MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

RIVNE STATE UNIVERSITY OF HUMANITIES

EDUCATIONAL AND PROFESSIONAL PROGRAM 015 PROFESSIONAL EDUCATION (COMPUTER TECHNOLOGIES)

THE LEVEL OF HIGHER EDUCATION	**The second (master)**
THE DEGREE OF HIGHER EDUCATION	**Master**
BRANCH OF KNOWLEDGE	**01 Education/Pedagogy**
SPECIALTY	**015 Professional education (Computer Technologies)**

APPROVED BY THE ACADEMIC COUNCIL

The head of the academic council

/_____/ professor, Postolovskyi R. M.

(protocol No ____ dated _____, 2019)

The educational program is put into effect from _____2019.

Rector /_____/ professor, Postolovskyi R. M.

(Order No _____ dated "___"_____ 2019)

Rivne, 2019

1. Educational program profile in the specialty 015 Professional Education (Computer Technologies)

1 – General information	
Full name of higher educational institution and structural unit	Rivne State University of Humanities. Faculty of Mathematics and Informatics.
The degree of higher education and the name of the qualification in the language of the original	Магістр з професійної освіти (комп'ютерні технології), інженер-програміст, викладач комп'ютерних дисциплін Master of Professional Education (Computer Technology), software engineer, computer science teacher
The official name of the educational program	Professional Education (Computer Technology)
Type of diploma and the volume of the educational program	Master's degree, unitary, 90 ECTS credits, term of study 1 year 4 months.
Availability of Accreditation	National Agency of Quality Assurance in Higher Education
Cycle / Level	NQF Ukraine - 7th level, FQ-EHEA - second cycle, EQF-LLL - 7 level.
Prerequisites	Availability of a bachelor's degree, a specialist, a master's degree.
Language(s) of teaching	State (Ukrainian) language
The duration of the educational program	In accordance with the standard of higher education, but not more than 5 years
Internet address of the permanent description of the educational program	www.fmi-rshu.org.ua
2 – The purpose of the educational program	
Training of highly qualified specialists capable of organizing the process of studying Informatics and Computer Technologies, it is effective and expedient to use the latest information and communication technologies in the educational process and management of educational institutions, to develop and improve software and information support for educational purposes, ready for further self-development and professional growth. Formation and development of professional competence of specialists of computer technologies in the field of software products and web-oriented resources, management of means of creation, processing, storage and protection of data, resources and software.	
3 - Characteristics of the educational program	
Subject area	*Objects of study and activity:* the structure and functional components of the system of vocational education; vocational training in the field of computer technology; modern computer technology educational and professional direction. *Training objectives:* training of specialists capable of carrying out educational activities for the professional training of qualified specialists in the field of computer technology, engineering training in the field of computer technology. *Theoretical content of the subject area:* *concept:* computer technologies, didactic principles of pedagogy, psychology, methodology of scientific research in the field of professional training of computer disciplines; computer technologies of statistical processing of experimental data, modern methods and technologies of design, implementation,

