

Ministry of Education and Science of Ukraine
N. E. Joukowski National Aerospace University
«Kharkiv Aviation Institute»

Airplane and Helicopter Design Department (No. 103)

APPROVED

Guarantor of educational program


M. M. Orlovskiy

(sign)

(name)

«30»

08

2021

WORK PROGRAM FOR OPTIONAL COURSE

Aviation legislation

(name of academic discipline)

Branch of knowledge: 27 "Transport"
(code and name of the field of knowledge)

Specialty: 272 "Air transport"
(code and name of the specialty)

Educational program: Maintenance of Aircraft and Engines
(name of educational program)

Tuition form: full-time

Higher education level: First (bachelor)

Kharkiv 2021

1. Description of the discipline

Name of indicators	Field of knowledge, specialty, educational program, level of higher education	Characteristics of the discipline
		Full-time education
Number of credits - 4	<p>Branch of knowledge <u>27 Transport</u> (code and name)</p> <p>Specialty 272 "Air transport" (code and name)</p> <p>Educational program <u>"Maintenance and repair of aircraft and aircraft engines</u> » _____ (name)</p> <p>Level of higher education: first (bachelor's)</p>	by choice
Number of modules - 1		Academic year
Number of content modules - 2		2020/2021
		Semester
The total number of hours is 120 daily - 56/120		7-and
		Lectures
Number of weekly hours for full-time study: classroom - 2 independent work of the student - 4		32 years
		Practical, seminar
		0 hours
		Laboratory
	<u>24</u> hours	
	Individual work	
	64 hours	
type of control		
	Test	

The ratio of the number of hours of classroom classes to independent individual work is:
 for full-time education - 56/64

2. The purpose and objectives of the discipline

The purpose of the study - training of bachelors who have deep knowledge, as well as basic and professional competencies and are able to correctly independently set and solve problems of scientific-practical and research activities in the field of maintenance and repair of aircraft and aircraft engines

Task - study of the discipline "Aviation Law", which allows to get acquainted with the basic principles and methods of international and state regulation of civil aviation, aimed at maintaining airworthiness and flight safety.

According to the requirements of the educational-professional program, students must achieve the following competencies:

General competencies (GC):

GC 02. Ability to communicate in a foreign language

GC 03. Skills in the use of information and communication technologies

GC 05. Ability to develop and manage projects

GC 06. The desire to preserve the environment

GC 07. Ability to work autonomously

GC 08. Ability to work in a team

GC 09. Ability to abstract thinking, analysis and synthesis

GC 10. The ability to exercise their rights and responsibilities as a member of society, to realize the values of civil (free democratic) society and the need for its sustainable development, the rule of law, human and civil rights and freedoms in Ukraine.

GC 11. Ability to preserve and multiply moral, cultural, scientific values and achievements of society based on understanding the history and patterns of development of the subject area, its place in the general system of knowledge about nature and society and in the development of society, techniques and technologies, use different types and forms physical activity for active recreation and a healthy lifestyle.

Special (professional, subject) competencies (SC):

SC 01. Ability to comply in professional activities with the requirements of international and national regulations in the field of air transport, instructions and recommendations for the operation, repair and maintenance of air transport facilities and their systems

SC 02. Ability to analyze air transport facilities and their components, determine the requirements for their design, parameters and characteristics

SC 03. Ability to carry out experimental research and measurement of parameters and characteristics of air transport facilities, their units, systems and elements

SC 04. Ability to develop and implement technological processes, technological equipment and technological equipment, means of

automation and mechanization in the production, operation, repair and maintenance of air transport facilities, their systems and elements

SC 05. Ability to develop and implement in production technological processes of construction, operation, repair and maintenance of air transport facilities, their systems, to draw up relevant documentation, instructions, rules and methods

SC 07. Ability to analyze technological processes of production and repair of air transport facilities

SC 08. Ability to organize the operation of air transport facilities, their systems and elements, with a justification of the structure of operation management, maintenance and repair

SC 09. Ability to organize the production activities of structural units of aviation enterprises and plants, small teams of performers (crews, sections, shops), for the production, operation, repair and maintenance of air transport facilities, their systems and elements, including justification of production processes

