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**NATIONAL AVIATION UNIVERSITY**  
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Quality Management System  
**COURSE TRAINING PROGRAM**  
 on  
 «Professional Foreign Language»

Educational and Professional Programs: Electronic systems


Electronic technologies of the Internet of Things

Field of study: 17 Electronics and telecommunications

Speciality: 171 Electronics

Training Form	Semester	Total (hours/credits ECTS)	Lectures	Practicals	Lab. clas.	Self-study	HW/CGP	TP/CP	Semester Grade
Full-time	1-2	135/ 4.5	.....	66	–	69	.....	–	1-credit, 2-exam.

Index: CB-2-171-1/21-1.3; CB-2-171-2/21-1.3;

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Course Training Program on «Professional Foreign Language» is developed on the basis of the Educational and Professional Programs on “Electronic systems”, “Electronic technologies of the Internet of Things” Bachelor Curriculum and Extended Bachelor Curriculum CB-2-171-1/21; ECB-2-171-1/21; CB-2-171-2/21; ECB-2-171-2/21 for Speciality 171 «Electronics», and corresponding normative documents.

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«11» 09 2021

Document level – 3b  
The Planned term between revisions – 1 year  
Master copy



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## INTRODUCTION

Course Training Program on «Professional Foreign Language» is developed based on the "Methodical guidance for the subject course training program", approved by the order № 249/од, of 29.04.2021 and corresponding normative documents.

### 1. EXPLANATORY NOTES

#### 1.1. Place, objectives, tasks of the subject

The subject "Professional Foreign Language" is the theoretical and practical basis of the set of knowledge and skills that form the profile of a specialist in the fields of Electronics and Telecommunications.

The purpose of teaching the subject is to acquire foreign language communication skills in a separate field of professional activity; to improve verbal communication and problem-solving skills; to study the specialized aviation terminology; to get acquainted with the latest achievements of science and technology in the field of air transportation infrastructure.

The tasks of the subject:

- preparing students for effective communication in their academic and professional environment;
- formation of communicative language competencies in real situations of academic and professional activity of future technical specialists;
- achieving the proficiency at the B1 level, which is the standard for obtaining a bachelor's degree.

#### 1.2. Learning outcomes the subject makes it possible to achieve

As a result of studying this subject, the student must acquire the following learning outcomes (in complex with other educational components):

- use documentation related to professional activities, using modern technologies and office equipment; use English, including special terminology, for communication with specialists, conducting a literary search and reading texts on technical and professional topic;
- be able to learn new knowledge, advanced technologies and innovations, find new non-standard solutions and means of their implementation; meet the requirements of flexibility in overcoming obstacles and achieving goals, rational use and regulation of time, subject, responsibility for their decisions and activities;
- identify skills of independent and collective work, leadership skills, organize work in a limited time with an emphasis on professional integrity;


#### 1.3. Competences the subject makes it possible to acquire

As a result of studying this subject, the student must acquire the following competencies (in particular, in combination with other educational components):

- ability to apply knowledge in practical situations;
- knowledge and understanding of the subject area and understanding of professional activity;
- ability to communicate in a foreign language;
- skills of using information and communication technologies;
- ability to learn and master modern knowledge;
- ability to search, process and analyze information from various sources;
- ability to work in a team;

#### 1.4. Interdisciplinary Connections

This subject is based on knowledge of such subjects as "Higher Mathematics", "Physics", "Theory of Electric Circuits" and is the basis for the study of further subjects, namely: "Fundamentals of Algorithmization and Programming in Electronics", "Fundamentals of Analog Electronics", "Electronic systems", "Antenna devices", "Digital measuring equipment".

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## 2. COURSE TRAINING PROGRAM ON THE SUBJECT

### 2.1. The subject content

Training material is structured according to the module principle and consists of **two educational modules**:

- **Module № 1 «Electric current and its properties»**,
- **Module № 2 «Electronics Maintenance»**, which are logically complete, relatively independent, holistic part of the subject, learning of which provides module test and analysis of its performance.

### 2.2. Modular structuring and integrated requirements for each module

#### Module №1 «Electric current and its properties»

##### **Integrated requirements to the module №1:**

*(know the terminology of the specialty, be able to use basic grammatical constructions in speech and in writing, have the ability to communicate in a foreign language on the topics of the module)*

##### **Topic 1.** Household appliances.

Electric current and its properties. Units of measurement of electric current. Direct, alternating current. Power sources. Natural sources of electricity. Alternative Energy Sources.

