — оточувати
6. charge n — заряд
7. revolve v — обертатись (ся)
8. tremendous adj — величезний
9. hydrogen n — водород
10. conductor n — провід; провідник
11. terminal n — клема; ввідна/ вивідна втулка
12. overlap n, v — накладання; частково співпадати
13. outer adj — зовнішній
14. cause v — стало причиною \ приводом
15. wire n — проволока; електричний провід
16. circuit n — ланцюг, контур; схема
17. rate n — пропорція; коефіцієнт ; ступінь
18. conception — концепція; поняття
19. potentials — потенційний; можливий; напруга
20. equal — рівний; прирівнюватись
21. extent — ступінь
21. toward — до
22. considerably — значно
23. ease — легкість; спокій
24. semiconductor — полу провідник

2. Find in the text sentences with these new words and translate them into Ukrainian.

3. Translate the following word combinations.

1. Electric current	
2. positive nucleus	
3. negative charges of electricity	
4. at tremendous speed	
5. terminals of a battery	
6. outer electron	
7. to be packed closely	
8. the ends of the wire	
9. to provide forces	
10. to migrate from atom to atom	

11. the rate of flow of electrons	

4. Look through the text and find words relating to the phenomenon of electric current***, translate them into Ukrainian.***

5. Look out comparative constructions in the sentences. Translate in Ukrainian.

1. This scientist carried out more experiments in physics than in chemistry. 2. There are not so many electrons in oxygen as in manganese. 3. To work with radium was as difficult as was to discover it. 4. The number of protons in the nucleus of an atom is the same as the number of neutrons. 5. He spent on his experiments more than his brother. 7. A battery costs less than an accumulator.

6. Look through the text, find sentences with comparative constructions and translate them into Ukrainian.

7. Paraphrase the following word combinations using comparative constructions.

is…. than, is less ….. than, as… as, both…and

1. You know a bit about electric current but I know more. 2. I need two batteries and you need two batteries as well. 3. The atom is neutral when it contains equal numbers of electrons and protons. 4. This invention is quite important. That one is important too. 4. I bought 6 **bundles** of wire, and my colleague bought 2 bundles of wire.

NATURE OF ELECTRIC CURRENT

In the modern conception of the constitution of matter it is composed of atoms. The atom is made up of a positive nucleus surrounded by negative charges of electricity, called electrons, which revolve about the nucleus at tremendous speeds. The nucleus consists of a number of protons, each with a single positive charge, and, except for hydrogen, one or more neutrons, which have no charge. The atom is neutral when it contains equal numbers of electrons and protons. A negatively charged body contains more electrons than protons. A positively charged body is one which contains fewer electrons than its normal number. When the two ends of a conductor are connected to two points at different potentials, such as the terminals of a battery we say that there is an electric current in the conductor. What actually happens? The conductor has equal numbers of positive and negative charges in its atoms, and we want to know how the charges can be made to produce a current. The atoms in metals are packed so closely that they overlap to some extent**,** so that it is comparatively easy for the outer electrons to pass from one atom to another if a small force is applied to them. The battery causes a potential difference between the ends of the wire, and thus provides forces that make the negative electrons in the wire move toward the point of higher potential. This electron flow toward the positive electrode is the electric current. Naturally materials differ considerably in the ease with which electrons can be made to migrate from atom to atom. The current will not flow unless there is an electric circuit. The magnitude of the current depends simply on the rate of flow of electrons along the conductor.

After-text exercises

1. Get ready to answer the following questions.

1. Define (дай характеристику) an atom.
2. What does the nucleus consist of?
3. When is the atom neutral?
4. What do you call a negatively charged body?
5. Tell what a positively charged body is.
6. Give the definition to an electric current.
7. What makes the negative electrons in the wire move toward the point of higher potential?
8. In what way do materials differ?

9. What does the magnitude of the current depend on?

2. Give synonyms from the text to the following words and word combinations.

Composed of -
to supply –
to move –
a stream –
to rotate –

3. Give antonyms to the following words.

Positive –
an electron-
an insulator –
difficult -
inner -

4. Are the following statements True or False? If False say why.

№	*Sentences*	*True*	*False*
1	In the modern conception of the constitution of matter it is composed of protons.		
2	When the two ends of an insulator are connected to two points at different potentials we say that there is an electric current in the insulator.		
3	Hydrogen consists of three neutrons.		
4	It is easy for the outer electrons in the atoms of metals to pass from one atom to another if a small force is applied to them because the atoms are packed quite close to one another.		
5	Electrons revolve about nucleus at very low speeds.		
6	The current will not flow if there is no electric circuit.		

5. Choose appropriate comparative constructions from the brackets and insert them into the gaps (as...as, not so...as, more...than, lower...than, the same...as).

1. My friend is interested ... in studying electrical conductivity ... in studying magnetism. He reads a lot on conductors and **semiconductors**.
2. These scientists are ... interested in the multitude of compounds of which matter is comprised ... in its conductivity. They`re testing both the multitude of matter compounds and their conductivity.
3. I think this experiment is very important, but your attitude to the experiment is ... serious ... mine.
4. This material has ... number of positive and negative charges in its atoms ... the one we have tested. Their numbers are equal.
5. A semiconductor has a ... conductivity ... a conductor.

