

The syllabus of the discipline
"Media content delivery technologies"

№	Field name	Detailed content, comments
1.	Name of the faculty	Information radio technology and technical information protection
2.	Level of higher education	Bachelor
3.	Code and name of the specialty	172 - Telecommunications and radio engineering
4.	Number of ECTS credits	3
5.	Type and name of educational program	Media engineering
6.	Code and name of the discipline	Media content delivery technologies
7.	The structure of the discipline	Lectures - 18 hours, Practical classes - 6 hours, Laboratory work - 12 hours, Consultations - 6 hours, Semester control – E-K. In total - 90 hours.
8.	The schedule of studying the discipline	2nd year, 1st semester of study
9.	Prerequisites for studying the discipline	Know: basics of information theory, Shannon's theorems for communication channels, basic concepts of noise immunity, methods of effective coding of message sources, topology of computer physical links, basic transport technologies and methods of MMI transmission. Be able to: draw up block diagrams of MMI transmission systems, perform optimal and noise-tolerant coding of message sources with correction of detected errors, calculate the main technical characteristics of the systems in accordance with the specified tactical characteristics. Possess: the ability to use knowledge and understanding of scientific facts, concepts, theories, principles and methods for the design and application of devices, devices and systems of electronics.
10.	Discipline abstract	Content module 1. Information. Multimedia information transmission systems. Topic 1. Information. General information about multimedia information. Topic 2. Multimedia information transmission systems. Topic 3. Information characteristics of sources of multimedia information messages. Topic 4. Multiplexing and switching of communication channels. Methods of digital coding of discrete information. Topic 5. Methods of effective coding of sources of messages of multimedia information. Topic 6. Methods of detection and correction of errors of sources of messages of multimedia information. Content module 2. Basic networks and technologies of multimedia information transmission. Topic 7. Basic technologies for creating and transmitting multimedia information. Topic 8. Classification and characteristics of communication lines. Topic 9. Wireless data transmission.
11.	Competences, knowledge, skills, understanding, which is acquired by the applicant in higher education in the learning process	Integral competence: Ability to solve complex specialized problems and practical problems in the field of telecommunications and radio engineering, characterized by complexity and uncertainty of conditions. General competencies:

		ZK1. Ability to abstract thinking, analysis and synthesis. ZK2. Ability to apply knowledge in practical situations. ZK4. Knowledge and understanding of the subject area and understanding of professional activity. ZK7. Ability to learn and master modern knowledge. ZK8. Ability to identify, pose and solve problems. ZK9. Safe skills. Special (professional subject) competencies FC1. The ability to understand the essence and significance of information in the development of the modern information society. FC3. Ability to use basic methods, processing and storage of information. FC5. Ability to use regulatory and legal documentation related to information and telecommunication networks, telecommunication and radio systems (laws of Ukraine, technical regulations, international and national standards, recommendations of the International Telecommunication Union, etc.) to solve professional problems. FC6. Ability to perform instrumental measurements in information and telecommunication networks, telecommunication and radio systems. FC8. Willingness to promote the introduction of advanced technologies and standards. FC9. Ability to accept and develop new equipment in accordance with current regulations. FC10. Ability to carry out installation, adjustment, adjustment, adjustment, experimental check of working capacity, tests and commissioning of constructions, means and equipment of telecommunication and radio engineering. FC11. Ability to compile regulatory documentation (instructions) for operational and maintenance of information and telecommunications networks, telecommunications and radio systems, as well as test programs.
12.	Learning outcomes of higher education	P1. Analyze, argue, make decisions in solving specialized problems and practical problems of telecommunications and radio engineering, which are characterized by complexity and uncertainty of conditions. P14. Applying an understanding of the basic properties of the component base to ensure the quality and reliability of telecommunications, radio systems and devices. P16. Applying an understanding of the basics of metrology and standardization in the field of telecommunications and radio engineering in professional activities. P17. Understanding and compliance with domestic and international regulations on the development, implementation and maintenance of information and telecommunications networks, telecommunications and radio systems. P18. Find, evaluate, and use information from a variety of sources to solve professional problems, including reproducing information through electronic search. P22. Monitor the technical condition of information and communication networks, telecommunications and radio systems in the process of their technical operation in order to identify deterioration in the quality of operation or failures, and its systematic fixation by documentation.
13.	Assessment system according to each task for passing the test / exam	The form of final control is a test. With this type of control, the final score R_p is calculated by the formula: $P_{\Pi} = 0,6 Q_{\text{sem}} + 0,4 Q_{\text{exam}}$