SC 10. Ability to apply methods and means of technical measurements, technical regulations, standards and other regulations in the technical diagnosis of air transport facilities, their systems and elements

SC 11. Ability to use modern software for the development of design and technological documentation for the creation, operation, repair and maintenance of air transport facilities, their systems and elements

IC 12. Ability to organize the operation of the reporting and accounting system (management, statistical, technological) operation of air transport facilities and systems, to carry out record keeping, documentation and quality management in accordance with regulations, instructions and methods

IC 14. Ability to organize their own work, the work of subordinates and subordinate units in accordance with the requirements of labor protection, safety and fire safety at air transport facilities during their construction, production, operation, maintenance and repair

IC 15. Ability to organize and perform interaction between the involved units and services for the operation of aircraft and ground support of aviation flights in accordance with established technical regulations.

SC 16. Ability to take into account meteorological, climatic, seismic and other natural factors in the design, operation, maintenance and repair of air transport facilities.

IC 17. Ability to maintain technical documentation and reporting according to established forms.

SC 18. Ability to solve problems of planning the technical operation of aircraft, operational reliability, regularity of flights.

Program learning outcomes:

LO 02 To communicate freely on professional issues in state and foreign languages orally and in writing.

LO 03 Use modern information technologies, technical literature, databases, other resources and modern software to solve specialized complex problems of air transport

LO 04 Use the principles of formation of labor resources, identify reserves and ensure the efficiency of air transport staff

LO 07 Use the tools of a democratic state governed by the rule of law in professional and public activities

LO 08 Apply international and national standards and practices in professional activities.

LO 10 To know the main provisions of normative-legal and legislative acts of Ukraine in the field of air transport, instructions and recommendations on operation, repair and maintenance of air transport objects, their systems and elements

LO 11 Analyze the construction and operation of air transport facilities, their systems, elements, factors influencing their characteristics and parameters

LO 12 Determine the parameters of air transport facilities, their systems and elements by conducting a measurement experiment to assess its results

LO 14 Develop and implement in production documentation on technological processes of construction, operation, repair and maintenance of air transport facilities, their systems and other guidelines, rules and methods

LO 15 To know features and to be able to develop technical tasks and technical conditions for designing of objects of air transport, its systems and separate elements; to make plans of placement of the equipment, technical equipment and the organization of workplaces, to calculate loading of the equipment and indicators of quality of production

LO 17 Understand and improve the structure of operation management, maintenance and repair of air transport facilities, its systems and individual elements

LO 18 Know the purpose, specifics and be able to analyze the work of structural units of aviation enterprises and factories, small teams of performers (crews, sections, shops), on the production, operation, repair and maintenance of air transport facilities, their systems and elements

LO 19 Carry out technical diagnostics of air transport facilities, their systems and elements, using effective means, relevant technical regulations, standards and other regulations.

LO 20 To develop design and technological documentation for the creation, operation, repair and maintenance of air transport facilities, their systems and elements using specialized modern software

LO 21 Know and calculate the main indicators of reporting and accounting 10 (management, statistical, accounting and financial) of the enterprise during operation and repair of air transport facilities and systems

LO 23 To know the basic requirements of labor protection, safety, fire safety and sanitary and hygienic regime in carrying out professional activities

LO 24 Be able to organize interaction between services and units for the operation of aircraft and ground support of aviation flights in the process of production and technological activities of air transport facilities, to take a direct part in it.

LO 25 Know the necessary provisions of aviation meteorology and transport geography, be able to use them in the design, operation, maintenance and repair of air transport facilities.

LO 26 Analyze technical documentation and reporting according to the established forms.

LO 27 To plan the solution of tasks on technical operation of aircraft, operational reliability, regularity of flights.