6. Insert appropriate prepositions.

With of to according from
To by at of toward

1. Matter is composed ... atoms. 2. The atom is made up ... a positive nucleus surrounded ... electrons. 3. Electrons revolve about the nucleus ... tremendous speeds. 4. You need to connect the wire ... the terminals of a battery. 5. It is not so difficult ... me to carry out the experiment alone. 6. We should not apply a lot of force ... metals to make outer electrons migrate from one atom to

another. 7. Electric current is the flow of electrons ... the positive electrode. 8. Charged atoms differ from uncharged ... the proportion of electrons to protons. 9. The success of our examination test depends ... our knowledge of the subject.

7. Make up your own sentences use the following expression.

1.A negatively charged body- _____
2.From negative to positive -_____
3.From one atom to another - _____
4.A number of protons - _____
5.A single positive charge - _____
6. Neutral number of electrons and protons - _____
7.To differ in the ease -_____

8. Discuss with your friends the information you have got from the text.

UNIT 2

MY FUTURE PROFESSION

Pre-text exercises.

1. Read the following words:

[ju:] student, future, opportunity, attitude, to supervise;
[Λ] to study, subject, company, thorough, to construct, to judge, enough, to become;
[з:] work, person, to learn, to concern;
[k] mechanical, chemistry;
[æ] practical, to carry, many, fact, can, satisfactory, that, speciality.

2. Pronounce the following words and memorize them.

1. freshman n	першокурсник
2. skilled adj	кваліфікований
3. safe adj	безпечний
4. familiar adj	знайомий
5. engine	двигун
6. equipment	обладнання
7. deal	велика кількість
8. stresses	напруга
9. safely	безпечно
10. withstand	витримувати
11. workshop	майстерня
12. devices	пристрої
13. screw – drivers	викрутки
14. pliers	плоскогубці
15. cutting pliers	кусачки
16. tongs	щипці
17. nippers	гострі щипці
18. measuring instruments	вимірювальні інструмент
19. wires	провода , дроти
20. appliances	техніка
21.install	встановлювати
22. assemble	збирати
23. switches	вимикачі

24. wall – outlets розетки
25. tensions напруга
26. oscillographs осцилограф
27. judgment судження
28. obtained отримані
29. danger n загроза
30. experience n досвід
31. profound глибокі
32. enough достатньо
33. qualified кваліфікований

2. Find in the text sentences with these new words and translate them into Ukrainian.

3. Translate the following word combinations.

1. to learn a profession	a) першокурсник
2. to have good judgment in the field of electricity	b) викрутки
3. a green freshman	c) встановлювати вимикачі
4. hard working pupils	d) вивчати професію
5. different materials	e)мати гарні судження в сфері електричества
6. profound knowledge	f) працьовиті учні
7. stresses different materials	g) працювати з вимірювальними інструментами
8. screw – drivers	h) різні матеріали
9. to work with measuring instruments	i) глибокі знання
10. to install switches	j) напруга різних матеріалів

4. Look at these words or words- combinations 5 minutes, then cover them and write a dictation.

screw – drivers, an electrician, theoretical mechanics, construction materials, engines or equipments, our workshop, safely withstand , operation, wires fittings, knowledge to assemble, pliers, high tensions current, devices, isolation

6. Find in the text sentences with the Infinitive, Participles I, II. Translate the sentences into Ukrainian.

MY FUTURE PROFESSION

Our lyceum trains the qualified workers in many fields and hard working pupils have practically unlimited opportunities to learn a profession. As a result of thorough theoretical, practical as well as professional training the pupils get diplomas. The diploma is a product of joint efforts of the teachers who make a skilled specialist out of a *«green freshman»*.

As for me, I shall be an electrician. My future profession will deal with the operation of electrical engines or equipments.

A lot of knowledge is necessary to learn this profession. We must know electro technical , theoretical mechanics, construction materials , mathematics and many facts concerning materials – for example, what stresses different materials may safely withstand so that there will be no danger in the operation of electrical equipment.

We train our practical skills in our workshop at lyceum. In our workshop and in the tool – room we have all necessary instruments and electrotechnical devices which we use in our study and work. They are: screw – drivers, pliers, cutting pliers, tongs, nippers, measuring instruments, wires,

ampermeters and voltmeters, transformers and electrical appliances. We learn to work with them in our workshop.

We learn to install and take away fittings, panel boxes, meters, to assemble electrical equipments, to install switches and wall – outlets. Besides we learn to operate the electric motors and electrical appliances with high tensions current and to keep them in good repair. We also learn to make wires and isolation of electrical equipments and devices, to work with oscillographs and other electronic computers.

The pupils entering this profession must be scientifically minded, creative, initiative and must have good judgment obtained by experience and practical work in the field of electricity.
If our knowledge of the subjects studied at the lyceum is profound enough then we can say that we will succeed in our work on the speciality.

After studying at the lyceum we shall work as electricians at a Nuclear Power Plant or at the Energy companies in our country. That's why I try to do my best to become a good qualified worker.

