MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

SUMY NATIONAL AGRARIAN UNIVERSITY

Faculty of Economics and Management

Cybernetics and Informatics Department

Management Department named after Professor L.I.Mykhailova

MODULE SYLLABUS

Modern Multimedia Technologies

Speciality	073 Management
Educational program	Management
Level of higher education	the first (bachelor's)

SUMY – 2024

Author: Yana Dolgikh   Ass. Prof., PhD, Ass. Prof. of Cybernetics and Informatics Department

<div align="center">(surname, initials)</div>   (academic degree and title, position)

Module syllabus agreed at the Management Department named after Prof. L.I. Mykhailova meeting

(name of the department)

Minites dated June 18, 2024 № 17

Head of Department   Alvina ORIEKHOVA

(signature)   (last name, first name)

Module syllabus agreed at the Cybernetics and Informatics Department meeting

(name of the department)

Minites dated June 12, 2024 № 16

Head of Department   Svitlana AHADZHANOVA

(signature)   (last name, first name)
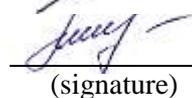
Approved by:

Guarantor of the educational program   Natalia STOYANETS
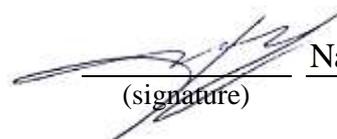
(signature)   (last name, first name)

Dean of the Faculty   Marharyta LYSHENKO

(signature)   (last name, first name)
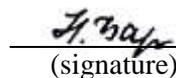
Syllabus review (attached) is provided by: Svitlana AHADZHANOVA

(signature)   (last name, first name)

Representative of the Department of Education Quality Assurance, Licensing and Accreditation   Nadiya BARANIK

(signature)   (last name, first name)

Registered in electronic data base: 06.08.2024

(date)

1. MODULE OVERVIEW

1.	Title	Modern Multimedia Technologies
2.	Faculty/Department	Faculty of Economics and Management Cybernetics and Informatics Department
3.	Type (compulsory or optional)	compulsory
4.	Program(s) to which module is attached (*to be filled in for compulsory types*)	«Management» Academic Program, area of specialization 073 «Management»
5.	Module can be suggested for (*to be filled in for optional types*)	
6.	Semester and duration of module	1 semester (1-15 weeks), 2 semester, 1-15 weeks
7.	ECTS credits number	5 credits (150 hours)

8.	Total workload and time allotment	Directed study			Self-directed study
		Lectures	Practicals	Labs	
		30	60	–	60

9.	Language of instruction	English
10.	Module leader	Yana Dolgikh
11.1	Module leader contact information	yana.dolgikh@snau.edu.ua, room 308 e.
11.	Module description	Multimedia and hypermedia technologies integrate powerful distributed resources that can provide an environment for the formation and development of key competencies, which include primarily information and communication.
12.	Module aim	Students mastering a set of knowledge in the field of multimedia technologies, systems and methods of storing and reproducing text, graphics, audio, video information, their components and acquiring on the basis of this knowledge practical skills and theoretical knowledge necessary for creative approach in further professional work. Students master the algorithms for creating modern multimedia products, computer software, hardware in the field of multimedia: graphic, text, audio and video editors. Mastering conceptual models of development, distribution, processing, use and storage of multimedia documents; strategy for choosing multimedia systems.

13.	Module Dependencies (prerequisites, co-requisites, incompatible modules)	1. No prerequisites
		2. The educational component is the basis for:
		    EC18 Information and professional technologies
		    EC21 Human resource management
		    EC31 Educational practice

14.	The policy of academic integrity	The student must follow the rules of academic integrity during the performing practical work, writing essays, attestation, test and examination papers. If the facts of write-off or academic dishonesty are revealed, the work done by the student is canceled.
15.	Link in Moodle	https://cdn.snau.edu.ua/moodle/course/view.php?id=4088

