Syllabus Form of Academic Discipline
Using cloud technologies in embedded systems

№	Field name	Detailed content, comments
1.	Name of the faculty	IRTIS
2.	The level of higher education	Master's
3.	Code and title of specialty	171 Electronics
4.	The type and title of the educational program	Educational Program
5.	Code and title of the discipline	Using cloud technologies in embedded systems
6.	Number of ECTS credits	4
7.	The structure of the course (distribution by type and hours of training)	4 ECTS credits: 16 h. – 8 lecture, 6 h. – 3 practical lessons, 8 h. – 4 laboratory works, 6 h. – 3 consultations, 84 h. – independent work, type of control: test.
8.	Schedule (terms) of study of the subject	1 Course, 2 semester of study
9.	Prerequisites for learning the discipline	Disciplines that must be studied before: Microprocessor devices and systems; FPGA device design; Programming languages for scientific research
10.	Abstract (content) of the discipline	Elective discipline of basic (professional) training, the following content modules: Overview of cloud technologies, principles of using cloud technologies, and the use of cloud technologies in embedded systems.
11.	Competencies, knowledge, skills, understanding that a higher education acquirer has in the learning process	C1: Ability for abstract thinking, analysis, and synthesis. C2: Ability to apply knowledge in practical situations. C4: Ability to conduct research at an appropriate level. C5: Ability to search, process, and analyze information from various sources. Competency 6: Ability to generate new ideas (creativity). Sk1: Ability to assess the level of existing electronic industry technologies in the field of professional activity, the effectiveness of technical solutions. Sk4: Ability to use information, computer, and multimedia technologies, modeling methods, intellectualization, artificial intelligence, experimental methods for the study and analysis of processes in electronic components, devices, and systems. Sk8: Ability to assess problem situations in the development, design, debugging, operation, and maintenance of electronic components, devices, and systems, formulate proposals for problem solving. Sk11: Ability to plan and conduct research using modern experimental methods and tools and computer modeling methods, analyze research results, justify conclusions, and recommendations.
12.	Learning outcomes of a Higher Education applicant	R1. Implement projects to modernize production and technologies in the electronics field, introduce the latest information, communication, and multimedia technologies. R2. Model and experimentally investigate objects and processes in electronics and electronic industry technologies. R7. Conduct information and scientific searches using scientific, technical, and reference literature, databases and knowledge bases, and other sources of information; critically assess and interpret existing knowledge and data, formulate directions for research and development,

		taking into account domestic and foreign experience. R8. Carry out and coordinate the development, selection, use, and modernization of necessary equipment, tools, and methods when organizing the production process, taking into account technical and technological capabilities, modern knowledge-intensive methods, means, and technical solutions. R12. Synthesize modern scientific knowledge in the field of electronics and apply it to solve complex scientific and technical problems, bring the obtained solutions to the level of competitive developments, and implement the results in business projects. R14. Research processes in electronic components, devices, and systems using modern experimental methods and equipment, computer modeling methods, perform statistical processing and analysis of experimental and calculation results.
13.	Assessment system in accordance with each task for taking tests/exams	To get a positive grade from "Using Cloud Technologies in Embedded Systems" requires students to grasp the following main sections of the discipline: general principles of using cloud technologies, peculiarities of using cloud technologies in embedded systems, security, and data confidentiality in cloud technologies. Students must complete and defend laboratory work and practical classes. The credit is assessed by a rating, which is defined as the number of points obtained by the student during the semester on a 100-point scale.
14.	The quality of the educational process	Adherence to the principles of academic integrity http://lib.nure.ua/plagiat, https://nure.ua/branch/akademichna-dobrochesnist-ta-zabezpechennja-jakosti-osviti. Development of the working program of the discipline - 2023. The laboratory workshop is equipped with access to cloud technologies.
15.	Methodological support	Complex of educational and methodical support of educational discipline " Using cloud technologies in embedded systems" for master's of education: 171 - " Electronics" Educational Program «Microprocessor System Engineering» [Electronic resource] / KNURE; Edited by: I.V. Svyd, V.S. Chumak . – Kharkiv, 2023. - 70 p.
16.	The developer of the Syllabus	Svyd Iryna, Head of Department of MTS, Candidate of Technical Sciences, Associate Professor, iryna.svyd@nure.ua Chumak Valeriia, Assistant the Department of MTS, valeriia.chumak@nure.ua