After-text exercises

1. Answer the following questions.

1. Where do you study ?
2. What will your future profession deal with?
3. What must you know to learn your profession?
4. What instruments and electrotechnical devices do you have at your workshop?
5. What do you learn to do in your workshop?
6. Where will you work after leaving lyceum?

2. **Agree or disagree with the following statements using the following speech patterns: (використання *методу «Press»)***

-Yes, you are right.
-No, that's not true.

1. Your profession is needed when something is wrong with the equipment.
2. Your future speciality is not difficult.
3. An electrician must know electro technical , theoretical mechanics, construction materials , mathematics and many facts concerning materials.
4. You learn to work with screw – drivers, pliers, cutting pliers, tongs, nippers, measuring instruments, wires, ampermeters and voltmeters at your workshop.
5. The knowledge of the electricity is not necessary for our profession.
6. Thorough knowledge of foreign languages is also necessary for an electrician.

3. Translate the following sentences into English.

1. Підприємство почне свою роботу, коли буде встановлено все необхідне обладнання.
2. Електрик повинен встановити електричні пристрої.
3. Електрики ремонтують електричну техніку та встановлюють панельні щитки.
4. Учні повинні бути творчими та ініціативними , повинні мати гарні отриманні знання.

4. Discuss with your friends the information you have got from the text.

UNIT 3

INSTRUMENTS AND METERS.

1. Pre-text exercises.

Pronounce the following words and memorize them.

indicating instruments – вимірювальні інструменти,
recording instruments – реєструючи (записуючи) інструменти,
integrating instruments – інтегрувальні інструменти
constitute - становлять
pointer – стрілка
a fixed scale - фіксована шкала
immediate indication – негайні показники
value – значення
compare – порівнювати
a weighing machine – ваги
permanent - постійні
chart – діаграма
an observer – людина, яка слідкує за вимірюванням
on the spot- відразу
whilst – в той час як
reference – надання рекомендацій
consumed – споживання
quantity – кількість
arc – дуга
revolve – обертатись
gearing - зчеплення
revolutions – оберти
rate – відсоток
respectively – відповідно
force – сила
damping - глушіння

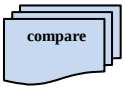
2. Organize your vocabulary learning

>>>>>>>>>>>>>>>>>>>>>>>>>>>>>

If you forget the same word again and again, try to think of a special way to remember it.

1**. -** Think of an image in your mind.
2. – Try to associate it with another word in English or your language.

3. – Write down the word and say it a few times.



4. – Write it on a card and keep it in your pocket to test yourself from time to time.

3. Read the text using the new words.

INSTRUMENTS AND METERS.

Electrical measuring instruments can be divided into three classes:

1. ***Indicating instruments***:

 - voltmeter

 - ampemeterr

 - wattmeter

2. ***Recording instruments***:

3. ***Integrating instruments:***

Indicating instruments, such as ammeters, voltmeters and wattmeters, constitute the largest of the three classes. These are fitted with a pointer which moves over a fixed scale. Their characteristic is that they give an immediate indication of the value of the current, voltage or other quantity being measured.

Recording instruments, or graphers, as they are sometimes called, instead of being fitted with a pointer and scale, carry a pencil or pen, which presses on to a travelling ribbon of paper, and thus makes a continuous chart or record of the values measured. Such an instrument could be compared with the recording barometer often exhibited in an instrument maker's window. Two types of these instruments do not differ in principle, since they are both used to measure the same kinds of things; but in the one case the indication is momentary and must be read by an observer on the spot, whilst in the other case the values are recorded on a chart for future observation and reference.

The third group, consisting of ***integrating instruments or electricity supply meters***, differs fundamentally from the other two groups, since instead of indicating or recording, these instruments add up the total amount consumed over any given period. They measure the product of current and time (in ampere-hours) or of power and time (in watt-hours), and so add up the electrical quantity or energy consumed. An integrating instrument is, therefore, like the gas meter, which registers the quantity of gas consumed. Instead of a pointer and scale with a limited arc of movement, they are usually made to revolve and carry a train of gearing and a register which counts the number of revolutions made. In such instruments, the rate of revolution being proportional to the current (in an ampere-hour meter) or to the power (in a watt-hour meter), the total number of revolutions is proportional to the ampere-hours or watt-hours respectively.

All indicating instruments have three essential features:

- an operating force or mechanism,
- a controlling force or mechanism,
- a damping force or mechanism.

Thus, the process of electrical measurement can be said to consist of a ***"tug of war"**** between two opposing forces – the operating force or generated by the electricity which is being measured, and the controlling force. When an electric current flows, it gives rise to various effects – ***heating, electrostatic, electro-magnetic and chemical***, and any one of these effects can be utilized to furnish the operating force of a measuring instrument.

* "tug of war"–спортивная игра – «перетягування на канате»

4. Find translations of these phrases:

1.	a fixed scale	a)велика кількість обертів;
2.	a travelling ribbon of paper	b) використовується;

3.	the product of current	c) кількість споживання;
4.	to record on a chart	d) фіксована шкала;
5.	amount consumed	e) обмежена дуга руху;
6.	a limited arc of movement	f) рухома стрічка паперу;
7.	the total number of revolutions	g)записувати на діаграму;
8.	can be utilized	e)продукт току.

