

**MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE  
SUMY NATIONAL AGRARIAN UNIVERSITY**

**Cybernetics and Informatics Department  
Faculty of Economics and Management**

**MODULE SYLLABUS**

***Modern Multimedia Technologies***

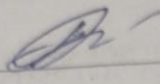
**(compulsory)**

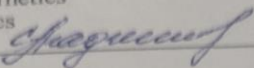
**Implemented in the “International law” Academic Program**

**Area of specialization \_293 “International law”**


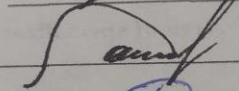
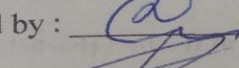
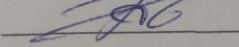
**at the first (bachelor’s) level of higher education**

**Sumy-2023**

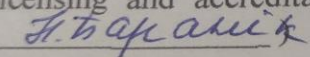
Author:  Julia RUDENKO

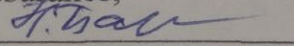
Module syllabus agreed at the Cybernetics and Informatics Department meeting	Minutes No 16 dated June <u>9</u> 20223
	Head of Cybernetics and Informatics Department <u></u> Svitlana. AHADZHANOVA

**Approved by:**

Guarantor of the Academic program  Olena KLOCHKO  
Dean of the Faculty  Oleg ROHOVENKO  
Syllabus review (attached) is provided by :  Yana DOLGIKH  
 Oleksandr VYUNENKO

Representative of the Department of Education Quality assurance,  
licensing and accreditation



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Registered in electronic data base 14.06. 2023

**Syllabus review data:**

The academic year in which changes are made	The Academic program attachment number with changes description	Changes revised and approved		
		Minutes No and date of the department meeting	Head of Department	Guarantor of the Academic program

## 1. MODULE OVERVIEW

1.	Title	Modern Multimedia Technologies		
2.	Faculty/Department	Economics and Management/Cybernetics and Informatics		
3.	Type (compulsory or optional)	compulsory		
4.	Program(s) to which module is attached (to be filled in for compulsory types)	293 International Law		
5.	Module can be suggested for (to be filled in for optional types)			
6.	Level of the National Qualifications Framework	6-th		
7.	Semester and duration of module	1 semester, 1-15 weeks		
8.	ECTS credits number	5-th		
9.	Total workload and time allotment	Directed study		Self-directed study
		Lectures	Practicals	Labs
		<b>14</b>	<b>30</b>	<b>106</b>
10.	Language of instruction	english		
11.	Module leader	Karen Ahadzhanov-Honzalez, Senior Lecturer, Master		
12.	Module leader contact information	karen.ahadzhanov-honzalez@snaeu.edu.ua; room 308e.		
13.	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.		
14.	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.		
15.	Module Dependencies (prerequisites, co-requisites, incompatible modules)	1. The educational component is based on the general course of computer science. 2. The educational component is the basis for admission to the specialty.		
16.	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.		
17.	Link in Moodle	<a href="https://cdn.snaeu.edu.ua/moodle/course/view.php?id=4088">https://cdn.snaeu.edu.ua/moodle/course/view.php?id=4088</a>		

