

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE  
National Aviation University  
**Educational and Research Humanities Institute**  
Foreign Languages and Applied Linguistics Department

APPROVED  
Acting Rector

“ ” \_\_\_\_\_ 2017



Quality Management System

**SYLLABUS**  
on  
**“English for Specific Purpose”**

Field of study: 10 “Natural Sciences”  
Speciality: 101 “Ecology”  
Specialization: “Ecology and Environmental Protection”

Year of Study – 2<sup>nd</sup>, 3<sup>rd</sup>


Semester – 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup>

Classroom Sessions – 132  
Self-study – 108  
Total (hours/ ECTS credits) – 240/8

Graded Test– 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup> semester

Index CB-5-101/16-3.1

**QMS NAU S 12.01.04 – 01-2017**

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The Syllabus on “English for Specific Purpose” is based on the educational and professional program and Bachelor Curriculum № CB-5-101/16 for Speciality 101 “Ecology” and Specialization “Ecology and Environmental Protection”, correspondent normative documents and the order 307/od dated on 20.06.2017.

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“\_\_\_\_\_” \_\_\_\_\_ 2017.

“\_\_\_\_\_” \_\_\_\_\_ 2017.

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**Master copy**

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## 1. EXPLANATORY NOTES

The Syllabus on the subject “English for Specific Purpose” is developed on the basis of “Methodical instructions for development and preparation of a syllabus and a course training program of subjects” adopted on 16.06.2015 by №37/order.

Teaching English is of great importance in the higher educational system of Ukraine. The subject “English for Specific Purpose”, directed on communication and linked with social and special subjects, makes significant contribution into the education of young people.

The objective of teaching “English for Specific Purpose” is the formation of students’ professional language competence that will facilitate their effective functioning in the cultural diversity of educational and professional environment. The main purpose of studying “English for Specific Purpose” by the students of the speciality 101 “Ecology” is to obtain practical skills in the foreign language. These skills must be acquired on the basis of learning profession-oriented topics defined by this syllabus.

The tasks of mastering the subject are the following:

- to learn professional terminology and everyday English;
- to be able to read and make oral/written translation of original scientific and technical texts on specialty;
- to understand recorded and live foreign speech;
- to be able to communicate with foreigners on general and professional topics.


As a result of mastering the discipline a student shall

### **KNOW:**

- basic professional and technical terminology;
- main grammar and lexical features of technical translation;
- main rules of handling scientific and technical literature;
- term-building morphemes and models;
- main grammar structures, correlation of forms and meanings;
- linguistic clichés, typical for business correspondence and for writing research papers.

### **LEARNING OUTCOMES:**

- reading and comprehending the original literature, including literature on the specialty, to obtain the necessary information;
- participation in discussions;
- comprehension of monologue and dialogue speech;
- making reports on professional and socio-political topics defined by this syllabus;
- rendering information obtained from foreign and native-languages sources (in oral and written forms);
- analyzing grammar structures, correlating forms and their meanings in reading and translating texts.

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The training material of the subject is structured in a modular manner and consists of four training modules, including:

- training **module №1 “Ecological problems in Ukraine. Ecological catastrophes”**,
- training **module №2 “Technological catastrophes. Chernobyl. Monitoring of environment”**,
- training **module №3 “Nuclear energy. Atom energetics in Europe and Ukraine. Types of environmental monitoring”**,
- training **module №4 “Utilization and recycling of modern manufacturing wastes”**, which are logically completed, relatively independent, as integral parts of the curriculum, learning of which provides with the module tests and analysis of the results.

The subject “English for specific purpose” is based on the knowledge of the following subjects: “Human ecology”, “Modelling and prognosis of environment condition”, “Technology of natural energy sources usage in aviation transportation processes” and others.

## 2. SUBJECT CONTENT

### 2.1. Module №1 “Ecological problems in Ukraine. Ecological catastrophes”.

#### **Topic 2.1.1. Ecological problems in Ukraine.**

Ecology as a science. The goal of ecology. Environment research of ecologists. Modern tools for research.

#### **Topic 2.1.2. Natural conditions in Ukraine.**

Geographical position of Ukraine in Europe. Climate conditions. Landscape of Ukraine : lowlands, uplands, mountains. Water resources: rivers, lakes, seas.