5. Odd one out. Circle **the different word . Why is it different ?**

1. potatoes knife screwdriver wires voltage detector
2. outlet current gymnastics cutting pliers nippers
3. wattmeter ampermeters voltmeters picture barometer

6. Make sentences with *to* + a verb

Ex. *He needed a visa* ***to*** *go to China.*

1.He's gone to the plant	a) *add up the electrical quantity.*
2. I'm going back to the room	b) *have an immediate indication of the value of the current.*
3. Alex drove to the shop	c) *record the values measured on a char.*
4. We phone to the electrical company	*d) take ampermeters.*
5. She sent indicating instruments	e) *change instruments he bought 3 days ago.*
6. They measure the product of current	f) install a new electric meter.

7. Speaking skills .

1. ***Phoning a company***

P.__- Hello! Is this Mr. Kample?

- Hi! _____
- There are a few problems _____.

First, my outlet in living room is broken.

- I'll ask an electrician _____ it tomorrow.
- Also, one of the _____ on the stove doesn't work.
- What's the matter with it?
- I can't control the temperature. I think _____ too.
- Ok, Will you be at home at 06.00 p.m. tomorrow?

Our electrician will come to you and do his work_____.

- Oh, yes. It' s good time. I shall waiting for him Thank you, good bye.
- Good bye.

with my apartment | What's up? | it has broken

to come and repair | burners | for repairing

2. Put these word- combinations into the dialogue.

3. Make your own dialogue and role-play it.

8. You are an employer of Energy Company. Present Electrical measuring instruments. Follow next plan:

- **Introduce yourself.**
- **What electrical measuring instruments would you like to present for us.**
- **Say: – What is it?**
  -What do we use for?
  - Its advantage.

UNIT 4

How to install an electrical outlet.

1. Pre-text exercises.

Pronounce the following words and memorize them.

1.circuit on - замикання
2.Don't assume – не чіпай
3.a breaker box to be labeled - коробка вимикача підлягає обов'язковому маркуванню
4.on recently нещодавно
5.a shallow cut - невеликий поріз
6.ground wire- дріт заземлення
7.to nick- надрізати
8.insulate –ізоляція, (ed - заізольовані)
9.excess – надлишок
10.sheathing покриття, обшивка
11.expose – піддавати дії
12.the tips – кінці
13.removing – видалення
14.a setting – установка
15.to be twisted – скрутити
16.extended – протягувати,
17.bend – згинати
18.a hook shape – у формі гачка
19.loop – закріпити петлею
20.the screw connections - різьбові з'єднання
21.tighten – скріпляти
22.the brass plate - латунна табличка
23.fold- згинати
24.pinching the wires – зчеплені (спаяні) провода,
25.alternating – змінний
26.crack – тріснути

2. Read text, work with the new words and word – combinations.

How to install an electrical outlet.

Tools for Wiring and Installing an Outlet

The tools you will need are:

- a wire stripping gauge - сортамент (проводів), вимірювальний прибор для зачистки проводів;

- needle nose pliers - довгоносі плоскогубці;

- a utility knife - підручний ніж;

- a voltage detector - індикатор напруги;

- a screw driver - викрутка.

Instructions for Wiring and Installing an Outlet

Before beginning any electrical installation you must first turn the power off to the circuit on which you will be working. Don't assume the circuit is dead. Test it using a voltage detector. It's not uncommon for a breaker box to be labeled. When your sure the circuit is dead you may proceed. Using a utility knife make the cut in the center of the wire where the ground wire is located and make a shallow cut. You don't want to nick the insulated wires on either side of the ground.

More Instructions for Wiring and Installing an Outlet

Two or more outlets are usually wired in series on the same circuit. If the outlet you will be wiring is the last in the circuit, then only one wire will be present. Now, carefully cut the excess sheathing and paper from the wire. For the wires to make electrical contact with the outlet, you must expose the tips of the black and white wires by removing the wire insulation.

Using a wire stripping gauge remove about 3/4" from the ends of each wire. Look closely and make sure you are selecting a setting that will cut the insulation without biting into the wire. The ground wires will need to be twisted together leaving one end extended to connect to the outlet. The ground wire will either be bare as in our example or covered in green insulation.

Tips for Wiring and Installing the Outlet

Using your stripper gauge or needle nose pliers bend the ends of wires into a hook shape to loop around the screw connections of the outlet. Bend the wires in the direction that the screw will turn to tighten. Some outlets are labeled where the black and white wires should go. If not then the black wire or wires will connect to the brass plate and screws. And the white wire or wires will connect to the silver wire or screws. Connect the ground wire to the ground screw connection.

Before pushing the outlet into the box make sure the wires will fold easily and that there is enough room for the outlet without pinching the wires or stressing the wire connections. Using a screwdriver fasten the outlet to the box alternating between the top and bottom screw so as not to bend the metal end of the outlet or strip the screw hole in the outlet box.