##### **Topic 2.** Tools and equipment for electronics repair.

Soldering irons. Current measuring instruments. Testers. Engineer's workplace. Workplace of an engineer in the field of electronics, electrical engineering and aerospace engineering. Electronics maintenance. Observance of safety rules at the workplace.

##### **Topic 3.** Design and development in the field of electronics.

Specific activities related to the maintenance of electronics Initial assessment of failures in the operation of household appliances. Assessment of internal causes of failures in the operation of household appliances.

##### **Topic 4.** Mathematical quantities for calculating current units.

Units of measurement in electronics Signals. The concept of signals. Types of signals Signal characteristics

#### Module №2 "Electronics Maintenance"

**Integrated requirements of the module №2:** *(know the terminology of the specialty, be able to use basic grammatical constructions in speech and in writing, have the ability to communicate in a foreign language on the topics of the module)*

##### **Topic 1.** Electronics maintenance.


Charts. Marking. Disassembly tools. Replacement of components. Marking related to electronics maintenance. The working environment of an engineer in the field of electronics, different types of environments, working conditions in different environments. The importance of following safety rules in the workplace.

##### **Topic 2.** Causes of failures in the operation of household appliances.

Initial assessment of failures in the operation of household appliances. Assessment of internal causes of failures in the operation of household appliances. The concept of an electric circuit. Car components. Types of circles.

##### **Topic 3.** Internal layout of household appliances.

The concept of capacitor. Types of capacitors. Characteristics of capacitors. Crystals and resonators. Application of quartz crystals in electronics. Resonator structure. The concept of diodes. The structure of the diode. Application of diodes in electronics. Fuses, their use in electronics. Integrated circuits. Resistors. Potentiometers. Relays and switches. Transistors. Voltage regulators.

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#### Topic 4. Diagrams and markings.

Marking of integrated circuits in electronics. Tools for disassembly of electronics components. Replacement of electronic device components. Select a component to replace. The concept of power supplies.

### 2.3. Training schedule of the subject

№	Theme (thematic section)	Total, hour		
		Mode of study: Full-time education		
		Total	practical	Self-study
1	2	3	4	5
<b>Module №1 «Electric current and its properties»</b>				
1.1	Home appliances	<b>1 semester</b>		
		4	2	2
1.2	Electric current and its properties	4	2	2
1.3	Power sources	4	2	2
1.4	Natural and alternative energy sources	4	2	2
1.5	Tools and equipment for working with electronics	4	2	2
1.6	Soldering irons	4	2	2
1.7	Instruments for measuring current power	4	2	2
1.8	Circuits of series, parallel and series-parallel connection.	4	2	2
1.9	Specific activities related to electronics maintenance	4	2	2
1.10	Mathematical quantities for calculating current units	3	2	1
1.11	Units of measurement in electronics	3	2	1
1.12	Prefixes of foreign origin	3	2	1
1.13	Signals	3	2	1
1.14	Capacitors. Crystals and resonators	3	2	1
1.15	Replacement of electronic device components	3	2	1
1.16	The concept of power supplies	3	2	1
1.17	Module test №1	3	2	1
<b>Total by the module №1</b>		<b>60</b>	<b>34</b>	<b>26</b>
<b>Module №2 «Electronics maintenance»</b>				
2.1	Charts	<b>2 семестр</b>		



		5	2	3
2.2	Marking	5	2	3
2.3	Disassembly tools	5	2	3
2.4	Replacement of components	5	2	3
2.5	Causes of household appliances malfunctions	5	2	3
2.6	Assessment of internal causes of failures in the operation of household appliances	5	2	3
2.7	The concept of an electric circuit	5	2	3
2.8	Circuit components.	4	2	2
2.9	Types of circles	4	2	2
2.10	Internal layout of household appliances	4	2	2
2.11	Computer viruses and malware	4	2	2
2.12	Antivirus programs.	4	2	2
2.13	The concept of capacitor	4	2	2
2.14	Types of capacitors. Characteristics of capacitors	4	2	2
2.15	Crystals and resonators	4	2	2
2.16	Application of quartz crystals in electronics	4	2	2
2.17	Module test №2	4	2	2
<b>Total by the module №2</b>		<b>75</b>	<b>34</b>	<b>41</b>
<b>Total by the subject</b>		<b>135</b>	<b>68</b>	<b>67</b>

#### 2.4. Question list for the examination /Final semester test (Part-time)

The list of questions and content of tasks for preparation for the exam are developed by the leading teacher of the department in accordance with the course training program, approved at the meeting of the department and distributed among students.