2. CORRELATION BETWEEN MODULE LEARNING OUTCOMES (MLOs) AND PROGRAM LEARNING OUTCOMES (PLOs)

MLOs: On successful completion of the module the student will be able to:	PLOs	How assessed
	PLO 19. To apply modern information technologies in managing resources and databases in order to justify managerial decisions on the adoption of innovative technologies in agricultural enterprises.	
MLO 1. Know the theoretical foundations of modern multimedia technologies	×	Multiple choice tests, calculation tasks
MLO 2. Apply theoretical knowledge and practical skills and abilities to use multimedia tools	×	Multiple choice tests, calculation tasks
MLO 3. Select and prepare for work multimedia learning tools together with media that allow you to optimally organize the workplace.	×	Multiple choice tests, calculation tasks
MLO 4. Create the simplest materials used with multimedia equipment.	×	Multiple choice tests, calculation tasks

3. MODULE INDICATIVE CONTENT

Topics	Distribution of hours				Learning resources
	Directed study			Selfdirected study	
	Lectures	Practicals	Labs		
Topic 1. Introduction to multimedia technology. 1.1. Introduction to multimedia 1.2. History of multimedia technology development 1.3. Components of multimedia 1.4. Areas of application of multimedia technologies	2	4	–	8	Basic: 1 (pp. 5-38) Additional: 1 (pp. 17-22)
Topic 2. Multimedia data storage. 2.1. Digital image storage 2.2. Audio storage 2.3. Video storage 2.4. Storage of hypertext documents 2.5. Computer animation storage 2.6. Storage of text data	4	8	–	6	Basic: 1 (pp. 55-68) Additional: 1 (pp. 37-42)
Topic 3. Multimedia data compression algorithms. 3.1. Features of multimedia data compression 3.2. Image compression algorithms 3.3. Audio compression algorithms 3.4. Video compression algorithms	4	8	–	6	Basic: 1 (pp. 70-88) Additional: 1 (pp. 47-52)
Topic 4. Software interfaces for creating multimedia applications. 4.1. OpenGL graphics library 4.2. DirectX software interface	4	8	–	8	Basic: 1(pp. 82-88) Additional: 1(pp. 57-62)
Topic 5. Means of preparation and submission of presentations. 5.1. General information about multimedia technology.	4	8	–	8	Basic: 1 (pp. 82-88) Additional: 1 (pp. 57-62)

5.2 Multimedia computers. 5.3. Multimedia projectors. 5.4 Terminals for video conferencing.					
Topic 6. Author's multimedia tools. 6.1. Classification of author's means of multimedia. 6.2. Scripting language. 6.3. Visual data flow control. 6.4. Frame. 6.5. Script language card. 6.6. Timeline. 6.7. Hierarchical objects. 6.8. Hypermedia links. 6.9. Markers.	4	8	–	8	Basic: 1 (pp. 88-98) Additional: 1 (pp. 60-62)
Topic 7. Types of presentations. 7.1. Types of presentations. 7.2. Presentation with script. 7.3. Interactive presentation. 7.4. Automatic presentation.	4	8	–	8	Basic: 1 (pp. 99-105) Additional: 1 (pp. 63-67)
Topic 8. Video conferencing. 8.1. Appointment of video conference. 8.2. Architecture and standards of video conferencing systems. 8.3. Communication channels for video conferencing. 8.4. Video call quality. 8.5. Video conferencing equipment.	4	8	–	8	Basic: 1 (pp. 99-105) Additional: 1 (pp. 63-67)
Total:	**30**	**60**	**0**	**60**	

4. TEACHING AND LEARNING METHODS

MLOs	Teaching methods (directed study)	Hours	Learning methods (self-directed study)	Hours
MLO 1. Know the theoretical foundations of modern multimedia technologies	- lecture, - practical lesson, - discussion of topical issues	18	- Elaboration of theoretical material, - solution of calculation tasks	14
MLO 2. Apply theoretical knowledge and practical skills and abilities to use multimedia tools	- lecture, - practical lesson, - discussion of topical issues	24	- Elaboration of theoretical material, - solution of calculation tasks	14
MLO 3. Select and prepare for work multimedia learning tools together with media that allow you to optimally organize the workplace.	- lecture, - practical lesson, - discussion of topical issues	24	- Elaboration of theoretical material, - solution of calculation tasks	16
MLO 4. Create the simplest materials used with multimedia equipment.	- lecture, - practical lesson, - discussion of topical issues	24	- Elaboration of theoretical material, - solution of calculation tasks	16
Total:		**90**		**60**