Putting on the plate cover is easy but be careful not to screw it down to tightly because the plate will crack very easily. Now that we are done, it's time to turn on the power and check the new outlet with the voltage detector. It should read about 120 volts from the hot to ground and from the hot to neutral.

After-text exercises

3. Put these words in correct order. Make up 4 types of questions (general, alternative, special, disjunctive)

1. make/ the/ in /wire /the cut / You/ center/ of the. _____
2. /will/ be/ as/our example/ in green insulation/ The/ either/ ground /in / wire/ bare or covered/
_____

4. Read the text, fill this table and say what have you known.

I know	I want to know	I have known

5. Put your actions in order how to install an electrical outlet.

a) Using a utility knife make the cut in the center of the wires. 1_____
b) You must first turn the power off to the circuit on. 2_____
c) Carefully cut the excess sheathing and paper from the wire. 3_____
d) Test it using a voltage detector. 4_____
e) Using a wire stripping gauge remove about 3/4" from the ends of each wire. 5_____
f) Putting on the plate cover is easy but be careful not to screw it down to tightly. 6_____
g) Using a screwdriver fasten the outlet to the box alternating between the top. 7_____
h) Using your stripper gauge or needle nose pliers bend the ends of wires into a hook shape to loop around the screw connections of the outlet. 8_____

6. Make up dialogue. Ask your master/teacher about instruments do you need.

What is a wire stripping gauge?

At first you need a wire stripping gauge, needle nose pliers, a utility knife, a voltage detector, screw - driver.

What is a voltage detector?

Needle – nose pliers (also known as long – nose pliers, pinch – nose pliers) are both cutting and holding pliers used by jewelry designers, electricians to bend, re – position and cut wire.

what instruments do I need to install an electrical outlet?

What do I do at first?

A voltage detector is a device that tells the user whether an object has an electrical

A wire stripper is a small, hand – held devices used to strip the electrical insulation from electric wires.

What is needle nose pliers?

You must first turn the power off to the circuit on which you will be working.

UNIT 5

South - Ukraine Nuclear Power Plant

1. Pre-text exercises.

Work with a dictionary, translate these words, pronounce and memorize them.

1. an enterprise -
2. capacity –
3. to trace -
4. unit -
5. assemblies –
6. was loaded -
7. extension –
8. upgrade -
9. estimated –
10. reliability –
11. requirements -

2.Read the text and write some information. Discuss the information with your partner.

PLUS (everything you like)

MINUS
(everything you don't like)

INTERESTING
(all interesting facts)

South - Ukraine Nuclear Power Plant.

Ukraine is in the top ten of the states with the developed nuclear power industry. Basic of South - Ukraine power complex is ***South - Ukraine Nuclear Power Plant –*** leading an enterprise of Ukraine**.**

It is located near the city of Yuzhnoukrainsk in Mykolaiv region. The nuclear power station has three VVER-1000 reactors and a net generation capacity of 2,850 megawatts (MW). It is at present the second largest of five nuclear power stations in Ukraine. From South Ukraine Nuclear Power Plant a 750 kV powerline runs to Romania, Bulgaria.

The plant traces its history back to December 1982 when its first power unit was put into operation. Units 2 and 3 were commissioned in 1985 and 1989. The heart of the nuclear power plant is the reactor which contains the nuclear fuel. The fuel usually consists of hundreds of uranium pellets placed in long thin cartridges of stainless steel. The whole fuel cell consists of hundreds of these cartridges. The fuel is situated in a reactor vessel filled with a fluid. A nuclear reactor has several advantages over power-plants that use coal or natural gas. The latter produce considerable air pollution, releasing combusted gases into atmosphere, whereas a nuclear power plant gives off almost no air pollutants.

Since 2005 Energoatom has been using the third power unit of the Yuzhnoukrainsk NPP to test nuclear fuel produced by Westinghouse, mixed with Russian assemblies. In August 2005, the third reactor of the Yuzhnoukrainsk NPP was loaded with the first six experimental fuel assemblies produced by Westinghouse.

In September 2009, Westinghouse transferred a further 42 fuel assemblies to Energoatom for the third reactor of the Yuzhnoukrainsk NPP.

In 2013 unit 1 was given a 10-year license extension, following major upgrade work, which will take it beyond its original 30-year design lifetime. Similar extensions are planned for units 2 and 3, which are currently licensed until 2015 and 2019.

As estimated by international monitoring organizations, the reliability level of SU NPP power units meets the European safety requirements.

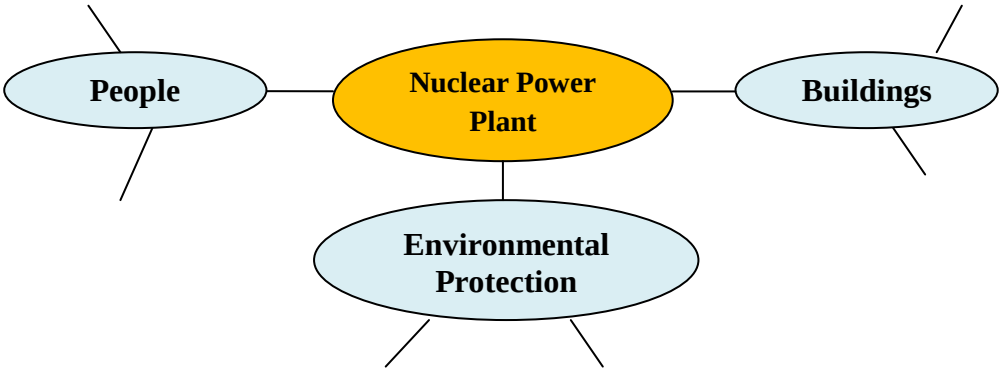
3.Put as many questions as you can. Use the table.

