(Ф 03.02 – 101)

MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
NATIONAL AVIATION UNIVERSITY
Faculty of Transport, Management and Logistics
Air Transportation Management Department

APPROVED
Vice- Rector for Academics
_____ A. Gudmanian
«___»_____2019

Quality Management System

COURSE TRAINING PROGRAM

on
"Air Cargo Transportation"

Field of study: 27 «Transport»
Specialty: 275 «Air Transport Technologies»
Specialization: 275.04 «Air Transport Technologies»
Educational Professional Program: «Air Transportation Management»

Year of Study – 3 Semester – 5, 6

Lectures - 49 Graded Test – 5 semester
Laboratory Classes - 66 Examination – 6 semester
Self-Study- 125
Total (hours/ECTS credits) - 240/8,0

Course Project – 5 semester

Index ECB -6-275/17-2.2.10

QMS NAU CTP 19.01-01-2019

The Course Training Program on «Air Cargo Transportation» is based on the Educational Professional Program and Bachelor Extended Curriculum № ECB -7-275/17 for Specialty 275 «Air Transport Technologies», Specialization 275.04 «Air Transport Technologies», Educational Professional Program «Air Transportation Management» Ukrainian version of this Course Training Program on «Air Cargo Transportation» №РБ-6-275/17-2.2.10 approved by the Vice-Rector for Academics on 09.10.2019 and corresponding normative documents and order №207/од of 27.04.2018.

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Level of document – 3b
Planned term between revisions – 1 year
Registered copy

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INTRODUCTION

The Course Training Program of the subject is developed based on the "Method guide to the development and execution of training programs and work training courses", entered into force by the decree of 13.07.17 №106/роз. and corresponding normative documents.

1. EXPLANATORY NOTES

1.1. The planned results

The place of this subject in the system of a specialist professional training.

This training course is the theoretical basis of knowledge and skills for mastering subjects of specialists training in the field of transportation management and transport technologies.

The purpose of teaching this subject is to ensure future specialists with concrete knowledge regarding organization, technology and rules of goods transportation by air.

The objectives of studying the discipline are:

- giving to the future specialists knowledge from classification and transport characteristics of goods, their tare and packaging, cargo marking, mastering technology of cargo transportation;
- conditions of separate kinds of goods transportation by air;
- development technological schemes of cargo handling, following rules and international standards of cargo transportation, procedure of technical means for cargo delivery and handling choosing;
- provision of high quality level of shippers servicing, increasing aviation transportation effectiveness.

As a result of mastering the subject "Air Cargo Transportation" students should have the following competencies:

- cargo classification and cargo properties;
- requirements to cargo tare and packing;
- cargo marking;
- principles of cargo comparability;
- organization and technology of cargo transportation;
- completion of shipping documents;
- rules of cargo and mail transportation;
- order of loading-unloading works carrying out;
- consolidation technology of cargo loading of flight;
- calculate technological parameters of Air Cargo Terminals;
- evaluate effectiveness of Air Cargo Terminals work;
- quality of cargo shippers servicing;
- information systems of cargo transportation;

Learning outcomes:

- determine conditions of cargo transportation depending upon their properties;
- select tare and packing for cargo;
- determine allowable dimensions and mass of cargo;
- rationally use carrying capacity of transport vehicles
- organize cargo shipment and receipt;
- assemble commercial loading of flight;
- draw up shipping documents;
- develop technological schemes of cargo handling at Air Cargo Terminals;
- calculate quantitative and qualitative indexes of Air Cargo Terminals functioning;
- use knowledge of cargo transportation rules in practice

– the ability to use professionally profiled knowledge and practical skills of technology, organization and management of air cargo transportation to solve engineering problems in production;

- the ability to use professionally profiled knowledge and practical skills of transport process theory, technology, organization and menegment of transportation in mixed connection for solving engineering problems in production;
- the ability of organization and management of loading-unloading works as well as warehouse operations on transport;
- the ability to organize and manage cargo transportation (by kind of transport);
- organize cargo transportation by air;
- select effective cargo handling technologies on air transport;
- calculate technological parameters of Air Cargo Terminals;
- ground and make decisions regarding possibility of charter air cargo routes opening;
- the ability to organize international transportation;
- the ability to complete shipping documents on air transport.