#### **Topic 2.1.3. Classification of ecosystem components.**

Role of biosphere on existence of living organisms. Biosphere extension in hydrosphere, lithosphere, atmosphere. Living and nonliving factors in ecosystems. Definition of physical and chemical factors, their influence on biota.

#### **Topic 2.1.4. Green plants. Photosynthesis.**

Soil formation process. Water as a breaking down factor of solid rock. Role of porous lava. Accumulation of nutrients for living organisms. Evolution of complex vegetation life. Photosynthesis significance for animal life.

#### **Topic 2.1.5. Causes of pollution.**


Industrial manufacturing and consequences of human production activity in the twenty first century. Environment polluted with industrial waste.

#### **Topic 2.1.6. Ukraine: causes of pollution.**

Different types of pollution. Consequences of arable land pollution, municipal land pollution. Water resources pollution. Air pollution.

#### **Topic 2.1.7. Noise pollution in large cities.**

Noise pollution varieties. Noise pollution problems from different kinds of transport and industry. Rhythm of life in modern cities.

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### **Topic 2.1.8. Genetic pollution.**

Modern science and genetic engineering. Radiation. Consequences of radioactive pollution environment. Modern food and GMO.

### **Topic 2.1.9. Ecological catastrophes.**

Definition of a term “ecological catastrophe”. Causes of ecological catastrophes. The urgent and farthest consequences of ecological catastrophes.

### **Topic 2.1.10. Greenhouse effect and global warming.**

Causes of the greenhouse effect. Ecosystem balance disturbance. Greenhouse effect influence over people health. Global warming.

### **Topic 2.1.11. Consequences of global warming.**

Research of global warming problems and survival of the mankind. Climate condition changes. Consequences of temperature fluctuation changes.

### **Topic 2.1.12. Recreational land of protected natural reserves.**

Geographical location of recreational land in Ukraine. Significance of protected natural reserves. Conservation of vegetation unique species. Care and preservation of animal populations in protected natural reserves.

### **Topic 2.1.13. Carpathian national natural reserves.**

Development of ecological education in Ukraine. Significance of rare animal and vegetative endemics of the Carpathian region in Ukraine. Infrastructure of green tourism. Ecological educational trails and routes.

### **Topic 2.1.14. Protected natural reserve “Elanetskyi step”.**

Geographical location.

### **Topic 2.1.15. Protected natural reserve “Svyaty Ghory”.**

Geographical location of natural reserve. Significance of.

### **Topic 2.1.16. Thematic presentation “Ecology and ecosystems. Types of pollution. Problems of environmental pollution in Ukraine”.**

Ecosystems. Terrestrial and aquatic ecosystems. Physical and chemical factors of ecosystems. Significance of living organisms. Types of pollution.

## **2.2. Module № 2 “ Technological catastrophes. Chernobyl. Monitoring of environment”.**

### **Topic 2.2.1. Technoecology.**

Objective of technoecology. Technoecology as a science. Studies of affection on the environment: modern industry, transport, energy resources use.

### **Topic 2.2.2. General problems of pollution.**


Problems of ecosystems functioning. Maintenance issues of interrelations and survival of vegetation and animal species.

### **Topic 2.2.3. Varieties of pollution.**

Biodegradable pollutants. Nonbiodegradable pollutants. Professional diseases and their causes.

### **Topic 2.2.4. Technological catastrophes.**

“Technological catastrophe” as a definition. Technogenetic catastrophes causes. Closer and farer consequences of technological catastrophes for mankind.

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**Topic 2.2.5. Pollution with technological waste from modern industry.**

Modern industry consequences. Technological pollution threat on soil, forest, water bodies, air and people health.

**Topic 2.2.6. Oil pollution.**

Consequences of raw and unprocessed oil split for flora and fauna in sea bodies on the planet.

**Topic 2.2.7. Pollution from aircraft and space equipment.**

Water pollution due to airports activities. Air pollution due to aircraft wastes. Impact of lubricant components on soil and water.

**Topic 2.2.8. Noise pollution in large cities.**

Noise pollution varieties. Noise pollution problems from different kinds of transport and industry. Rhythm of life in modern cities.

**Topic 2.2.9. Combustion.**

Types and causes of combustion. Natural factors of combustion. Human factor in combustion fighting. Monitoring of cities and natural resources.

**Topic 2.2.10. Technological pollution.**

Modern science and genetic engineering. Radiation. Consequences of radioactive pollution environment. Modern food and GMO.