		where, Q_{sem} – assessment for the semester in a 100-point system, Q_{exam} – exam score in a 100-point system. To evaluate the student's work during the semester, the final rating Q_{sem} is calculated as the sum of grades for different types of classes and control measures.. <table><tr><th>Type of lesson / control measure</th><th>Rating</th></tr><tr><td>Lb. № 1, 2</td><td>$(8-14) \times 2 = (16-28)$</td></tr><tr><td>Practice session №1, 2</td><td>$(5-9) \times 2 = (10-18)$</td></tr><tr><td>Checkpoint 1</td><td>26-46</td></tr><tr><td>Lb. № 3</td><td>$(8-14) \times 1 = (8-14)$</td></tr><tr><td>Practice session № 3</td><td>$(5-9) \times 1 = (5-9)$</td></tr><tr><td>Checkpoint 2</td><td>13-23</td></tr><tr><td>Final control testing</td><td>20-30</td></tr><tr><td>Total for the semester</td><td>60-100</td></tr></table>	Type of lesson / control measure	Rating	Lb. № 1, 2	$(8-14) \times 2 = (16-28)$	Practice session №1, 2	$(5-9) \times 2 = (10-18)$	Checkpoint 1	26-46	Lb. № 3	$(8-14) \times 1 = (8-14)$	Practice session № 3	$(5-9) \times 1 = (5-9)$	Checkpoint 2	13-23	Final control testing	20-30	Total for the semester	60-100
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14.	The quality of the educational process	The content of the discipline is updated on the basis of the policy of academic integrity and scientific achievements and the discovery of new types of materials for the construction of modern technologies for the transmission of multimedia information. Discipline policy - "rules of the game": Deadline and recompilation policy: Works that are submitted in violation of deadlines without good reason are evaluated at a lower score (75% of the possible maximum number of points for the type of activity of points). Relocation of modules occurs for good reasons (for example, hospital). Academic Integrity Policy: Write-offs during tests are prohibited (including using mobile devices). Mobile devices are allowed to be used only during online testing and preparation of practical tasks during the lesson. Attendance policy: Attendance is a mandatory component of assessment. For objective reasons (eg illness, employment, international internship) training can take place online in consultation with the course leader.																		
15.	Methodical support	Basic literature: 1. Mazurkov MI Fundamentals of information transfer theory. Teaching. way. For higher. navch.zakl. / Odessa National Polytechnic University - Odessa: Science and Technology, 2004. - 168 p. 2. Sidorov GI Fundamentals of information transfer theory in examples and problems [Text]; textbook way. –X. SMITH company, 2009. -320p 3. Kuzmin IV, Kedrus VA Fundamentals of information theory and coding. - Kiev: Higher school, 1986. 238 p. 4. Radio engineering information transmission systems: Textbook for universities / VA Борисов, B.A. Kalmykov, Ya.M. Kovalchuk et al. / Ed. V.A. Kalmykova. - M.: Radio and communication, 1990. - 304 p. 5. Olifer V., Olifer N. "Computer networks. Principles, technologies, protocols ": Textbook for universities 5th ed. - : Пітер, 2016. - 992 с. Supporting literature: 1. Zyuko AG Elements of information transfer theory. - Kiev: "Technology" 1969. - 300 p. 72. Penin PI, Filippov LI Radio technical systems of information transmission: Textbook for universities. -M.: Radio and communication, 1984. -256p 3. Ignatov VA Theory of information and signal transmission. - M.: Sov.radio, 1979. - 280 s. Methodical instructions for different types of classes:																		

		1. Methodical instructions for laboratory work "Technical organization of multimedia information transfer to a computer network and video broadcast on Youtube and Facebok" / Compilers SV Шаповалов, В.М. Danilov and others - Kharkiv: KNURE, 2019. - 10 p.
16.	Syllabus developer	Associate Professor of MIREs, Shapovalov Sergey Viktorovich, serhii.shapovalov@nure.ua