Interdisciplinary links

The course "Air Cargo Transportation" is based on the knowledge of such subjects as: «Transport Geography», «General Course of Transport», «Physics», «Chemistry» and is a base for mastering such subjects as: «Interaction of transport means», «Engineering logistics».

1.2. Subject Program

Training material of the subject is structured according to a module principle and consists of three educational modules:

Module 1 "Fundamentals of cargo science and Air Cargo Terminals"

Topic 1. Classification of goods. Properties of goods. Space and weight characteristics of goods.

Concept and subject of the course “Air Cargo Transportation”. Aim to study the subject. General notions about cargo. Cargo classification. Cargo properties. Space and weight characteristics of cargo. Requirements to freight, transported by air. Assortment of cargo, shipped by air.

Topic 2. Tare and packaging of goods

Concept of tare and packaging. Purpose of tare and packaging. Classification of packaging. Transport and special tare. System of tare dimensions. Requirements to air cargo tare and packaging. Requirements to production and usage of tare and packaging. Recycling of tare and packaging.

Topic 3. Unit Load Devices. Formation of cargo units.

Notions about Unit Load Devices (ULD). Advantages and disadvantages of ULDs usage. ULDs classification. ULDs characteristics. Aviation ULDs, their types, classification and peculiarities of construction. Main principles of safe loading of goods in ULDs.

Concept of cargo unit. Types of unitized loads. Factors, influencing on selection of dimensions and types of cargo units. Influence of the kind of unit load on the economic aspects of transportation.

Topic 4. Goods marking.

Concept and purpose of goods marking. Types of marking. Manipulation sigs. Essence of transport marking and its location. Requirements to marking. Ways of marking application. Peculiarities of goods marking on air transport. Tags and labels for goods. Modern systems of marking. Usage of bar coding during goods transportation. System of radio frequency identification of goods RFID. Measures of careful conduction with goods.

Topic 5. Using carrying capacity of transport vehicles. Compatibility of goods during storage and transportation.

Technical and economical performances of aircraft. Cargo holds location in different types of aircraft. Payload and capacity of aircraft. Transportation vehicles choosing during cargo transportation. Restrictions during cargo transportation by air. Determination of allowable overall dimensions of goods. Efficient usage of aircraft payload.

Measures due to the increasing level of goods preservation. Characteristics of goods losses. Natural loss of goods. Principles of goods compatibility. Determination of goods compatibility during storage and transportation.

Topic 6. Air Cargo Terminals.

Purpose of Air Cargo Terminals. Composition of Air Cargo Terminals buildings and constructions. Main requirements to location and designing of Air Cargo Terminals. Operating hours of Air Cargo Terminals.

Freight warehouses and their classification. Basic technical and operational requirements to warehouses and their equipment. Ways of goods storage and location in the warehouse. Problems of providing quantitative and qualitative goods preservation.

Classification of equipment for goods storage and moving. Universal and specialized racks, warehouse pallets. Lifting, transportation and weight-measuring equipment. Complex mechanization and automation of warehouse works.

Topic 7. Calculation of Air Cargo Terminals technological parameters.

Air Cargo Terminals as queuing system. Calculations of required area, volume and capacity of warehouses.

Determination of warehouse loading-unloading working front length. Progress data, characterizing warehouse work.

Calculations of necessary number of equipment and its productivity. Requirements to Air Cargo Terminals designing. Principles of organization of cargo flows, goods handling system and equipment choosing.

Module №3 «Organization, Technology and Rules of Cargo and Mail Transportation»

Topic 1. Organization and technology of goods transportation by international and domestic airlines.

Development of air cargo transportation market in Ukraine. Main terms and definitions. Organizational structure of air transportation management. State organs, managing transportation of cargo by air, their functions and tasks.

Organization of cargo transportation management at the enterprises of civil aviation (airlines, airports, agencies, etc.).

Peculiarities of goods transportation management during international carriages. Types of airport formalities during transportation of goods by international airlines. Provision of aviation safety during goods transportation by air. Interaction of services of mail and goods transportation organization with services of related agencies (custom control, sanitary and quarantine control, etc.).

Organization of cargo attraction at air transport. Organization and technology of cargo transportation selling and reservation. Main channels of cargo transportation selling.