5. ASSESSMENT

5.1. Summative assessment

5.1.1 Intended learning outcomes methods

№	Summative assessment methods	Grades	Deadline
Autumn/Fall Semester			
1.	Practical Work №1. Portfolio design.	10 points / 10%	till 2 week
2.	Practical Work №2. Infographic design.	10 points / 10%	till 4 week
3.	Practical Work №3. Mind map design.	10 points / 10%	till 6 week
4.	Midterm assessment 1 (multiple choice tests)	20 points / 20%	7 week
5.	Practical Work №4. Collage design.	10 points / 10%	till 8 week
6.	Practical Work №5. Vector graphics. Logo design.	10 points / 10%	till 10 week
7.	Practical Work №6. Applied use of multimedia technologies.	10 points / 10%	till 12 week
8.	Practical Work №7. AI for multimedia products design.	10 points / 10%	till 14 week
9.	Midterm assessment 2 (multiple choice tests)	10 points / 10%	14 week
Spring Semester			
1.	Practical Work №8. Visualization of tabular data.	5 points / 5%	till 2 week
2.	Practical Work №9. Online visualization of tabular data.	5 points / 5%	till 4 week
3.	Practical Work №10. Animation design.	5 points / 5%	till 6 week
4.	Midterm assessment 1 (multiple choice tests)	20 points / 20%	7 week
5.	Practical Work №11. Design of an animated educational film.	5 points / 5%	till 8 week
6.	Practical Work №12. Overview of video editors.	5 points / 5%	till 10 week
7.	Practical Work №13. Video film design.	5 points / 5%	till 12 week
8.	Practical Work №14. Website design.	5 points / 5%	till 14 week
9.	Midterm assessment 2 (multiple choice tests)	15 points / 15%	14 week
10.	Exam	30 points / 30 %	15 week

5.1.2 Grading criteria

Summative assessment method	Unsatisfactory	Satisfactory	Good	Excellent
Autumn/Fall Semester				
Practical Work №1. Portfolio design.	0-2 points	3-5 points	6-8 points	9-10 points
	The requirements of the assignment are not fulfilled	Most of the requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the issue	All requirements of the task are fulfilled	All the requirements of the task are fulfilled, creativity, thoughtfulness are demonstrated, and the student offers his/her own solution to the problem
Practical Work №2. Infographic design.	0-2 points	3-5 points	6-8 points	9-10 points
	The requirements of the assignment are not fulfilled	Most of the requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the issue	All requirements of the task are fulfilled	All the requirements of the task are fulfilled, creativity, thoughtfulness are demonstrated, and the student offers his/her own solution to the problem
Practical Work №3. Mind map design	0-2 points	3-5 points	6-8 points	9-10 points
	The requirements of the assignment are not fulfilled	Most of the requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the issue	All requirements of the task are fulfilled	All the requirements of the task are fulfilled, creativity, thoughtfulness are demonstrated, and the student offers his/her own solution to the problem
Midterm assessment 1 (multiple choice tests)	0-3 points	4-7 points	8-14 points	15-20 points
	Number of correct answers on the test, k_v: $k_v <= 5$	Number of correct answers on the test, k_v: $6 \le k_v \le 8$.	Number of correct answers on the test, k_v: $8 \le k_v \le 9$	Number of correct answers on the test, k_v: $k_v \ge 10$
Practical Work №4. Collage design.	0-2 points	3-5 points	6-8 points	9-10 points
	The requirements of the assignment are not fulfilled	Most of the requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the issue	All requirements of the task are fulfilled	All the requirements of the task are fulfilled, creativity, thoughtfulness are demonstrated, and the student offers his/her own solution to the problem

