

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	171 Electronics
4.	The type and title of the educational program	Multimedia systems, technologies and computer tools
5.	Code and title of the discipline	Applied acoustics
6.	Number of ECTS credits	4
7.	The structure of the course (distribution by type and hours of training)	Lectures - 24 hours; practical classes - 8 hours; laboratory classes - 16 hours; independent work - 64 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. Analog means of electroacoustic signal processing. Topic 1. Introductory. Purpose and means of conversion of electroacoustic signals. The concept of their volume. Topic 2. Level regulators. Their varieties and practical implementation. Topic 3. Stereo regulators. Width, direction and panorama controls when playing an acoustic picture. Topic 4. Manual spectrum regulators. Mixers and switching devices. Topic 5. Amplifiers of electroacoustic signals. Topic 6. Automatic level controllers. Topic 7. Static and dynamic parameters of automatic level controllers. Topic 8. Systems and devices for noise reduction. Topic 9. DNL system suppressor. Topic 10. Noise suppressor system "comander-expander". Content module 2. Representation of electroacoustic signals in digital format. Topic 11. Digitization of electroacoustic oscillations. Topic 12. Reverse signal reproduction from digital to analog format.

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: principles and methods of application of mathematical description and procedures of modeling of processes of processing of acoustic signals, hardware realization of acoustic devices with controlled frequency response and amplitude characteristics, systems of suppression of disturbances at record and reproduction of musical programs and signals from various systems -timedia; be able to: use the acquired knowledge and skills for modeling, analysis and practical implementation of complex acoustic signal processing systems in accordance with a specific technical task, to use for this purpose as typical industrial equipment of leading manufacturers and to create original designs of specific acoustic devices; have: system thinking skills 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, 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, the ability to comprehensively solve problems of social activities, tools 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.

		types of classes and control measures.
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. - К .: Техшка, 1981.-264 с. il. - 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