Air Waybill (AWB), its purpose, order of completion and usage. Terms and order of goods delivery by air. Air cargo tariffs.

Technology of departure cargo handling. Order of goods receiving for transportation. Cargo handling in warehouse.

Transportation of goods inside airfield. Order and technology of aircraft loading. Technology of arrival goods handling. Order of goods delivery. Handling peculiarities of transfer goods.

Mechanization of goods handling processes. Classification of mechanized means. Types of mechanized means.

Organization of goods transportation in containers and pallets. Technology of goods transportations in containers and pallets. Safety requirements during goods transportation.

Purpose and tasks of flight loading consolidation. Interaction of aviation enterprises services in the process of flights consolidation. Organization of documents drawing up during flight loading consolidation. Flight shipping documentation. Warehouse documentation. Ways of air cargo transportation improvement.

Character of losses during transportation of goods and mail. Completion of documents about losses, occurred during transportation of cargo and mail, order of their usage. Search of cargo and mail. Determination of cargo owners.

Topic 2. Organization and technology of mail transportation.

Basic terms and definitions. Normative documents that regulate air mail transportation. Organization of contract relationships with communication enterprises. Technological process of mail transportation.

Documentation, used during mail transportation, order of its drawing up and usage. Organization and technology of express goods and mail transportation

Topic 3. Carrier's and cargo customers' rules and obligations.

International and domestic regulation. Rules of goods transportation by air. Contract conditions. Rules and obligations of carrier, appeared from the contract of goods transportation by air. Rules and obligations of shippers and consignees.

Normative documentations that regulate sides' responsibility during goods transportation. Types and limits of carrier's responsibility according to the international and national legal standards. Responsibility of cargo customers. Claims work.

Topic 4. Information systems of cargo transportation.

Information systems for air carriers. Airport information systems. Logistic systems of air transportation management and control. Warehouse systems.

Topic 5. Transportation of dangerous goods by air.

General positions from transportation of dangerous goods. Terms and definitions. Place and role of special goods transportation by air and other kinds of transport. Main terms and definitions. International and national normative documents, regulating transportation of dangerous goods by air.

Role of international and national organizations in regulation of dangerous goods transportation.

Classification of dangerous goods. Dangerous goods, forbidden for transportation. Hidden dangerous goods.

Identification of dangerous goods. Manuals, technical instructions of safe transportation of dangerous goods. Compatibility of dangerous goods. Marking of dangerous goods: content, hazard labels, requirement to their location.

Tare and packaging of dangerous goods. Requirements to tare and packaging of dangerous goods. Packing instructions. Types of packages. Specification of packages.

Documentations, completed during dangerous goods transportation. Shipper's Declaration for dangerous Goods. Completion of Air Waybill.

Handling of dangerous goods. Order of loading-unloading operations with dangerous goods carrying out. Requirements to transport vehicles and warehouses. Arrangement of dangerous goods at transport vehicles and warehouses. Staff training.

Responsibility of owners and shippers of dangerous goods.

Safety measures during dangerous goods transportation, accidents and incidents. Dangerous goods occurrence report.

Topic 6. Transportation of live animals by air

Peculiarity of live animals transportation by air. Requirements to state of live animals, transportation restriction. Requirements to international transportation of live animals. Requirements to tare, packaging and marking. Drawing up documentation during live animals transportation. Order of acceptance, delivery, storage and handling of live animals. Compatibility of goods.

Topic 7. Transportation of perishable goods by air

Types of perishable goods. Requirements to the state of goods during transportation by air. Peculiarities of international regulation of perishable goods transportation. Drawing up documentation during perishable goods transportation. Requirements to tare, packaging and marking of goods. Cooling agents. Order of acceptance, delivery, storage and handling of perishable goods. Compatibility of goods. Natural loss and its standardization. Transportation of biologicals.

Topic 8. Transportation of valuable goods by air

Concept of valuable goods, types of valuable goods. Tare and packaging of valuable goods. Completion of documents. Order of acceptance, delivery, storage and handling of valuable goods. Safety measures during valuable goods transportation. Peculiarities of tariffs usage during valuable goods transportation. Order of value declaration during transportation. Calculation of tax for declared value. Calculation of amount of damages in case of loss or destruction of goods.

Transportation of art products and museum exhibits.