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

MLOs:	PLOs				How assessed
	PLO 14. You should use statistical information obtained from primary and secondary sources for your professional activities.	PLO 15. Free to use available information technologies and databases for professional activities.	PLO 16. Demonstrate the ability to use computer programs necessary for professional activities.	PLO 17. Працювати в групі, формуючи власний внесок у виконання завдань групи	
On successful completion of the module the learner will be able to:					
MLOs 1. Know the theoretical foundations of modern multimedia technologies		+			Multiple choice tests
MLOs 2. Apply theoretical knowledge and practical skills and abilities to use multimedia tools		+	+		Multiple choice tests, calculation tasks
MLOs 3. Select and prepare for work multimedia learning tools together with media (slides, audio and video recordings, CDs, training and monitoring software, etc.) that allow you to optimally organize the workplace.	+		+		Multiple choice tests, calculation tasks
MLOs 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		Self-directed study		
	Lectures	Practicals	Labs		
Topic 1. <i>Introduction to multimedia technology.</i> 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	2		8	Basic: 1(pp. 5-38) Additional: 1(pp. 17-22)
Topic 2. <i>Multimedia data storage.</i> 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	2	4		14	Basic: 1(pp. 55-68) Additional: 1(pp. 37-42)
Topic 3. <i>Multimedia data compression algorithms.</i> 3.1. Features of multimedia data compression 3.2. Image compression algorithms 3.3. Audio compression algorithms 3.4. Video compression algorithms	2	4		14	Basic: 1(pp. 70-88) Additional: 1(pp. 47-52)
Topic 4. <i>Software interfaces for creating multimedia applications.</i> 4.1. OpenGL graphics library 4.2. DirectX software interface	2	4		14	Basic: 1(pp. 82-88) Additional: 1(pp. 57-62)
Topic 5. <i>Means of preparation and submission of presentations.</i> 5.1. General information about multimedia technology. 5.2 Multimedia computers. 5.3. Multimedia projectors. 5.4 Terminals for video conferencing.	2	4		14	Basic: 1(pp. 82-88) Additional: 1(pp. 57-62)
Topic 6. <i>Author's multimedia tools.</i> 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.	2	4		14	Basic: 1(pp. 88-98) Additional: 1(pp. 60-62)
Topic 7. <i>Types of presentations.</i> 7.1. Types of presentations. 7.2. Presentation with script. 7.3. Interactive presentation. 7.4. Automatic presentation.		4		14	Basic: 1(pp. 99-105) Additional: 1(pp. 63-67)

Topic 8. <i>Video conferencing</i> . 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.	2	4		14	
Total	14	30		106	

#### 4. TEACHING AND LEARNING METHODS

MLOs	Teaching methods (directed study)	Hours	Learning methods (self-directed study)	Hours
MLOs 1. Know the theoretical foundations of modern multimedia technologies	Lecture, practical lesson, discussion of topical issues	10	Elaboration of theoretical material, solution of calculation tasks	26
MLOs 2. Apply theoretical knowledge and practical skills and abilities to use multimedia tools	Lecture, practical lesson, discussion of topical issues	10	Elaboration of theoretical material, solution of calculation tasks	26
MLOs 3. Select and prepare for work multimedia learning tools together with media (slides, audio and video recordings, CDs, training and monitoring software, etc.) that allow you to optimally organize the workplace.	Lecture, practical lesson, discussion of topical issues	12	Elaboration of theoretical material, solution of calculation tasks	26
MLOs 4. Create the simplest materials used with multimedia equipment.	Lecture, practical lesson, discussion of topical issues	12	Elaboration of theoretical material, solution of calculation tasks	28
Total hours		44		106

#### 5. ASSESSMENT

##### 5.1. Diagnostic assessment

##### 5.2. Summative assessment

##### 5.2.1. Intended learning outcomes methods:

No	Summative assessment methods	Grades	Deadline
<b>Autumn semester</b>			
1.	Practical Work 1-2	5 points / 5 %	7 week
2.	Practical Work 3-4	10 points / 10 %	14 week
3.	Individual Work 1-4	5 points / 5 %	14 week
4.	Test	15 points / 15 %	During semester
5.	Practical Work 5-6	5 points / 5 %	7 week
6.	Practical Work 7-8	10 points / 10 %	14 week
7.	Individual Work 5-8	5 points / 5 %	14 week

