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## **Английский язык**

**Практикум по чтению научно-технических  
текстов**

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Цель практикума – развитие навыков чтения научно-популярной и научно-технической литературы, устной речи в пределах проработанных тем. Разнообразные упражнения направлены на закрепление лексико-грамматического материала.

Практикум состоит из обращения декана к студентам энерго-экологического факультета и трех глав.

Первая глава содержит 4 раздела. Каждый раздел включает в себя научно-технические тексты по специальности, лексические упражнения, направленные на закрепление пройденного материала, на практическое овладение активной лексикой, развитие навыка устной речи. Тексты каждого раздела предназначены для разных видов чтения: изучающего, просмотрового и поискового. В разделах предусмотрены тексты для письменного перевода, целью которого является проверка умения студента работать со словарем.

Вторая глава содержит большое количество грамматических упражнений, направленных на закрепление грамматического материала.

Третья глава включает в себя 12 дополнительных текстов, способствующих развитию навыков чтения научно-популярных и научно-технических текстов по специальности, умения обрабатывать информацию и выявлять основные моменты прочитанного.

Данный практикум соответствует программе курса английского языка.

Предназначен для студентов всех специальностей и направлений II курса энерго-экологического факультета.

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## DEAN'S MESSAGE

*Boris S. Mastriukov, Dean of the Faculty for Energy and Environmental Studies, Professor, Doctor of Science*

Interaction between an individual and environment in technocratic society may be represented as a chain “individual – technological process – environment”. The structure of the faculty for Energy and Environmental Studies of MSISA and training of specialists correspond to the links of this chain.

This faculty trains experts (engineers) of the following three specialities:

- “thermal physics, automation and ecology of industrial furnaces (ET)”;
- “safety of vital activity (ES)”;
- “environmental engineering in metallurgy (EE)”.

When training experts in any field of science one should give answers to the following questions:

- **who** (who are going to train?);
- **what** (what are we going to teach or what shall be the contents of training plans and curriculum?);
- **how** (how are we going to set up the training process?);
- **who** (who are the teachers/lecturers?).

The first question is the most important one since it is determining the rest. In market conditions and in the absence of the state distribution of graduates to enterprises we need experts possessing sufficiently wide and comprehensive basic knowledge, able to use their own resources in solving the tasks not only in the narrow field but also in the related fields.

More than 100 years ago, a similar point of view was expressed in the Notes to the establishment of St. Petersburg Polytechnic Institute: “High technical school should give mental development equal to the development by university studies. Without skew to a narrow technical activity such training should present information on subjects necessary for self supporting individual studies of the various branches of technology”.

Competitiveness of experts in the labour market should be based on “three whales”, i.e. good fundamental training, computer knowledge and knowledge of a foreign language or languages.

When replying to the second question on training plans and curriculum one should take into account the need to train experts of a wide profile. This means that there should be no narrow specialisation and we should have a choice of disciplines allowing our students to select a “set” in accordance with his/her future place of work.

Industrial and ecological safety is an interdisciplinary science and training specialists should be based on systematic approach. In the curriculum for specialities “*safety of vital activity*” and “*environmental engineering in metallurgy*” apart from traditional High Mathematics is a two-semester System Analysis course. Training in Chemistry is radically increased, including studies in Inorganic Chemistry, Colloid Chemistry, Physical Chemistry and Ecoanalytic Chemistry. The curriculum for these specialities also comprises such subjects as Toxicology, Human Physiology, Reliability of Technical Systems and Technogenic Risk, Ecological Monitoring, Ecological Expertise, Safety in Extreme Cases, Legal Bases for Safe Human Activities, etc.

Great attention is paid to economic training of the graduates with emphasis on specific subjects. Thus, in curriculum for speciality “*environmental engineering in metallurgy*” economic training takes 470 hours and includes such courses as Economic Theory, Industrial Economics, Environmental Economics and Environmental Management.

Changes in requirements in specialists determine the need to change training technology. The bases for the training process should be the well-known principle of “one can not be taught – can only learn”. With due account for the conservatism of the training process in the high education system in general and without violating the existing MSISA training process it is good to borrow and introduce the reasonable and rational developed and approved out by colleagues in other Institutes as well as abroad.

With all the above in view the most important issue is setting up self-training of the students which takes up to 50 per cent of the total timing. Most probably for each discipline there should be sufficient number of tasks, home assignments, et cetera to be individually solved by the students with the help of computers; abstracts to be prepared on the basis of Russian and foreign literature.

It is time now to ask the other “who”-question. The introduction of new specialities at the faculty for Energy and Environmental Studies has lead to introduction of completely new disciplines (Ecological Management, Modern Strategy of Environment Protection and Risk Concept, Legal Issues of Safe Human Activities, Theory of Reliability and Safety of Technical Systems, etc.). The high qualification of the lecturers at the faculty for Energy and Environmental Studies is of no doubt, but setting up completely new disciplines requires only great efforts but also other basic knowledge. There exist several possibilities to solve this issue, i.e. the in-house preparation of the courses or invitation of lecturers from outside the Institute. The basic criterion for this dilemma to be resolved is profession-

alism, which ensures high level of training. A huge amount of work is to be done in writing textbooks and training material for the new discipline, creating laboratory basis etc.

The Faculty offers post-graduate courses in:

- Environmental Engineering;
- Ferrous Metallurgy;
- Non-Ferrous Metallurgy;
- Labour Protection;
- Fire Safety;
- Industrial Safety.

There is a training, research and methodology centre “Power Saving and Ecology” with several fields of activity, such as research and analysis, training and methodology, commercial etc. Both teachers and students take part in the activities of the Centre.