Topic 9. Transportation of other special goods by air

Concept and classification of heavy, oversized and long-size goods. Transport vehicles, used for heavy, oversized and long-sized goods transportation. Transportation management and peculiarities of heavy, oversized and long-sized goods handling. Mechanization of handling processes and provision of safety during heavy, oversized and long-sized goods transportation.

Transportation of wheel and crawler techniques.

Transportation of consolidated goods. Transportation of human remains. Transportation of unaccompanied baggage. Transportation of wet goods. Transportation of accompanied goods. Peculiarities of goods handling, usage of tariffs, drawing up documents.

Transportation of goods by charter flights.

The second separate module is Course Project, which is carried out in the fifth semester. Course Project is an important composite part for consolidating and deepening the theoretical knowledge and practical skills, received by a student during mastering educational material of the subject.

SUBJECT CONTENT

2.1. Structure of the subject

Table 2.1

№	Theme	Total hours			
		Total	Lectures	Labs.	Self-study
1	2	3	4	5	6
5 semester					
Module 1 "Fundamentals of cargo science and Air Cargo Terminals"					
1.1	Classification of goods. Properties of goods. Space and weight characteristics of goods.	11	2	4	5
1.2	Tare and packaing of goods	11	2	4	5
1.3	Unit Load Devices. Formation of cargo units.	14	2	6	6
1.4	Cargo marking	11	2	4	5
1.5	Using carrying capacity of transport vehicles. Compatibility of goods during storage and transportation.	11	2	4	5
1.6	Air Cargo Terminals	11	2	4	5
1.7	Calculation of Air Cargo Terminals technological parameters	18	5	6	7
1.8	Module Test №1	3	-	2	1
Total for the module № 1		**90**	**17**	**34**	**39**
Module №2 «Course Project»					
2.1	Carrying out and defense of course project	**45**	**-**	**-**	**45**
Total for the module № 2			**-**	**-**	**45**
Total for the 5th semester			**17**	**34**	**84**
6 semester					
Module №3 «Organization, Technology and Rules of Cargo and Mail Transportation»					
2.1	Organization and technology of goods transportation by international and domestic airlines	26	2 2 2 2	2 2 2 2	10
2.2	Organization and technology of mail transportation	14	2 2	2	8
2.3	Carrier's and cargo customers' rules and obligations.	13	2 2	2 2	5
2.4	Information systems of cargo transportation.	6	2	2	2
2.5	Transportation of dangerous goods by air.	13	2 2	2 2	5
2.6	Transportation of live animals by air.	6	2	2	2
2.7	Transportation of perishable goods by air.	6	2	2	2
2.8	Transportation of valuable goods by air.	6	2	2	2
2.9	Transportation of other special goods by air.	12	2 2	2 2	4
2.10	Module Test №2	3	-	2	1
Total for the 6th semester		**105**	**32**	**32**	**41**
Total for the subject		**240**	**49**	**66**	**125**

2.2. Lectures, their topics and scope

№	Theme	Total hours	
		Lectures	Self-study
5 semester			
Module 1 "Fundamentals of cargo science and Air Cargo Terminals"			
1.1	Classification of goods. Properties of goods. Space and weight characteristics of goods.	2	1
1.2	Tare and packaing of goods	2	1
1.3	Unit Load Devices. Formation of cargo units.	2	1
1.4	Cargo marking	2	1
1.5	Using carrying capacity of transport vehicles. Compatibility of goods during storage and transportation.	2	1
1.6	Air Cargo Terminals	2	1
1.7	Calculation of Air Cargo Terminals technological parameters	2 2 1	3
Total for the module №1		**17**	**9**
Total for the 5 semester		**17**	**9**
6 semester			
Module №3 «Organization, Technology and Rules of Cargo and Mail Transportation»			
3.1	Organization and technology of goods transportation by international and domestic airlines	2 2 2 2	4
3.2	Organization and technology of mail transportation	2 2	2
3.3	Carrier's and cargo customers' rules and obligations.	2 2	2
3.4	Information systems of cargo transportation.	2	1
3.5	Transportation of dangerous goods by air.	2 2	2
3.6	Transportation of live animals by air.	2	1
3.7	Transportation of perishable goods by air.	2	1
3.8	Transportation of valuable goods by air.	2	1
3.9	Transportation of other special goods by air.	2 2	2
Total for the module №3		**32**	**16**
Total for the 6 semester		**32**	**16**
Total for the subject		**49**	**25**