What			
When			
Where			
Whom			
Who			

4. What sentences are true or false?

1.Ukraine is in the top twenty of the states with the developed nuclear power industry. ☐
2. Basic of South - Ukraine power complex is ***South - Ukraine Nuclear Power Plant*** ☐
3. The plant traces its history back to December 1982 when its first power unit was put into operation. ☐
4.In 2012 unit 1 was given a 10-year license extension. ☐
5. Westinghouse transferred a further 24 fuel assemblies to Energoatom for the third reactor of the Yuzhnoukrainsk NPP. ☐
6. As estimated by international monitoring organizations, the reliability level of SU NPP power units meets the European safety requirements. ☐

5.Add words to the map.



7. JOB ANALYSIS.

What's electrician's job in NNP really like? Is it always the same?
Do you have a lot responsibilities? Tick *X* or *V* the list.

Do you have to…?	**Is your future profession…..?**
get up early - *X*	enjoyable
work long hours	interesting
work at weekends	satisfying
work at night	well – paid - *X*
wear a uniform	tiring
have special qualifications	boring
use special equipment	stress
be strong	dangerous
work outside	
travel	
speak other languages	
manage other people	
talk to the public	

8. Complete this table with the correct word or expression.

	NOUN	VERB	COMPANY\PERSON
1	generation		
2	transmission		
3	sales		
4		to distribute	
5		to regulate	
6		to liberalize	----------
7	supply		

9. **Role play the dialogue. (**You are a first year student. You want to learn more about your future job / speciality .)

– Hello!
– Hello, my name is Misha.
– Nice to meet you, Misha. My name is Kolya.
– I'd like to know more about my future profession. Could you tell me about it?
– Yes, of course. What are your questions?
– You have graduated from Machine Building lyceum , haven't you?
– Yes, I have. I graduated from Machine Building lyceum last year with the qualification of electrician.
– Where do you work?
– Now I work at the South - Ukraine Nuclear Power Plant.
– What types of engineering is your work concerned with?
– It is concerned mostly with electrical engineering. We produce and maintain electrical installations.
– Do you need to have knowledge in electro technical or mechanics for your work?
– It is useful to have knowledge in different branches of electromechanic.
– Thank you for answering my questions.
– Welcome any time.

10. Prepare presentation about *South - Ukraine Nuclear Power Plant.*

UNIT 6

SOLAR ENERGY

1. Pre-text exercises.

Pronounce the following words and memorize them.

1. Inexhaustible - невичерпне;
2. gardener's greenhouse - садові парники;
3. off-spring - нагрівач;
4. a coil - котушки;
5. pipes - труби;
6. a shallow box – невелике вікно
7. pane – панель;
8. rural – сільські;
9. complicated – складніше;

10. efficient device – ефективний пристрій;
11. the heat pump - тепловий насос;
12. medium – спосіб, засіб;
13. to store – робити запас, накопичення;
14. gravel – гравій;
15. incorporate – є в складі;
16. heat collector – тепловий колектор;
17. moderate zones – помірні зони;
18. distillation – дистиляція (перегонка);
19. evaporate – випаровування;
20. vapour – пара;
21. droplets – краплини;
22. semi-conductor – полу провідник;
23. cells – елементи.

2. Read text «SOLAR ENERGY», find new words and translate the sentences with them.

A

We know that all the energy mankind has ever used comes from the sun, with the exception of nuclear energy. If we took all the world's reserves of coal, oil, and natural gas and burnt them up at the same rate at which we receive the sun's energy, our whole supply would last less than three days. Yet we are only now beginning to use that vast and almost inexhaustible source of energy in the sky directly.

The most primitive device for catching and trapping the heat of the sun is the gardener's greenhouse. Its modern off-spring is the solar water-heater, usually a coil of pipes placed in a shallow box on the roof of a house, and covered with a glass pane. The

water circulating in the pipes is heated by the sun and then pumped into a hot-water tank from which the household takes its supply. In Florida alone, more than 50,000 homes get their hot water in this way, and in Israel it has become general practice to install solar water-heaters in new rural houses.

B

A more complicated but also more efficient device is the heat pump. It is, infact, a refrigerator in reverse. It picks up as much heat as it can get either from the atmosphere, the soil, or from water. This amount of heat, which is of course rather small in winter, is made to act on a liquid with a very low boiling-point so that it changes into a gas.

//

C

Various types of 'solar houses' have been designed by engineers and architects, especially in America, where many thousands of them have been built. In these houses, some medium is used to store the heat of the sun. Water is a good medium for the purpose.

