

№	Field name	Detailed content, comments
1.	Name of the faculty	Faculty of information radio technologies and technical information security
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	Media Engineering
5.	Code and title of the discipline	ББ2.1 Tools and technologies of 3-D graphics
6.	Number of ECTS credits	3
7.	The structure of the course (distribution by type and hours of training)	Lectures - 4 hours, practical - 20 hours, laboratory work - 12 hours, consultations - 6 hours, independent work - 48 hours, semester control - credit
8.	Schedule (terms) of study of the subject	Course - 1 accelerated, semester - 1
9.	Prerequisites for learning the discipline	Introduction to the specialty
10.	Abstract (content) of the discipline	Theoretical foundations of computer graphics, basic principles of polygonal modeling, rules for creating three-dimensional models, their topology, scanning, texturing and rendering.
11.	Competencies, knowledge, skills, understanding that a higher education acquirer has in the learning process	General competencies: 1. Ability to abstract thinking, analysis and synthesis. 2. Ability to apply knowledge in practical situations. 4. Knowledge and understanding of the subject area and understanding of professional activity. 7. Ability to learn and master modern knowledge. 8. Ability to identify, pose and solve problems. Professional competencies: 1. The ability to understand the essence and significance of information in the development of the modern information society. 2. Ability to solve standard tasks of professional activity on the basis of information and bibliographic culture with the use of information and communication technologies and taking into account the basic requirements of information security. 3. Ability to use basic methods, processing and storage of information. 4. Ability to perform computer simulations of devices, systems and processes using universal application packages. 6. Ability to perform instrumental measurements in information and telecommunication networks,

		telecommunication and radio systems. 8. Ability to promote the introduction of advanced technologies and standards. 10. Ability to carry out installation, adjustment, adjustment, adjustment, experimental check of working capacity, tests and commissioning of constructions, means and equipment of telecommunications and radio engineering. 11. 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. Ability to carry out work on load management of information and telecommunication networks. 15. Ability to perform calculations in the process of designing structures and means of information and telecommunication networks, telecommunication and radio systems, in accordance with the terms of reference using both standard and software design automation.
12.	Learning outcomes of a Higher Education applicant	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. P3. To define and apply in professional activity methods of tests of information and telecommunication networks, telecommunication and radio engineering systems for compliance with the requirements of domestic and international regulations. P4. Explain the results obtained as a result of measurements, in terms of their significance and relate them to the relevant theory. P5. Skills of evaluation, interpretation and synthesis of data information. P8. Describe the principles and procedures used in telecommunications systems, information and telecommunications networks and radio engineering. P9. Analyze and evaluate the effectiveness of methods for designing information and telecommunications networks, telecommunications and radio systems. P13. Application of basic and applied sciences for analysis and development of

		processes occurring in telecommunication and radio systems. P15. Application of understanding of means of automation of design and technical operation of telecommunication systems and radio engineering in professional activity. P18. Find, evaluate, and use information from a variety of sources to solve professional problems, including reproducing information through electronic search. P19. Carry out standard tests of information and communication networks, telecommunication and radio systems for compliance with the requirements of domestic and international regulations. P20. Explain the principles of construction and operation of hardware and software systems of control and maintenance systems for the development, analysis and operation of information and telecommunications networks, telecommunications and radio systems. P21. Ensure reliable and high-quality operation of information and communication networks, telecommunication and radio systems. 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 in accordance with each task for taking tests/exams	To evaluate the student's work during the semester, the final rating is calculated as the sum of grades for different types of classes and control activities.
14.	The quality of the educational process	The policy of academic integrity, updating the content of the discipline on the basis of modern practices, scientific achievements, recommendations of employers.
15.	Methodological support	1. Murdock, Autodesk Maya 2019 Basics Guide/ Kelly L. – SDC Publications, 2019 – 576p. 2. Autodesk Maya 2019: A Comprehensive Guide / Sham Tickoo – CADCIM Technologies, 2019. — 812 p. 3. Компьютерная анимация. Создание 3D-персонажей в Maya / Алексей Сафонов – Питер, 2012 – 208с. 4. Большаков В.П. Основы 3D-моделирования / В.П. Большаков, А.Л.

		Бочков. СПб.: Питер, 2013.- 304с. 5. Создание персонажей в Maya: моделирование и анимация Maya Character Creation / Крис Мараффи — М.: «Вильямс», 2004. —.448с. 6. Создание персонажей в Maya. Моделирование и анимация / Крис Мараффи, 2004 – 448 с. 7. Методичні вказівки до практичних занять з дисципліни «Засоби та технології 3-D графіки» для студентів спеціальності «172 Телекомунікації та радіотехніка» / Упоряд.: Толстих Є.Г.,Бобнев Р.О. – Харків: ХНУРЕ, 2019. 8. Методичні вказівки до лабораторних занять «Засоби та технології 3-D графіки» для студентів спеціальності «172 Телекомунікації та радіотехніка» / Упоряд.: Толстих Є.Г., Бобнев Р.О. – Харків: ХНУРЕ, 2019.
16.	The developer of the Syllabus	Senior lecturer Yelyzaveta Tolstykh, yelyzaveta.tolstykh@nure.ua