2.3. Laboratory classes, their topics and scope

№	Theme	Total hours	
		Labs	Self-study
1	2	3	4
5 semester			
Module 1 "Fundamentals of cargo science and Air Cargo Terminals"			
1.1	Classification of goods. Properties of goods. Space and weight characteristics of goods.	2 2	4
1.2	Tare and packaing of goods	2 2	4

1	2	3	4
1.3	Unit Load Devices. Formation of cargo units.	2 2 2	5
1.4	Cargo marking	2 2	4
1.5	Using carrying capacity of transport vehicles. Compatibility of goods during storage and transportation.	2 2	4
1.6	Air Cargo Terminals	2 2	4
1.7	Calculation of Air Cargo Terminals technological parameters	2 2 2	4
1.8	**Module Test №1**	2	1
Total for the module №1		**34**	**30**
Total for the 5 semester		**34**	**30**
6 semester			
Module №3 «Organization, Technology and Rules of Cargo and Mail Transportation»			
2.1	Organization and technology of goods transportation by international and domestic airlines	2 2 2 2	6
2.2	Organization and technology of mail transportation	2	6
2.3	Carrier's and cargo customers' rules and obligations.	2 2	3
2.4	Information systems of cargo transportation.	2	1
2.5	Transportation of dangerous goods by air.	2 2	3
2.6	Transportation of live animals by air.	2	1
2.7	Transportation of perishable goods by air.	2	1
2.8	Transportation of valuable goods by air.	2	1
2.9	Transportation of other special goods by air.	2 2	2
2.10	**Module Test №3**	2	1
Total for the module №3		**32**	**25**
Total for the 6 semester		**32**	**25**
Total for the subject		**66**	**55**

2.4. The student's self-study, its content and volume

№	Student's self-study, its content	Total hours
5 semester		
1.	Development of lecture material	9
2.	Preparation for laboratory work	29
3.	Preparation for module test # 1	1
4.	Carrying out Course Project	45
Total for the 5 semester		**84**
6 semester		
5.	Development of lecture material	16
6.	Preparation for laboratory work	24
7.	Preparation for module test # 3	1
Total for the 6 semester		**41**
Total for the subject		**125**

2.4.1. Course Project.

Term paper from the subject is performed in the 5th semester according to the method guide, with the purpose to consolidate theoretical knowledge and skills in the field of technology of goods handling and calculation of Air Cargo Terminals technological parameters. Performance of course project on the theme "Transport characteristics of goods and technological process of Air Cargo Terminals work" is an important step in the degree theses preparation of a future specialist from transportation management. Course project comprises all stages of technological process development deal with Air Cargo Terminals works, including transport characteristics of goods, main calculations of technological parameters, investigation of organizational and productive activity as well as development of special cargo handling technology on the basis of received results.

Performance, execution and passing of the course project is performed individually by each students in accordance with method guides.

Time necessary for term paper performance is up to 45 hours of self-studying.

3. Educational and Methodological Materials on Subject

3.1. Teaching methods

During teaching the subject "Air cargo transportation" it is foreseen to use such forms and methods of learning as lecture-visualization, elements of problematic lecture, elements of dialogue with the audience (lectures - conversations), elements of "brainstorming", seminars-discussions in the framework of laboratory classes, business games, presentations.

3.2. Recommended Literature

Basic literature

3.2.1. ПРАВИЛА повітряних перевезень вантажів. - Наказ міністерства транспорту України №793 від 14.10.2003. із змінами, внесеними згідно з Наказом Міністерства інфраструктури № 728 від 30.11.2012

3.2.2. ІНСТРУКЦІЯ з організації перевезень вантажів повітряним транспортом – Наказ міністерства транспорту України № 822 від 02.11.2005.

3.2.3. ПРАВИЛА перевезення пошти повітряними суднами. - Наказ Державного комітету зв'язку та інформатизації України, Міністерства транспорту України № 105/297 – від 08.06.99.