Another interesting medium is gravel, incorporated in the walls of the house, which it keeps warm on sunless days; by means of a small ventilator, hot air from a heat collector on the roof is circulated through the gravel.

D

These efforts at utilizing the heat of the sun show that the engineers are well aware of the great possibilities of solar heating but also of its limitations. Many countries, especially in what we call the moderate zones do not enjoy enough sunshine to make a solar house worth building, while the tropical zones have no use for extra heat. There, however, cooking by solar

energy is becoming more and more important in everyday life. In the Sudan and East Africa a simple type of solar cooker has become fairly popular.

E

Another very important device is the solar 'still' for the distillation of ***fresh water*** *from salt water, usually working on the principle of a salt-water container covered by a sloping glass roof; as the heat of the sun evaporates the water, the vapour condenses in droplets on the glass roof from where they trickle down into a fresh-water collector.*

Solar furnaces are still very much in the experimental stage. French scientists are operating them in their research station in the Pyrenees; they are very large – one has a flat reflecting mirror made up of 516 panes and covering an area of 43 feet square and a 31-foot by 33-foot parabolic mirror at a distance of 80 feet.

The Russians have built an enormous 'helio-boiler', consisting of an 80-foot tower surrounded by twenty-three concentric railway tracks.

F

The most efficient way of generating electricity from sunlight, however, seems to be ***the 'solar battery'.***

The first of this type was demonstrated in 1954 by a team of scientists from the American Bell Laboratories. It operated with semi-conductor crystals similar to those used in transistors either of germanium or of silicon. When sunlight strikes such a crystal, an electric current is generated.

Since its first demonstration, the solar battery has been extensively developed and has taken part in one of Man's greatest adventures – the sending of satellites and rocket vehicles into space. Solar batteries, as well as the already mentioned atomic batteries, are very suitable for powering the transmitters in space vehicles because of their long life.

Eventually, solar batteries may be developed to provide all the low-voltage current needed in a house.

French scientists have designed a solar lamp. It is about as big as a small suitcase; at the top it has a collector panel consisting of a few dozen photo-sensitive silicon cells, and the solar energy which they collect is stored in a small accumulator.

Now we have the technical means of generating enough energy to raise the standard of living to a decent level all over the world, and it is our noblest task for the rest of this century to do it.

3. Give the title each parts of the text.

A _____

B_____

C_____

D_____

F_____

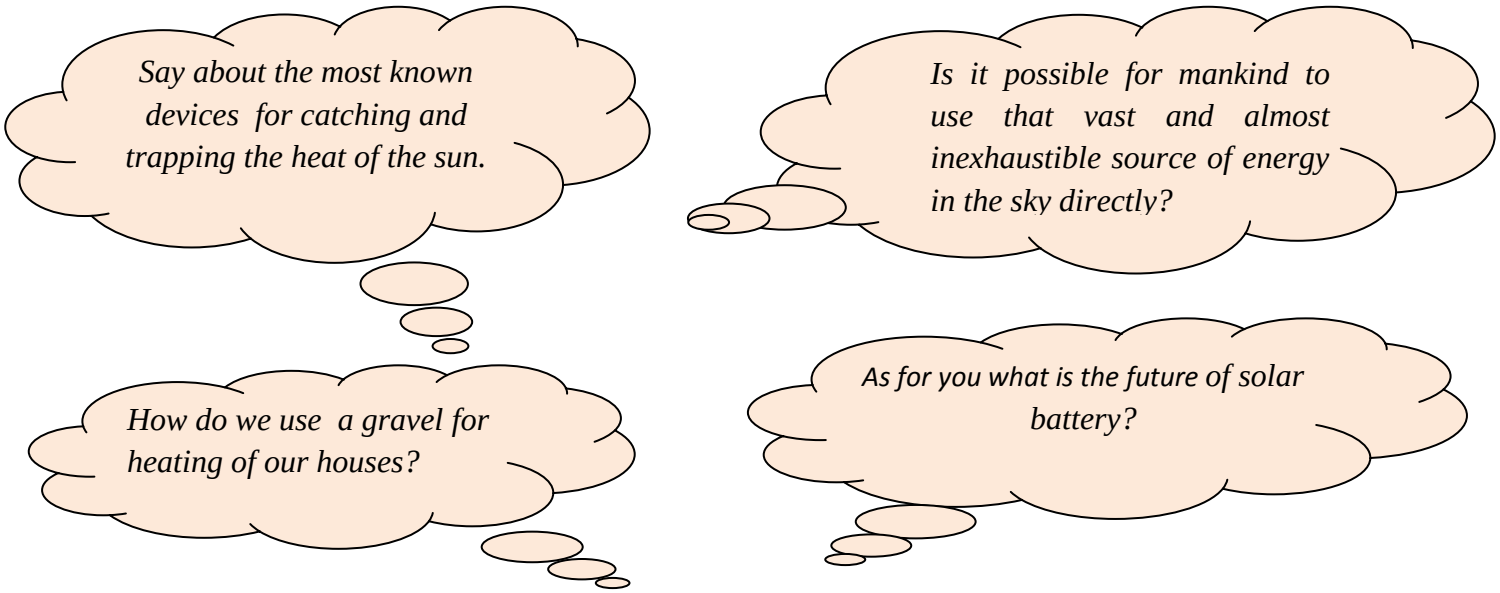
4. Put these words in correct order. Translate the sentences.