As a result of studying the discipline the student must know:

- design and operational properties of AT products;
- processes of determining the technical condition of AT products;
- methods and strategies of MO;
- comprehensive maintenance quality management system;
- assessment methods and ways to increase the efficiency of the processes of MO aircraft and aircraft engines (AE);
- operating conditions, rules and standard work on aircraft maintenance and labor protection;
- organization of flights in civil aviation (CA);
- engineering bases of flight operation of the aircraft.

be able:

- organize compliance with the rules of operation of aircraft on the ground and in flight;
- make calculations and analysis of indicators of design and operational properties of aircraft and aircraft engines;
- perform certain maintenance work on the aircraft, control, diagnose and forecast the technical condition of the products of the aircraft and AE, assess the level of mechanization and automation of operational processes;
- to organize aerodrome control of means of ground maintenance (GM), quality of fuels and lubricants, special liquids and gases;
- to analyze the causes of malfunctions, violations of the rules of technical operation of aircraft, to develop measures to prevent and eliminate them.

have an idea:

- on trends in changing the principles of operation of aircraft of future generations;
- on inter-flight control of aircraft performance.

Interdisciplinary links: mastering the courses "Mathematics", "Physics" and "Aircraft design" taking into account the basic provisions of the "Air Code of Ukraine", the rules of airworthiness of aircraft and helicopters.

3. The program of the discipline

Module 1.

Content module 1. Normative basis. Personnel certification - service. Approved service organizations.

Topic 1. International public aviation.

Topic 2. Convention on International Civil Aviation (Chicago Convention). International conventions and treaties (Tokyo, The Hague, Montreal, Warsaw).

Topic 3. European Union aviation security system. The role of the European Commission (EU). The role of the European Security Agency (EASA).

Topic 4. Responsibilities of EASA. Communication between applications (PART).

Topic 5. Personnel certification - service. PART-66.

Topic 6. Approved service organizations.

Topic 7. PART-145.

Topic 8. Part-M; Subpart-F.

Content module 2. Air operations. Certification of aircraft, parts and appliances. Continuous airworthiness. Application of international rules and requirements.

Topic 1. Air operations. General understanding of EU-OPS.

Topic 2. Air operations. General understanding of MELS and MMELS.

Topic 3. Certification of aircraft, parts and appliances. Approval of the organization of production.

Topic 4. Part-21 - Subpart-J.

Topic 5. Continuous airworthiness. PART-21: provisions related to flight security.

Topic 6. Continuous airworthiness. PART-M.

Topic 7. Application of international rules and requirements. Maintenance inspections and inspections. Airworthiness directives.

Topic 8. Continuation of readiness. List of DDL (OR CDL) configuration deviations. ETOPS / EDTO. CAT operations 2 and 3. Section-E.

4. The structure of the discipline

The name of the content module and topics	Number of hours				
	Total	Including			
		1	n	lab.	with. p.
1	2	3	4	5	6
Module 1					
Content module 1. Normative basis. Personnel certification - service. Approved service organizations.					
Topic 1. International public aviation.	10	2		2	6
Topic 2. Convention on International Civil Aviation (Chicago Convention). International conventions and treaties (Tokyo, The Hague, Montreal, Warsaw).	10	2		2	6
Topic 3. European Union aviation security system. The role of the European Commission (EU). The role of the European Security Agency (EASA).	9	2		2	5
Topic 4. Responsibilities of EASA. Communication between applications (PART).	9	2		2	5
Topic 5. Personnel certification - service. PART-66.	8	2		2	4
Topic 6. Approved service organizations.	8	2		2	4
Topic 7. PART-145 .	8	2		2	4
Topic 8. Part-M; Subpart-F.	8	2		2	4
Together on the content module 1	70	16		16	38

The name of the content module and topics	Number of hours				
	Total	Including			
		1	n	lab.	with. p.
1	2	3	4	5	6
Content module 2. Air operations. Certification of aircraft, parts and appliances. Continuous airworthiness. Application of international rules and requirements.					
Topic 1. Air operations. General understanding of EU-OPS.	7	2		1	4
Topic 2. Air operations. General understanding of MELS and MMELS.	6	2		1	3
Topic 3. Certification of aircraft, parts and appliances. Approval of the organization of production.	7	2		1	4
Topic 4. Part-21 - Subpart-J.	6	2		1	3
Topic 5. Continuous airworthiness. PART-21: provisions related to flight security.	7	2		1	4
Topic 6. Continuous airworthiness. PART-M.	7	2		1	4
Topic 7. Application of international rules and requirements. Maintenance inspections and inspections. Airworthiness directives.	7	2		1	4
Topic 8. Continuation of readiness. List of DDL (OR CDL) configuration deviations. ETOPS / EDTO. CAT operations 2 and 3. Section-E.	7	2		1	4
Together on the content module 2		16		8	30
Total hours	120	32		24	64