3.2.4. Про затвердження Порядку виконання митних формальностей на повітряному транспорті, наказ міністерства фінансів України від 03.08.2018 № 671 Зареєстровано в Міністерстві юстиції України 11 вересня 2018 р. за № 1036/32488

3.2.5. THE Air Cargo Tariff , поточне видання

3.2.6. AIRPORT Handling Manual, поточне видання

3.2.7. PRINCIPLES of Cargo Handling, поточне видання.

3.2.8. DANDEROUS Goods Regulations, поточне видання.

3.2.9. LIVE Animals Regulations, поточне видання.

3.2.10. PERISHABLE Cargo Regulations,, поточне видання

3.2.11. Перевезення спеціальних вантажів: підручник. Т.Ю.Габрієлова, С.Л.Литвиненко, О.В.Баннов – К.: НАУ, 2015. – 456 с.

3.2.12. БОРДУНОВ В.Д.Международное воздушное право. Учеб.пособие.-М.: НОУ ВКШ «Авиабизнес»; изд-во «Научная книга»; 2007.-464 с.

3.2.13. КАНАРЧУК В.Е., ЧИГРИНЕЦ А.Д. Механизация технологических процессов в аэропортах- М.: Транспорт. 1986. – 254 с

Additional literature

3.2.14.ДЕМИЧЕВ Г.М. Складское и тарное хозяйство М.: Высш.шк.1990. – 192 с.

3.2.15.Костромина Е.В. Экономика авиакомпании в условиях рынка. –М.:НОУ ВКШ «Авиабизнес», 1998. – 209 с.

3.2.16.Крючков А.А. Грузовые перевозки на воздушном транспорте СССР. – М.: Транспорт. 1983. – 232 с.

3.2.17.САВИН В. Склады: справочное пособие. М.: Дело и сервис, 2001. – 544 с.

3.2.18. Транспортная тара: Справочник / А.И.Телегин, Ю.А. Балберов, Н.И Денисов, В.Н. Брянцев. – М. Транспорт, 1989. – 216 с.

3.2.19. ЛАХИРИ С. RFID. Руководство по внедрению [пер. с англ.]. – М.: Кудиц-пресс, 2007. – 312 с.

3.2.20.Упаковка грузов: Справочник / Н.В.Акимов, Н.Н. Андронова, Н.М.Гаврюшин и др.- М.: Транспорт, 1992. – 380 с.

3.2.21. Федько В.П. Упаковка и маркировка. – М.: «Экспертное бюро – М», «Издательство ПРИОР», 1998. – 240с.

3.2.22. Організація та технологія доставки спеціальних категорій вантажів: підручник. Т.Ю.Габріелова, С.Л.Литвиненко, О.В.Баннов. – К.: Видавничий дім «Кондор», 2018. – 416 с.

3.3. Internenet resourses

3.3.1. https://mtu.gov.ua/
3.3.2. https://www.aex.ru/
3.3.3. https://www.boeing.com/
3.3.4. https://www.airbus.com/
3.3.5. https://www.flyuia.com/ua/ru/home?gclid=Cj0KCQjwzozsBRCNARIsAEM9kBMyR30-gxLsx4PoevBlJ0WbEsaEmNAsT5q_bSnckiBBhqr9tNPG3KIaAsp6EALw_wcB
3.3.6. https://kbp.aero/ru/
3.3.7. https://www.twirpx.com/
3.3.8. http://www.lib.nau.edu.ua/elbook/

4. Rating system of assessing students' knowledge and skills acquired

4.1. Grading of different kinds of academic work performed by a student is done in accordance with table 4.1.

Table 4.1

5 semester		
Module №1		Max Grade
Kind of academic work	Max Grade	
Carrying out and defending labs 1.1-1.7	48 (total)	
Carrying out tasks and knowledge of theoretical material	20 (total)	
To pass the module test №1 student should have grade ***not less than 41grades.***		
Carrying out module test №1	**20**	
Total for the module №1	**88**	
Graded Test		**12**
Total for the 5 semester		**100**
Module №2		Max Grade
Kind of academic work		
Carrying out the Course Project		60
Defending the Course Project		40
Carrying out and defending the Course Project		**100**
6 semester		
Module №3		Max Grade
Kind of academic work	Max Grade	
Carrying out and defending labs 2.1-2.9	45 (total)	
Carrying out tasks and knowledge of theoretical material	23 (total)	
To pass the module test №3 student should have grade ***not less than 41grades.***		
Carrying out module test №2	**20**	
Total for the module №3	**88**	
Semester Exam		**12**
Total for the 6 semester		**100**

4.2. The completed curricular activity is accounted if the student received a positive mark (table 4.2).

4.3. The grades a student has been given for the different kinds of academic work are summed up and the result constituting a Current Module Grade is entered into the Module Grade Register.