1. Device\ for catching\ the gardener's greenhouse\ the most primitive \trapping\and\is\ the heat of the sun.
2. Circulating\ by the sun\ in the pipes\ the water is heated.
3. the solar 'still\ for the distillation\ another very important device\ of **fresh water** is \ from salt water
4. have designed\ a solar lamp\French scientists.
5. Also\ efficient device \ complicated\ a more\ but\ the heat pump\is.

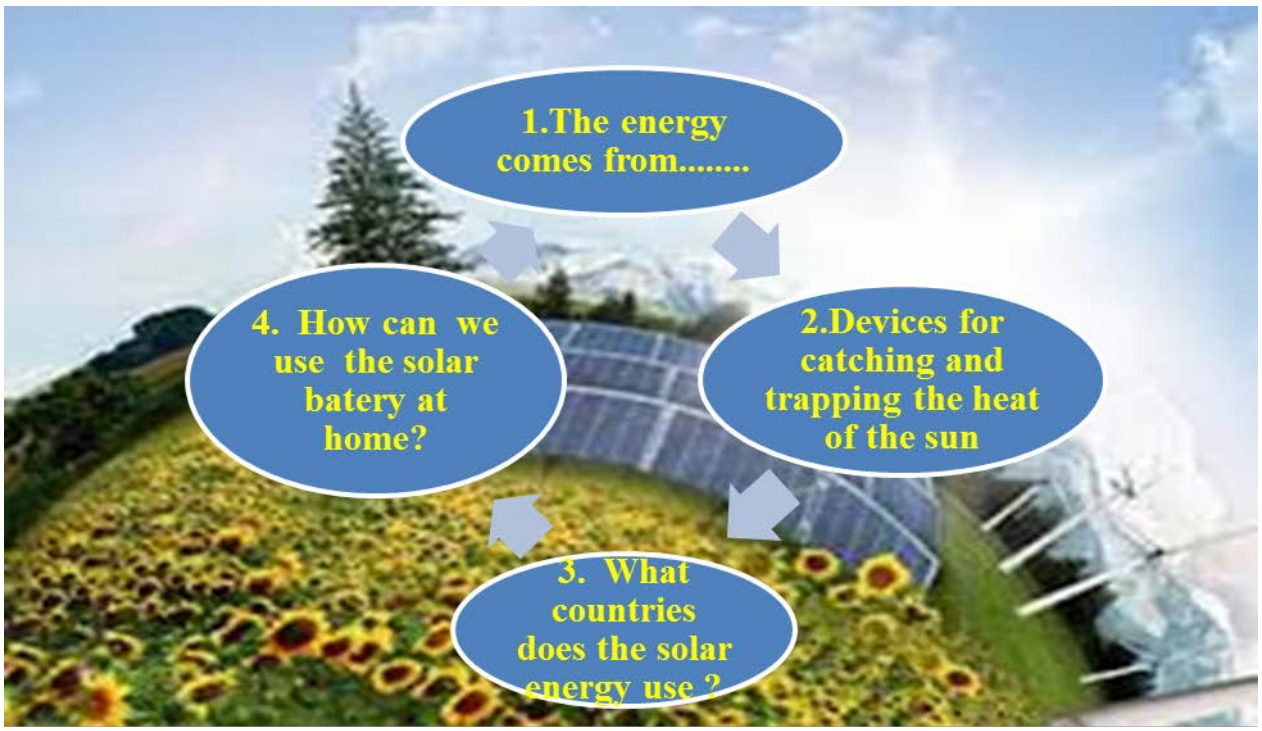
5.Write verbs from part A and D. Put them into *The Passive voice and make your own sentences.*

Ex.: show - was shown. The first of the solar battery was shown in 1954 by a team of scientists from the American Bell Laboratories.

6.At the conference you are asked the following questions. How would you answer?



7.Talk about solar energy or make the presentstion.



Список використаної літератури:

1. ***Andy Hopkins, Jocelyn Potter « A head look» student's book , 2005.***
2. ***Clive Oxidant, Paul Seligson, Kristina Latham – Koenig English File student's book Oxford University Press, 2008.***
3. ***Журнал «Енерогатом» національна атомна енергогенеруюча компанія, 2010р.***
4. ***АНГЛИЙСКИЙ ЯЗЫК УЧЕБНО-МЕТОДИЧЕСКИЙ КОМПЛЕКС для студентов специальности 1-36 07 01 «Машины и аппараты химических производств и аппараты химических производств и предприятий строительных материалов» Н.Ю. Шишковой, А.А. Смулькевич, Новополоцк 2007.***
5. ***Техническое чтение для энергетиков, Методическое пособие по английскому языку для студентов 1, 2 курсов энергетических специальностей дневной и заочной форм обучения. Составитель Г.П. Бухарова 2009р.***