**Topic 2.2.11. The Earth and radioactive pollution.**

Nuclear energetics. Nuclear weapons. Consequences of nuclear bomb explosion during the World War II.

**Topic 2.2.12. Nature and society.**

Rational usage of non-renewable natural resources. Purposeful interactions of all the world countries: coordinated development plans to solve global ecological problem.

**Topic 2.2.13. Man and environment.**

Human progress: intense research of nuclear and solar energy, space exploration. Modern ecological study of environment.

**Topic 2.2.14. Controlling of industrial impact on environment.**

Industrial control and environment monitoring. Monitoring types of industrial, agricultural production processes. Detection and prevention methods of harmful impact on environment.

**Topic 2.1.15. Thematic presentation “Technogenic catastrophes. Chernobyl. Monitoring of environment”.**

Types of technogenic pollution. Technogenic catastrophes factors on the Earth. . Pollution of water, soil and air with industrial wastes.

**2.3. Module №3 “Nuclear energy. Atom energetics in Europe and Ukraine. Types of environmental monitoring”.**

**Topic 2.3.1. Nuclear energy.**

The first researchers experiments with radioactive elements. Research and discovery of a new energy source.



### **Topic 2.3.2. Radiation and nuclear chemistry.**

Nuclear chemistry as a subfield of chemistry. The problems to be solved with nuclear chemistry. Two types of process to produce nuclear energy. The process of fusion. The process of fission.

### **Topic 2.3.3. Nuclear energy application.**

Approaches of peaceful nucleus save application. Nuclear power plants and conservation of natural resources. Application in medicine.

### **Topic 2.3.4. Danger of nuclear weapons for the mankind.**

The consequences of the first nuclear bombs. The mechanism of reaction. The historical data on localization and spread of devastating effect of nuclear weapons. Threat to life on the Earth.

### **Topic 2.3.5. Technological processes in the nuclear power plants.**

Industrial producing of electrical energy by the nuclear power plants. Safety measures for industry workers. Consequences of radiation.

### **Topic 2.3.6. Nuclear energy and plants.**

Investigation of nuclear energy effect on the flora of the continents. The plant species status and vegetative affects in the area as the result of nuclear attack.

### **Topic 2.3.7. Nuclear energy and wild life.**

Study of the population wild life in the places with a natural radiation. Study of the wild life quality after the high dose nuclear exposure.

### **Topic 2.3.8. Aquatic ecosystems and radiation.**

Destructive affections of atomic submarines and nuclear weapons testing in the world's oceans. Status analysis of marine inhabitant population.

### **Topic 2.3.9. Nuclear power plants in Europe.**

The western European countries and the network of nuclear power plants. Statistical data on the consumption of electricity by the population. Safety measures.

### **Topic 2.3.10. Nuclear power plants in Ukraine.**

Power stations in Ukraine. Nuclear power plants. Advantages and danger of nuclear plants on the environment and population in Ukraine.

### **Topic 2.3.11. Chorbyl nuclear power plant.**

Chernobyl accident. Fighting with nuclear blast consequences. Security measures for the population, residential premises and the environment.

### **Topic 2.3.12. Safety measures and vital activity of the citizens.**

Radiation background of ChNPP adjacent regions and water areas. Monitoring of power plant equipment state and the modern reinforcement of the reactor.


### **Topic 2.3.13. Radiation, atomic energy and the world community.**

Interaction of the world countries: monitoring of radiation emission, safety of nuclear power plants. Coordinated measures of the radiation waste disposal.

### **Topic 2.3.14. Environment and nuclear energy.**

Modern radiological research. Modern satellite technology for space exploration of nuclear and solar energy, safety monitoring.

### **Topic 2.3.15. Education and radioecology.**

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Standards on the use of atomic energy. Protective equipment in radiation hazard. The issues of radioecology in educational institutions of Ukraine.

**Topic 2.3.16. Thematic presentation “Nuclear energy. Atom energetics in Europe and Ukraine. Types of environmental monitoring”.**

Protective equipment in radiation hazard. Impact of radiation on the environment. Radiation pollution. Burial of radiation waste.

**4. Module №4 “Utilization and recycling of modern manufacturing wastes”.**

**Topic 2.4.1. Influence of man-made production on the biosphere.**

Definition of environment technogenic pollution. Types of industrial waste and affection on the geosphere, hydrosphere and atmosphere of the planet.