Table 4.2

Correspondence between the Grades and the National Scale for different kinds of academic activities

Grades					National Scale
Carrying out and defending labs		Carrying out tasks and knowledge of theoretical materials		Carrying out Module Test	
Module №1	Module №3	Module №1	Module №3		
43-48	41-45	18-20	21-23	18-20	Excellent
36-42	34-40	15-17	17-20	15-17	Good
29-35	27-33	12-14	14-16	12-14	Satisfactory
under 29	under 27	under 12	under 14	under 12	Bad

4.4. The Current Module Grade and the Module Test Grade together make up a Total Module Grade whose correspondence to the National Scale is shown in Table 4.3.

Table 4.3

Correspondence between the Total Module Grades and the National Scale

Module №1 Module №3	National Scale
79-88	Excellent
66-78	Good
53-65	Satisfactory
under 53	Bad

4.5. Current Module Grade, received by students for carrying out and defending the Course Project, according to the grading system, national scale and ECTS scale is entered into the Module Grade Register.

4.6. The Semester Module Grade is calculated as the sum of the Total Module Grades. The correspondence between Semester Module Grade values and the National Scale is given in Table 4.4. (in the case of Module 1 this table coincide with the table 4.3)

Table 4.4

Correspondence between the Semester Module Grades and the National Scale

Semester Grades	National Scale
79-88	Excellent
66-78	Good
53-65	Satisfactory
under 53	Bad

Table 4.5

Correspondence between the Examination/Graded Test Grades and the National Scale

Semester Grades		National Scale
Graded Test	Examination	
12	11-12	Excellent
10	9-10	Good
8	7-8	Satisfactory
-	under 7	Bad

4.7. The Semester Module Grade and the Examination Grade together make up a Total Semester Grade whose correspondence to the National Scale and the ECTS Scale is shown in Table 4.6.

Table 4.6

Correspondence of the Total Semester Grades to the National Scale and the ECTS System

Total Semester Grades	National Scale	ECTS System	
		ECTS Grade	Explanation
90-100	**Excellent**	**A**	**Excellent** (excellent performance with insignificant shortcomings)
82 – 89	**Good**	**B**	**Very Good** (performance above the average standard with few mistakes)
75 – 81		**C**	**Good** (good performance altogether with a certain number of significant mistakes)
67 – 74	**Satisfactory**	**D**	**Satisfactory** (performance meets the average standards)
60 – 66		**E**	**Sufficient** (performance meets the minimal criteria)
35 – 59	**Bad**	**FX**	**Bad** (bad performance; a second testing is required)
1 – 34		**F**	**Bad** (very bad performance; a student shall retake the course)

4.8. The Total Semester Grade is entered into the Examination Register and into a student's record book in values, National Scale grades, and ECTS Scale grades.

4.9. The Total Semester Grade is entered into a student's record book, for example: ***92/Ex/A, 87/Good/B, 79/Good/C, 68/Sat/D, 65/Sat/E,*** etc.

4.10. The Total Module Grade for carrying out and defending the Course Project , except the Examination Register is also entered into an educationsl card, a student's record book and Appendix to the Diploma, for example: ***92/Ex/A, 87/Good/B, 79/Good/C, 68/Sat/D, 65/Sat/E,*** etc.

4.11. The Total Grade for the subject is equal to the average grade from Total Semester Grades (from this subject for fifth and sixth semesters) with its further transformation in national scale and ECTS system.

This Total Grade is entered into an Appendix to the Diploma.

(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 ознайом-лення	

(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	Дата внесення зміни	Дата введення зміни
	Зміненого	Заміненого	Нового	Анульо-ваного			

(Ф 03.02 – 32)

УЗГОДЖЕННЯ ЗМІН

	Підпис	Ініціали, прізвище	Посада	Дата
Розробник				
Узгоджено				
Узгоджено				