5. Topics of seminars

6. Topics of practical classes

№ s / n	Name topics	Number of hours
		Full-time education
1	Regulatory framework of international air legislation. Concepts and definitions. Fundamentals of international air law. Chicago Convention.	2
2	Convention on International Civil Aviation. Legislation structure. EU in the field of flight safety.	2
3	International agreements on air transport. Tokyo, Hague, Montreal, Warsaw Conventions. Responsibility of the commander of the aircraft.	2
4	Air Code of Ukraine. The structure of the document, the main provisions for the maintenance of aircraft	2
5	State regulation of airworthiness of aircraft. Aviation rules of Ukraine.	2
6	Certification and registration of aircraft.	2
7	Certification and supervision of maintenance organizations. Basic principles of evaluation of aircraft maintenance organizations.	2
8	Rules of approval of organizations for maintenance of aircraft - PART-145.	2
9	Conditions of approval of organizations for maintenance of aircraft. Application for certification. List of works.	2
10	Requirements for components of maintenance organizations.	2
11	A character who certifies maintenance.	2
12	Technical documentation used in the performance of maintenance. Requirements for tool materials. Logistics. Requirements for air transportation	2
	Together	24

7. Topics of laboratory classes

8. Independent work

№ s / n	Name topics	Number of hours
		Full-time education
1	General requirements for maintenance organizations PART-147.	5

2	International conventions on the regulation of aviation.	6
3	Structure of EU safety legislation.	4
4	Personnel certifying maintenance PART-66.	4
5	Approved maintenance organizations.	4
6	Aircraft certification PART-21	3
7	Airworthiness support PART-M.	4
8	General requirements for EU-OPS civil air transport	4
9	Air Code of Ukraine. Document structure.	5
10	Duties and responsibilities of the state to maintain airworthiness. State aviation administrations.	4
11	Certification and registration of aircraft in Ukraine.	3
12	Certification and supervision of operators. Certification of the Developer, the manufacturer of the aircraft.	4
13	Technical documentation used in the performance of maintenance. Requirements for the components of maintenance organizations.	4
14	The procedure for issuing a certificate. Procedures for assessing the quality of the system for maintenance. Logistics when performing maintenance.	5
15	Flight safety policy procedures for the investigation of aircraft accidents.	3
	Together	64

9. Individual tasks

Individual tasks are not provided by the curriculum.

10. Teaching methods

Conducting classroom lectures, practical work, independent work of students with materials that are recommended for study.

11. Methods of control

1. Evaluation of practical work.
2. Assessment of written assignments.
3. Interviews with students on independent work on topics of meaningful modules.

12. Evaluation criteria and distribution of points received by students

12.1. Distribution of points received by students (quantitative evaluation criteria)

Components of educational work	Points for one lesson (task)	Number of classes (tasks)	Total number of points
Content module 1			
Work on lectures	0... 1	16	0... 16
Execution and protection of laboratory (practical) works	1.5 ... 2	16	24 ... 32
Modular control	12... 10	1	12... 10
Content module 2			
Work on lectures	0... 1	16	0... 16
Execution and protection of laboratory (practical) works	1.5 ... 2	8	12 ... 16
Modular control	12... 10	1	12... 10
Total for the semester			60... 100

Semester control (credit), which is carried out in case of refusal of the student from points of current testing and in the presence of the admission to credit. During the semester test the student has the opportunity to receive a maximum of 100 points.

The ticket for the test consists of 2 questions. The maximum number of points for each question is 50.

