

Syllabus Form of Academic Discipline

№	Field name	Detailed content, comments
1.	Name of the faculty	Information radio technologies and technical protection of information
2.	The level of higher education	Bachelor
3.	Code and title of specialty	172 - Telecommunications and radio engineering
4.	The type and title of the educational program	Educational and professional program "Media Engineering
5.	Code and title of the discipline	OK 2.4 Acoustics and acoustic devices
6.	Number of ECTS credits	3
7.	The structure of the course (distribution by type and hours of training)	Lectures - 20 hours; practical classes - 6 hours; laboratory classes - 16 hours; independent work - 48 hours; semester control - combined exam.
8.	Schedule (terms) of study of the subject	Course - 2; semester - 4.
9.	Prerequisites for learning the discipline	The following disciplines should be studied earlier: higher mathematics, physics, basics of electronics; skills of numerical calculations, skills of conducting a physical experiment and processing its results, skills of computer modeling, assembly and understanding of electrical circuits should be acquired.
10.	Abstract (content) of the discipline	Content module 1. Basic definitions. Physiology of hearing. Topic 1: Sound oscillations and waves Topic 2: The main properties of sound wave propagation. Topic 3: Basic properties of human hearing. Language. Content module 2. Acoustics of premises. Topic 4: The main provisions of the propagation of sound waves in the room. Content module 3. Electroacoustic transducers. Topic 5: Principles of electroacoustic transformation in the heads of loudspeakers (GG). Topic 6: Microphones. Topic 7: Acoustic design.
11.	Competencies, knowledge, skills, understanding that a higher education acquirer has in the learning process	As a result of studying the discipline, students will: know: basic properties of sound signals and sound field, physiological features of sound signals perception, sound formation mechanisms, methods of acoustic oscillation modeling, sound field estimation methods, purpose, technical characteristics, design

		features of basic electroacoustic transducers and their practical use; be able to: analyze the sound field of different sources, perform calculations of energy characteristics of acoustic oscillations, evaluate the acoustic properties of different materials, perform calculations of elements of different electroacoustic transducers by methods of electrical analogies; have: skills of systems thinking for the design, creation, testing and maintenance of acoustic devices for various purposes, taking into account modern multimedia technologies, advanced element base, computer-aided design systems in analog and digital formats.
12.	Learning outcomes of a Higher Education applicant	Ability to independently solve problems on the creation and maintenance of electro-acoustic devices, acoustic calculations of premises and their sound, use multimedia, maintain the acquired qualifications at the level of modern requirements, the ability to obtain and understand the necessary information from various sources and conduct business communication, ability to comprehensively solve problems of social activity, instrumental, general scientific and professional problems.
13.	Assessment system in accordance with each task for taking tests/exams	For the final control in the form of a combined exam, the final grade is calculated by the formula $O_{\text{л}}^{\text{екз}} = 0.6 \cdot O_{\text{сем}} + 0.4 \cdot O_{\text{екз}}$ where $O_{\text{екз}}$ - grade for the exam in a 100-point system, $O_{\text{сем}}$ - grade for the semester in a 100-point system. The ticket for the exam consists of two questions of theoretical material and a task. Theoretical questions are evaluated in $30 \times 2 = 60$ points, and the problem - in 40 points (in total - 100 points). To evaluate the student's work during the semester, the final rating score of Eight is calculated as the sum of grades for different.
14.	The quality of the educational process	The quality of the educational process is based on: - policy of academic integrity; - continuous updating of the content of the discipline on the basis of obtaining the results of modern scientific research and achievements in the field of electroacoustics, architectural acoustics, new data on the study of the physiology of hearing;

		- modern practical experience gained in the design of auditoriums and acoustic calculations of specialized premises.
15.	Methodological support	1. Electroacoustics and sound broadcasting: A textbook for universities / IA Aldoshina, EI Vologdin, AP Efimov, etc .; Ed. Yu. A. Kovalgin. - M: Hotline-Telecom, Radio and communication, 2007. - 872 p. 2. Broadcasting and electroacoustics: Textbook. manual for universities / SI Alyabiev, AV Vykhodets, R. Germer, etc .; Ed. Yu. A. Kovalgin. M .: Radio and communication, 2000. - 792 p. 3. Sapozhkov MA Electroacoustics. Textbook for universities. M., "Communication", 1978. - 272 p. 4. Sapozhkov MA Sound recording of open spaces. - M., Radio and communication, 1985. - 304 p. 5. Handbook of radio broadcasting / AV Vykhodets, VM Zaharin, VI Денисов; Under common. ed. AV The Native. - K .: Техшка, 1981.-264 с. ил. - Bibliogr .: p. 255-258. 6. Ificher, Emmanuel S. Jervis, Barry Wu, Digital Signal Processing: A Practical Approach, 2nd Edition: Per. with English - M .: Издательский дом "Виляме", 2004. - 992 с: ил. -Pral. tit. English 7. Anert V., Reichardt V. Fundamentals of sound amplification technique.- M., Radio and communication, 1984. - 320 p., Ill. 8. Vakhitov Ya.Sh. Theoretical foundations of electroacoustics and electroacoustic equipment. - M., Art, 1982. - 415 p. 9. Complex of educational and methodical support of the discipline "Applied Acoustics" for the preparation of a bachelor's degree in specialty 171 - "Electronics" / Uporyad. VO Pososhenko - Kharkiv: KhNURE, 2017. - 157p.
16.	The developer of the Syllabus	Assoc. Prof., Pososhenko VO, vitalii.pososhenko@nure.ua