### 3. BASIC CONCEPTS OF GUIDANCE ON THE SUBJECT

#### 3.1. Teaching methods

It is recommended to use the following teaching methods during mastering the subject:

- explanatory and illustrative method;
- method of problem presentation;
- reproductive method;
- research method.

The implementation of these methods are carried out during lectures, demonstrations, self-study, work with the educational material, analysis and solution of problems.

#### 3.2. List of references

##### Basic literature

- 3.2.1. Virginia Evans, Jenny Dooley, Carl Taylor. Electronics. Express Publishing. 2012 – 117p.
- 3.2.2. Charles Lloyd, James A. Frasier – Jr. MS. Engineering. Express Publishing. 2011 – 117 p.
- 3.2.3. Mark Ibbotson, Cambridge English for Engineering. Cambridge. 2011 – 110p.



3.2.4. Eric H. Glendinning, John Mc Evan. Oxford English for Information Technology. Oxford University Press. 2006 – 222p.

3.2.5. Santiago Remacha Esteras. Infotech. English for computer users. Cambridge University Press. 2007 - 172p.

### Additional Literature

3.2.7. Jenny Dooley, Virginia Evans. Grammarway. Express Publishing. 2012 – 192p.

3.2.8. N.V. Pazyura. // Professional English for radio technical engineers: Guide to practical classes.- К. : NAU, 2017.- 66 p.

### 3.3. Internet Information resource

3.3.1. <https://aviationenglishblog.com/aviation-grammar/>

## 4. RATING SYSTEM OF KNOWLEDGE AND SKILLS ASSESSMENT

4.1. Assessment of certain kinds of student academic work is carried out in accordance with table 4.1. and 4.1.1

Table 4.1.

Kind of Academic Work	Maximum Grade Values	
	Full-time training form	
1 semester		
Module № 1		
Reading and analysis of professionally oriented texts		10
Listening to the professionally oriented texts		10
Writing information related to the topic		10
Monologue speaking based on the topic		10
Dialogic speaking based on the topic		10
Preparation of a report on the topic /		20
<i>For admission to complete module test №1, a student must receive not less than</i>		42
Carrying out Module Test №1		30
<b>Total by module №1</b>		<b>100</b>
<b>Differentiated credit test</b>		<b>100</b>
<b>Total Semester Grade</b>		<b>100</b>

The credit rating is determined (in points and on a national scale) based on the results of all types of educational work during the semester.

4.2. Completed types of educational work are credited to the student, if he received a positive rating for them (Table 4.1).

4.3. The sum of rating assessments received by the student for certain types of completed academic work is the current modular rating assessment, which is recorded in the module control.

4.4. The sum of the final semester modular and examination ratings, in points, is the final semester rating, which is converted into grades on the national scale and the ECTS scale (Annex 4).

- In the case of differentiated credit, the final semester rating is converted into a grade on the national scale and the ECTS scale (Annex 4).




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Table 4.1.1 (exam)

Kind of Academic Work	Maximum Grade Values
	Full-time
<b>2 semester</b>	
Module № 2	
Reading and analysis of professionally oriented texts	10
Listening to the professionally oriented texts	10
Writing information related to the topic	10
Monologue speaking based on the topic	10
Dialogic speaking based on the topic	10
Module Test №2 Test (homework)	10
<i>For admission to complete module test №2, a student must receive not less than</i>	30
<b>Total by module №2</b>	<b>80</b>
<b>Semester Grade</b>	<b>20</b>
<b>Total by the subject</b>	<b>100</b>

4.5. The final semester rating in points, on the national scale and the ECTS scale is entered in the test report, study card and student record book, for example, as follows: 92 / Excellent / A, 87 / Good / B, 79 / Good / C, 68 / Set / D, 65 / Set / E, etc.

4.6. The final rating of the subject is equal to the final semester rating. The specified final rating assessment in the subject is entered in the Diploma Supplement.

4.7. The final rating of the subject is defined as the arithmetic mean of the final semester ratings in points (in this subject - for the first and second semesters) with its subsequent transfer to grades on the national ECTS scale.

The specified final rating assessment in the subject is entered in the Diploma Supplement.