12.2. Qualitative evaluation criteria

The required amount of knowledge to obtain a positive assessment:

- modern concepts, concepts and methods in the field of organization of the regulatory framework and procedures for regulating airworthiness;
- existing sources of air law;
- regulatory framework in the field of civil aviation security;
- structure and legal framework of the International Civil Aviation Organization (ICAO) and the European Organization EASA.
- on international conventions and international treaties that regulate and ensure the safety of civil aviation, the legal regime of airspace, air commercial transport, the legal basis for the lease, chartering and exchange of aircraft, the regulatory framework;
- o Civil Aviation Service: legal bases, functions and powers, legal provisions laid down in the Air Code of Ukraine;
- requirements laid down in Part 66, Part 145, Part 21, Part 147, for personnel certifying the certification of the developer, manufacturer, operator of aircraft, aircraft maintenance and repair enterprises.

The required amount of skills to obtain a positive assessment:

- apply basic concepts in practice;
- apply procedures and methods that allow to perform safe flights under the established operating conditions;
- use procedures and methods for aircraft certification;
- draw up legal requirements for personnel certifying aircraft maintenance;
- determine the basic procedures and requirements for air safety.

12.3 Criteria for evaluating student work during the semester

Unsatisfactory (0 - 59), if the student has fragmentary knowledge of the question.

Satisfactory (60 - 74) the student receives, if he is familiar with the basic concepts of the study material, but there is no justification for the material presented, there are some errors. All practical works have been worked out and defended, the answers contain incorrect interpretation of certain questions and inaccuracies in the formation of procedures and methods.

Good (75 - 89), if the answers to all questions are of a reproductive nature, not taking into account all the features of the provisions and procedures, the answers may contain certain errors of a non-fundamental nature that do not affect the essence of the question.

Excellent (90 - 100) -the student must know the basic and additional material, give clear and logical answers to the questions, be able to analyze the requirements for flight safety, know the legal basis of international and state regulation of airworthiness of aircraft

Grading scale: point and traditional

The sum of points	Score on a traditional scale	
	Exam, differentiated test	Test
90 - 100	Perfectly	Credited
75 - 89	Fine	
60 - 74	Satisfactorily	
0 - 59	Unsatisfactorily	Not credited

13. Methodical support

1. Maintaining the airworthiness of aircraft. Textbook. MN Orlovsky, S. Sh. Shaabdiev NACU. NE Zhukovsky "KHAI", 2015. - 104p.

2. Synopsis of lectures, literature, which is in the methodical office of the department, library.

14. Recommended reading

Basic

1. Convention on International Civil Aviation (Chicago Convention) DOC 7300.
2. The main provisions of the Air Code of Ukraine and the norms of airworthiness of transport aircraft. Textbook. ET Vasilevsky, VA Grebenikov, VN Nikolenko. - Kharkiv; NAKU "KHAI", 2006. - 332p.
3. ICAO. Annex 1. Issuance of certificates to aviation personnel.
4. ICAO. Appendix 6. Operation of aircraft. International standards and recommended practices. Part 1, part 2, part 3. 2001.
5. ICAO. Annex 8. Airworthiness of aircraft. International Standards 2001
6. Airworthiness guide. Volumes 1 and 2, 2001 (DOC 9760).
7. Technical operation of aircraft. Orlovsky MN, Yakovlev Yu. A. Kharkov; NACU "HAI", 2011 - 180p.
8. Orlovsky MN, Shaabdiev SS Maintenance of airworthiness of aircraft. Kharkiv, NAKU named after NE Zhukovsky "KHAI", 2015. - 104p.

Auxiliary

1. Aviation security. Orlovsky MN, Serdyukov AA, Shaabdiev SS Maintenance of airworthiness of aircraft. Kharkiv, NAKU named after NE Zhukovsky "KHAI", 2016. - 2008p.
2. Quality and certification of industrial products. Textbook. AG Grebenikov, V. Ya. Frolov. Kharkiv; NACU "HAI", 1998 - 396p.
3. Orlovsky MN Maintenance of aircraft and aircraft engines. Textbook. Kharkiv, NAKU named after NE Zhukovsky "KHAI", 2014. - 190p.
4. EASA PART-145 (№ 2042/2003 of November 2003).

15. Information resources

Department website 103 <http://k103.khai.edu/ru/site/page/view>