# Chapter I. LANGUAGE MATERIAL

## Unit I. A GLANCE ON SOME ENVIRONMENTAL PROBLEMS

### 1. Words to be learnt

a hole in the ozone layer	– дыра в озоновом слое
remote	– незначительный
the challenge	– проблема, сложная задача
locally	– в определенном месте, в местном масштабе
to have a go	– сделать попытку
environmentally friendly	– не наносящий ущерба окружающей среде
the impact	– толчок, импульс
level, <i>syn.</i> stage, standard	– уровень
to halve	– уменьшать наполовину
to tire of, <i>syn.</i> to be tired of, to get tired of	– уставать от чего-либо
sophisticated ways	– сложные способы
a bottle bank	– контейнер для использованной стеклянной тары
plastic	– пластмасса, полиэтилен
pollution, <i>syn.</i> contamination, soiling	– загрязнение (окружающей среды)
to cut down on the use of chemicals	– сократить использование химических препаратов
wildlife	– живая природа
to do the weeding by hand	– уничтожать сорняки вручную (без применения химикатов)
to slash smth around	– выливать что-либо вместе с водой
bleach	– отбеливающее средство
the fumes	– выхлопные газы
the exhaust pipes	– выхлопные трубы
greenhouse effect	– парниковый эффект
aggravating	– обостряющийся, усугубляющийся

#### **Ex. 1. Learn to pronounce the words given below:**

environment [in/vaiərənmənt], environmentally [in/vaiərən/mentali], scale [skeil], remote [ri/məut], challenge [tʃælindʒ], halve [ha:v], impact

[ˈɪmpækt], recycle [rɪˈsaɪkl], envelope [ˈenvɪləʊp], pollution [pəˈluːʃən], particularly [pəˈtɪkjʊləli], sophisticated [səˈfɪstɪkeɪtɪd], eventually [ɪˈventʃuəli], plastics [ˈplæstɪks], chemicals [ˈkemɪkəlz], agent [ˈeɪdʒənt], pesticides [ˈpestɪsaɪdz], wildlife [ˈwaɪldlaɪf], target [ˈtɑːɡɪt], bleaches [ˈbliːtʃɪz], ozone [ˈoʊzəʊn], disinfectants [ˌdɪsɪnˈfektənts], exhaust [ɪɡˈzɔːst], aggravate [ˈæɡrəveɪt]

## 2. Text Study

**Ex. 2. Read text A and say:**

- a) what the easiest ways of recycling are;**
- b) how we can cut down the use of chemicals in everyday life.**

### Text A

The Challenge of Being Environmentally Friendly (by Chris Baines)

More and more ordinary people are becoming very worried about the state of the environment on a local scale as well as a world scale, but the trouble is that the problem seems so enormous that you are left feeling that there is really nothing that an individual person can do. Loss of tropical rainforest in South America or a hole in the ozone layer really does seem remote. However, the truth is that there are lots of things that ordinary people can do in their everyday lives that really will make a difference. The challenge is to get as many people as possible, to make that little difference locally and if everybody does have a go, then, collected together, the impact of that kind of thing is going to make a real change to the state of the world. The whole idea of re-using and recycling is one of the things that is really caught on recently and there are some levels of recycling that are much easier than you might think. Some people get lots and lots of letters through the post and do not buy new envelopes, stick new labels on the front of them and post them back usually to the persons that sent them. Moreover, trying to write on both sides of the paper instead of just one-side halves the use of paper without having to recycle it or remake it in any kind of way.

And when you have worn out the clothes or you have got tired of the clothes or the toys, particularly children tire of toys very quickly, instead of just throwing them away, actually handing them on to someone else is a very good way of recycling and re-use, which is extremely environmentally friendly as they say.



There are more sophisticated ways of recycling as well but they need some help from local or central government. There is obviously a lot of sense in re-using and recycling glass bottles, for instance, but you can't do that as an individual unless there is a bottle bank at the end of the road that you can take your bottles to, then they are all collected together, taken away, broken up, melted down, and turned back into new glass. Now it is possible to recycle plastic as well, although there are still very few plastic recycling centers around. There are again easier ways of going through that process. Just re-using the plastic bags that people give you at supermarkets and shops is one very simple way of making the plastic last longer. If we are going to use things like oil, which are eventually going to run out, in order to produce plastics, then the least we should do is to make sure we use those plastics as thoroughly as we possibly can.

Quite a lot of the pollution around is actually caused by you and me in the way in which we live our everyday lives and we can cut down on the use of chemicals quite easily. If you are a gardener, you should stop using pesticides and weed killers in your garden because they damage the wildlife and they cause a kind of pollution, which hang around in the environment for a very long time. Now it may mean a little bit more work, doing the weeding by hand instead of killing the weeds with a chemical. Nevertheless, it is quite certain that is worth doing. If every gardener banned the use of chemicals in his garden, then that really would make a big difference. In addition, in the house too, there are lots of chemicals used now, which were not invented more than thirty years ago. However, we slosh them around in the environment without really thinking so and use less of those chemicals, the cleaning agents, the bleaches and the disinfectants. We use them more carefully and then when we finish with the containers we make sure that we dispose them safely. It is one small way in which ordinary people can again make quite a difference.

Finally, the use of cars is an obvious kind of target for environmental improvement. Cars particularly in towns and cities really do create a lot of environmental problems, they are very noisy, they are smelly, and we now know that the fumes that come out of the exhaust pipes are aggravating problems like the greenhouse effect and the hole in the ozone layer. So simply using the car less is a very positive thing to do and that may mean walking to school with the children or walking to the local shops or choosing to travel on the train or the bus instead of taking the car. If you do have to use the car make sure that you fill it up with people so that the people who don't have a car and have to travel by bus are already half way to being environmentally friendly without really trying.