**Topic 2.4.2. Emissions of man-made production.**

Consequences of industrial emissions from industry, stationary sources, energy networks and transport system. Emission hazard criteria.

**Topic 2.4.3. Mining industry waste.**

Criteria of waste pollutants from the extractive industry. Utilization. Consequences for the planet geological processes.

**Topic 2.4.4. Water pollution with technological discharges.**

Discharge of industrial and agrarian enterprises. Criteria of pollutants. Pollution level determination of water environment. Cleaning.

**Topic 2.4.5. Air pollution. Combustion.**

Air quality standards. Criteria for air pollutions in industrial regions and large cities. Cleaning of indoor air.

**Topic 2.4.6. Soil contamination with technological process.**

City and technological geological processes. Consequences of soil saturation with household waste as a source of toxic and combustible gases.

**Topic 2.4.7. Technological ecology.**

Technological process diagnosing. Recreational activity of a man. Life of modern cities. Types of noise pollution.

**Topic 2.4.8. Consequences of technological pollution.**

Criteria. Biodegradable pollution. Non-biodegradable pollution. Causes of professional diseases.

**Topic 2.4.9. Oil pollution of water reservoirs.**

Oil-extrating industry. Consequences of crude and processed oil spills for the flora and fauna of marine area on the planet.

**Topic 2.4.10. Pollution from aircraft.**


Criteria on contamination of soil, water and air due to airport activity and emissions of planes. Affection of lubrication components.

**Topic 2.4.11. Consequences of radiation contamination.**

Standards of radioactive background. Radiation background control of forest plantations and water reservoirs, leaves cover in cities and drinking water.

**Topic 2.4.12. Utilization and recycling of modern production waste.**



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Types of utilization of modern production. Criteria on waste for recycling. Control of recycling waste enterprises.

**Topic 2.4.13. Food industry and technological pollution.**

Genetic engineering and modern food industry. Genetic modified objects. Quality control of food production. Monitoring of production processes.

**Topic 2.4.14. Monitoring of environment pollution.**

Industrial control on the production. Environmental monitoring. Monitoring of recycling waste.

**Topic 2.4.15. Thematic presentation “Utilization and recycling of modern manufacturing wastes”.**

Types of pollution. Waste utilization. Waste recycling. Conservation of the interrelation between the flora and fauna on the planet.

### 3. LIST OF REFERENCES

#### 3.1. Basic Literature

##### 3.1. Основні рекомендовані джерела

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#### 3.2. Additional Literature

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3.2.6. Німецька мова для студентів технічних спеціальностей : навч. посібн. – К. : Вид. «НАУ-друк», 2009. – 104 с.

3.2.7. Коржавин А.В. Практический курс французского языка для технических вузов / А.В. Коржавин. – М. : Высш. школа, 2008. – 372 с.

3.2.8. Гак В.Г. Новый французско-русский словарь / В.Г. Гак, К.А. Ганшина. – М. : Русский язык-Медиа, 2008. – 1160 с.

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(Ф 03.02 – 01)

### АРКУШ ПОШИРЕННЯ ДОКУМЕНТА

№ прим.	Куди передано (підрозділ)	Дата видачі	П.І.Б. отримувача	Підпис отримувача	Примітки

(Ф 03.02 – 02)

### АРКУШ ОЗНАЙОМЛЕННЯ З ДОКУМЕНТОМ

№ пор.	Прізвище ім'я по-батькові	Підпис ознайомленої особи	Дата ознайомлення	Примітки

(Ф 03.02 – 04)

### АРКУШ РЕЄСТРАЦІЇ РЕВІЗІЇ

№ пор.	Прізвище ім'я по-батькові	Дата ревізії	Підпис	Висновок щодо адекватності

(Ф 03.02 – 03)

### АРКУШ ОБЛІКУ ЗМІН

№ зміни	№ листа (сторінки)				Підпис особи, яка внесла зміну	Дата внесення зміни	Дата введення зміни
	Зміненого	Заміненого	Нового	Анульованого			

(Ф 03.02 – 32)

### УЗГОДЖЕННЯ ЗМІН

	Підпис	Ініціали, прізвище	Посада	Дата
Розробник				
Узгоджено				
Узгоджено				
Узгоджено				