8.	Test	15 points / 15 %	During semester
9.	Exam	30 points / 30 %	15 week

### 5.2.2. Grading criteria

<b>Summative assessment method</b>	<b>Unsatisfactory</b>	<b>Satisfactory</b>	<b>Good</b>	<b>Excellent</b>
<b>Practical Works 1-2.</b>	<i>0-10 points</i>	<i>11-14 points</i>	<i>15-19 points</i>	<i>20-25 points</i>
	Task not completed (method and answers are incorrect)	The progress is correct, but there are significant errors, the answers are mostly wrong	The task is completed, but there are minor errors	Task completely done. Mistakes missing
<b>Modular control (multiple choice test)</b>	<i>0-3 points</i>	<i>3-5 points</i>	<i>5-7 points</i>	<i>8-10 points</i>
	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test
<b>Certification (multiple choice test)</b>	<i>0-3 points</i>	<i>3-7 points</i>	<i>7-13 points</i>	<i>14-15 points</i>
	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test
<b>Practical Works 3-4</b>	<i>0-10 points</i>	<i>11-14 points</i>	<i>15-19 points</i>	<i>20-25 points</i>
	Task not completed (method and answers are incorrect)	The progress is correct, but there are significant errors, the answers are mostly wrong	The task is completed, but there are minor errors	Task completely done. Mistakes missing
<b>Modular control (multiple choice test)</b>	<i>0-3 points</i>	<i>3-5 points</i>	<i>5-7 points</i>	<i>8-10 points</i>
	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test
<b>Individual Work (multiple choice test)</b>	<i>0-3 points</i>	<i>3-7 points</i>	<i>7-13 points</i>	<i>14-15 points</i>
	Task not completed (method and answers are incorrect)	The progress is correct, but there are significant errors, the answers are mostly wrong	The task is completed, but there are minor errors	Task completely done. Mistakes missing
<b>Practical Works 5-6</b>	<i>0-10 points</i>	<i>11-14 points</i>	<i>15-19 points</i>	<i>20-25 points</i>
	Task not completed (method and answers are incorrect)	The progress is correct, but there are significant errors, the answers	The task is completed, but there are minor errors	Task completely done. Mistakes Missing



		are mostly wrong		
<b>Modular control (multiple choice test)</b>	0-3 points	3-5 points	5-7 points	8-10 points
	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test
<b>Certification (multiple choice test)</b>	0-3 points	3-7 points	7-13 points	14-15 points
	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test
<b>Practical Works 7-8</b>	0-10 points	11-14 points	15-19 points	20-25 points
	Task not completed (method and answers are incorrect)	The progress is correct, but there are significant errors, the answers are mostly wrong	The task is completed, but there are minor errors	Task completely done. Mistakes Missing
<b>Modular control (multiple choice test)</b>	0-3 points	3-5 points	5-7 points	8-10 points
	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test
<b>Individual Work (multiple choice test)</b>	0-3 points	3-7 points	7-13 points	14-15 points
	Task not completed (method and answers are incorrect)	The progress is correct, but there are significant errors, the answers are mostly wrong	The task is completed, but there are minor errors	Task completely done. Mistakes Missing
<b>Exam</b>	0-9 points	10-16 points	17-24 points	25-30 points
	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test	Depends on the number of correct answers to the test

### 5.3. Formative assessment

Formative exercises are designed to enable students to develop particular aspects of their learning, prior to summative assessments. Formative exercises are designed to help students use feedback and self-reflection to manage and develop their learning so that they can see how to improve their work.

No	Formative Assessment elements	Date
<b>Autumn semester</b>		
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

Self-assessment can be used both an element of formative and summative assessment.

## 6. LEARNING RESOURCES

### 6.1. Key resources

1. Khalid Sayood: Introduction to Data Compression”, Morgan Kauffman Harcourt India, Third Edition, 2010.
2. Mark S. Drew, Ze-Nian Li, “Fundamentals of Multimedia”, PHI, 2009.
3. Peter Symes : Digital Video Compression, McGraw Hill Pub., 2004.
4. Yun Q.Shi, Huifang Sun, “Image and Video Compression for Multimedia Engineering, Algorithms and Fundamentals”, CRC Press, 2003.

### 6.2 Methodical resources

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

### 6.3. Additional resources

1. Brusilovsky, Peter et.al. The Adaptive Web: Methods and Strategies of Web Personalization. Berlin: Springer, 2007.
2. Christopher D. Manning, Prabhakar Raghavan and Hinrich Schütze,” Introduction to Information Retrieval” , Cambridge University Press, 2008
3. Ricci, F.; Rokach, L.; Shapira, B.; Kantor, P.B. (Eds.), Recommender Systems Handbook. 1 st Edition., 2011.