	0-2 points	3-5 points	6-8 points	9-10 points
Practical Work №5. Vector graphics. Logo design.	The requirements of the assignment are not fulfilled	Most of the requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the issue	All requirements of the task are fulfilled	All the requirements of the task are fulfilled, creativity, thoughtfulness are demonstrated, and the student offers his/her own solution to the problem
	0-2 points	3-5 points	6-8 points	9-10 points
Practical Work №6. Applied use of multimedia technologies.	The requirements of the assignment are not fulfilled	Most of the requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the issue	All requirements of the task are fulfilled	All the requirements of the task are fulfilled, creativity, thoughtfulness are demonstrated, and the student offers his/her own solution to the problem
	0-2 points	3-5 points	6-8 points	9-10 points
Practical Work №7. AI for multimedia products design.	The requirements of the assignment are not fulfilled	Most of the requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the issue	All requirements of the task are fulfilled	All the requirements of the task are fulfilled, creativity, thoughtfulness are demonstrated, and the student offers his/her own solution to the problem
	0-2 points	3-5 points	6-8 points	9-10 points
Midterm assessment 2 (multiple choice tests)	Number of correct answers on the test, k_v: $k_v <= 5$	Number of correct answers on the test, k_v: $6 \leq k_v \leq 8$.	Number of correct answers on the test, k_v: $8 \leq k_v \leq 9$	Number of correct answers on the test, k_v: $k_v \geq 10$
Spring Semester				
	0 points	1-2 points	3-4 points	5 points
Practical Work №8. Visualization of tabular data.	The requirements of the assignment are not fulfilled	Most of the requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the issue	All requirements of the task are fulfilled	All the requirements of the task are fulfilled, creativity, thoughtfulness are demonstrated, and the student offers his/her own solution to the problem
	0 points	1-2 points	3-4 points	5 points
Practical Work №9. Online visualization of tabular data.	The requirements of the assignment are not fulfilled	Most of the requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the issue	All requirements of the task are fulfilled	All the requirements of the task are fulfilled, creativity, thoughtfulness are demonstrated, and the student offers his/her own solution to the problem

	0 points	1-2 points	3-4 points	5 points
Practical Work №10. Animation design.	The requirements of the assignment are not fulfilled	Most of the requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the issue	All requirements of the task are fulfilled	All the requirements of the task are fulfilled, creativity, thoughtfulness are demonstrated, and the student offers his/her own solution to the problem
	0-3 points	4-7 points	8-14 points	15-20 points
Midterm assessment 1 (multiple choice tests)	Number of correct answers on the test, k_v: $k_v <= 5$	Number of correct answers on the test, k_v: $6 \leq k_v \leq 8$.	Number of correct answers on the test, k_v: $8 \leq k_v \leq 9$	Number of correct answers on the test, k_v: $k_v \geq 10$
	0 points	1-2 points	3-4 points	5 points
Practical Work №11. Design of an animated educational film.	The requirements of the assignment are not fulfilled	Most of the requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the issue	All requirements of the task are fulfilled	All the requirements of the task are fulfilled, creativity, thoughtfulness are demonstrated, and the student offers his/her own solution to the problem
	0 points	1-2 points	3-4 points	5 points
Practical Work №12. Overview of video editors.	The requirements of the assignment are not fulfilled	Most of the requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the issue	All requirements of the task are fulfilled	All the requirements of the task are fulfilled, creativity, thoughtfulness are demonstrated, and the student offers his/her own solution to the problem
	0 points	1-2 points	3-4 points	5 points
Practical Work №13. Video film design.	The requirements of the assignment are not fulfilled	Most of the requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the issue	All requirements of the task are fulfilled	All the requirements of the task are fulfilled, creativity, thoughtfulness are demonstrated, and the student offers his/her own solution to the problem
	0 points	1-2 points	3-4 points	5 points
Practical Work №14. Website design.	The requirements of the assignment are not fulfilled	Most of the requirements are met, but some components are missing or insufficiently disclosed, there is no analysis of other approaches to the issue	All requirements of the task are fulfilled	All the requirements of the task are fulfilled, creativity, thoughtfulness are demonstrated, and the student offers his/her own solution to the problem

Midterm assessment 2 (multiple choice tests)	0-3 points	4-8 points	9-12 points	13-15 points
	Number of correct answers on the test, k_v: $k_v <= 5$	Number of correct answers on the test, k_v: $6 \leq k_v \leq 8$.	Number of correct answers on the test, k_v: $8 \leq k_v \leq 9$	Number of correct answers on the test, k_v: $k_v \geq 10$
Exam	0-17 points	18-22 points	23-26 points	27-30 points
	Lack of knowledge of theoretical issues. Less than 60% of the tests answered correctly.	Low level of knowledge of theoretical issues. 60–74% of the tests answered correctly.	Good command of the conceptual and categorical framework, professional terminology, and theoretical knowledge; minor inaccuracies in answers. 75–89% of the tests answered correctly.	Excellent command of the conceptual and categorical framework, professional terminology, and theoretical knowledge. 90% or more of the tests answered correctly.

