Syllabus Form of Academic Discipline

№	Field name	Detailed content, comments
1.	Name of the faculty	Faculty of Infocommunications
2.	The level of higher education	Bachelor's
3.	Code and title of specialty	175 Information and Measurement Technologies
4.	The type and title of the educational program	Educational professional program «Quality of Products, Processes and Software»
5.	Code and title of the discipline	Measurement Methods and Tools
6.	Number of ECTS credits	12
7.	The structure of the course (distribution by type and hours of training)	Lectures – 72 hours, practical – 40 hours, laboratory – 32 hours, consultations – 24 hours, independent work – 192 hours (including coursework – 30 hours), semester control – exam.
8.	Schedule (terms) of study of the subject	3th and 4th year, 6th and 7th semester of study
9.	Prerequisites for learning the discipline	Physics, Fundamentals of Metrology and Measuring Technologies, Fundamentals of Electrical Engineering and Electronics should be previously studied
10.	Abstract (content) of the discipline	Content module 1. Classification and main characteristics of analog measuring devices. Content module 2. Electromechanical measuring devices. Content module 3. Methods and means of measuring voltage and current. Content module 4. Methods and means of measuring the parameters of electric circuits with concentrated constants. Content module 5. Devices for observing and studying the shape and parameters of signals. Content module 6. Methods and means of frequency measurement. Content module 7. Classification and main characteristics of digital measuring devices. Content module 8. Peculiarities of the structural schemes of the Center for Economic and Social Development. Content module 9. Digital comparison measuring devices. Content module 10. Digital measuring devices of tracking balancing. Content module 11. Digital measuring devices of unfolding balancing. Content module 12. Digital measuring devices with preliminary conversion.
11.	Competencies, knowledge, skills, understanding that a higher education acquirer has in the learning process	General competencies GC1. Ability to apply professional knowledge and skills in practical situations.

		GC8. Ability to learn and master modern knowledge. Professional competences PC2. The ability to design information and measurement equipment and describe the principle of their operation. PC9. Ability to debug and test certain types of devices in laboratory conditions and at facilities.
12.	Learning outcomes of a Higher Education applicant	Program learning outcomes PLO7. Be able to explain and describe the principles of building computing subsystems and modules used in solving measurement problems. PLO13. To know and be able to apply the existing means of modern information technologies to solve problems in the field of metrology and information-measuring technology.
13.	Assessment system in accordance with each task for taking tests/exams	Evaluation of the student's work during the semester: 1. Work out and defend laboratory works. 2. Complete tasks in practical classes. 3. Perform an individual calculation task. 4. Get at least 60 points per semester. 5. Take a combined exam. Grade for the semester $O_{\text{сем}}$: (6-10)x4 lab + (3-5)x10 pc + (6-10)x1CGT = (60-100) points. Grade for the exam $O_{\text{екз}}$ = (60-100) points. Final grade $O_{\text{д}}^{\text{екз}}$ is calculated according to the formula: $O_{\text{д}}^{\text{екз}} = 0,6 \cdot O_{\text{сем}} + 0,4 \cdot O_{\text{екз}}$.
14.	The quality of the educational process	Compliance with the principles of academic integrity (http://lib.nure.ua/plagiat). Update of the work program of the discipline – 2022. The laboratory workshop is equipped with modern analog and digital measuring devices.
15.	Methodological support	1. Kryukov, O.M. Analog measuring equipment [Text] / O.M. Kryukov, V.F. Tolstikov. – Kharkiv: Khnadu, 2007. – 448 p. 2. Konchalovsky, V.Yu. Digital measuring devices [Text] / V.Yu. Konchalovsky – M: Energoatomizdat, 1985. – 304 p. 3. Methodological instructions for practical classes and independent work in the discipline "Methods and means of measurement" for students of all forms of study of the specialty 175 Information and measurement technologies of the educational program

		"Quality of products, processes and software" [Electronic edition] / Edited by: O.V. Zaporozhets. – Kharkiv: KhNURE, 2022. – 54 p.
16.	The developer of the Syllabus	O.V. Zaporozhets, Associate Professor of the IMT Department, Ph.D., Associate Professor E-mail: oleg.zaporozhets@nure.ua