5.2. Formative assessment:

№	Formative Assessment elements	Date
1	Oral interview after studying each topic	After completing the study of the topic
2	Passing the test on certification and modular control with feedback from the teacher	According to the schedule of the educational process
3	Passing the test after the end of the study of each topic for independent control of knowledge and preparation for the test (exam)	Regulated by the student independently
4	Protection of practical works	One week after their delivery
5	Oral feedback from the teacher while working on practical work during classes	Throughout the semester

6. LEARNING RESOURCES

6.1. Key resources

6.1.1. Textbooks

1. Ginchev N., Kordov K. Integrating the multimedia approach in modern educational technologies. Annual of Konstantin Preslavsky University of Shumen, Faculty of mathematics and informatics. 2021. XXII C. P. 33–42. URL: https://doi.org/10.46687/wigo4753
2. Peter Symes : Digital Video Compression, McGraw Hill Pub., 2021.
3. Yun Q.Shi, Huifang Sun, "Image and Video Compression for Multimedia Engineering,Algorithms and Fundamentals", CRC Press, 2023.
4. Multimedia Technologies in Modern Visual Communications and Design Education / V. Oliinyk et al. Journal of Curriculum and Teaching. 2022. Vol. 11, no. 9. P. 72. URL: https://doi.org/10.5430/jct.v11n9p72

6.1.2. Methodical resourses

5. K.Ahadzhanov-Gonzalez Modern Multimedia Technologies (e-course in Moodle:Address https://cdn.snau.edu.ua/moodle/course/view.php?id=4088)

6.2. Additional resources

6. Brusilovsky, Peter et.al. The Adaptive Web: Methods and Strategies of Web Personalization. Berlin: Springer, 2017.
7. Christopher D. Manning, Prabhakar Raghavan and Hinrich Schütze," Introduction to Information Retrieval" , Cambridge University Press, 2018
8. Ricci, F.; Rokach, L.; Shapira, B.; Kantor, P.B. (Eds.), Recommender Systems Handbook. 1 st Edition., 2021.

6.3. Software

9. Pixelr E URL: https://pixlr.com/e/
10. Gravit Designer URL: https://www.designer.io/en/
11. Animaker URL: https://app.animaker.com/
12. Renderforest URL: https://www.renderforest.com/logo-maker#All
13. Сервіс Googlesites

Review of the work program (syllabus) EC Modern Multimedia Technologies
Developed by the lecturer of the Department of Cybernetics and Informatics Dolgikh Ya.V.

Parameter by which the work program (syllabus) of the educational component is evaluated by the guarantor or a member of the project team	Yes	No	Comment
Learning outcomes for the educational component (ALO) correspond to the NQF	+		
The learning outcomes for the educational component (ALO) correspond to the intended program learning outcomes (for mandatory EC)	+		
Learning outcomes for the educational component make it possible to measure and assess the level of their achievement	+		

Member of the project group of the EP « Management »_____Natalia STOYANETS

Parameter by which the work program (syllabus) of the educational component is evaluated by the teacher of the relevant department	Yes	No	Comment
General information about the educational component is sufficient	+		
The learning outcomes for the educational component (ALO) are aligned with the NQF	+		
Educational Learning Outcomes (ALO) provide an opportunity to measure and assess the level of their achievement	+		
Learning outcomes (ALO) relate to student competencies, not to the content of the discipline (contain knowledge, skills, abilities, not to the topics of the discipline curriculum)	+		
The content of the EC is formed in accordance with the structural and logical scheme	+		
Learning activity (teaching and learning methods) enables students to achieve expected learning outcomes (ALO)	+		
The educational component involves learning through research that is appropriate and sufficient for the appropriate level of higher education	+		
The assessment strategy within the educational component is in line with the University/Faculty policy	+		
The provided assessment methods allow assessing the degree of achievement of learning outcomes by educational component.	+		
The student workload is adequate to the volume of the educational component	+		
Recommended learning resources are sufficient to achieve the learning outcomes (ALO)	+		
The literature is relevant	+		
The list of learning resources contains the software products necessary to achieve ALO	+		

Reviewer (department lecturer) of cybernetics
and informatics   _____ Svitlana AHADZHANOVA