	management, analysis of didactic and technological projects in the field of computer technology; methods of design, organization, implementation, research in the field of vocational training; methods of teaching computer disciplines in institutions of higher education. *concepts:* paradigms, laws, regularities, principles, historical prerequisites for the development of education; educational innovations; description, research and solution of the problem or problem with the use of appropriate software, interpretation of the results and their practical application. *principles:* student-centered, competence-oriented, practice-oriented, interdisciplinary, virtualization of education and system structuring of information. *Methods, techniques and technologies and tools:* modern programming technologies; methods of data collection, analysis and storage; technologies and methods of design and development of information systems; methods of formalization of scientific, technical and software tools; methods of organization of the educational process, methods of formation of professional competence of students. *Tools and equipment:* didactic means (didactic materials); hardware and software (demonstration equipment, technologies of information systems development, applied packages of mathematical statistics, software for academic plagiarism detection); methodical means; bases for different types of practice .
Orientation of the educational program	Educational and professional
The main focus of the educational program and specialization	Formation and development of professional competence of the teacher of professional education in the field of computer technologies as an integration activity, including pedagogical and engineering components.
Features of the program	Interdisciplinary and multidisciplinary training of specialists
4 – Ability of graduates for employment and further training	
Ability for employment	Graduates can work with professions according to the National Classifier of Professions ДК 003: 2010: 213 Professionals in the field of computing (computerization) 2131 Professionals in the field of computing systems 2131.1 Researchers (computer systems) 2131.2 Computer system developers 2132 Professionals in the field of programming 2132.1 Researchers (programming) 2132.2 Computer software developers 2139 Professionals in other fields of computing (computerization) 2139.1 Researchers (other areas of computing) 2139.2 Professionals in other fields of computing 23 Teachers 231 Teachers of universities and higher education institutions 2310 Teachers of universities and higher education institutions 2310.2 Other University and higher education teachers 235 Other professionals in the field of education 2351 Professionals in the field of teaching methods 2351.1 Researchers (teaching methods) 2351.2 Other professionals in the field of teaching methods

	2359 Other professionals in the field of education 2359.1 Other researchers in the field of training 2359.2 Other professionals in the field of education
Academic rights of graduates **Continuation of education**	They have the right to continue their education at the third educational and scientific level of higher education and acquire additional qualifications in the system of postgraduate education. The opportunity to study under the programs of the third cycle (training for a doctoral degree), as well as professional development and additional postgraduate education.
5 – Teaching and assessment	
Teaching and learning	Teaching on the basis of student-centered and problem-oriented learning with using multimedia lectures, practical and laboratory classes, passing of practices, with the involvement of self-education. Educational and methodological support and consultation of independent work is carried out through the University virtual learning environment. In the third semester, more than half of the time is devoted to writing a thesis, which is presented and defended before the commission of scholars.
Assessment	*Types of control:* **by levels:** self-control, control at the level of the teacher, control at the level of the head of the Department, control at the level of the Dean, control at the level of the administration, state control; **over the period:** operational (input, current, intermediate, final) and delayed. *Forms of control:* verbal and written interviews; test control; presentation of scientific and creative work, laboratory work protection, defense of practice reports, defense of term papers (projects), certification (defense of qualifying work or complex examination). *Assessment of educational achievements:* 4-point national scale (excellent, good, satisfactory, unsatisfactory); 2-level national scale (enrolled / not accounted); 100-point system and ECTS scale (A, B, C, D, E, F, FX).
6 – Program competencies	
Integral Competence	The ability to solve complex problems and problems in the field of informatics and computer sciences, which involves research and/or innovation and is characterized by uncertainty of conditions and requirements.
General Competences (GC)	GC 1. Ability to abstract and critical thinking, the use of methods of mental activity (analysis, synthesis, comparison, etc.). GC 2. Ability to apply knowledge in practical and professional (standard and unfamiliar) situations. GC 3. Knowledge of lexical, grammar, stylistic features of state and foreign vocabulary, terminology in the field of information technologies, grammar structures for understanding and production of foreign texts in the professional field both verbally and in writing. GC 4. Ability to use information and communication technologies appropriately. GC 5. Ability to plan and manage the time. GC 6. Ability to learn and master the new knowledge.

	GC 7. Ability to generate new ideas (creativity), be proactive, demonstrate leadership skills. GC 8. Ability to identify and form problems in professional activity, to make substantiated solutions and to be responsible for them, to evaluate and ensure the quality of the work professionally. GC 9. Ability to communicate with representatives of other professional groups of different levels (with experts from other branches of knowledge / types of economic activity). GC 10. Ability to apply ways and methods of training, methods of self-education, to carry out scientific and research activity, using methods of searching, collecting, analyzing and summarizing data in professional and scientific activities. GC 11. Ability to understand the importance of information in modern society, to carry out information processes (search, processing and analysis of information from different sources), to be responsible to the issues of civil and information security. GC 12. Ability to act socially responsibly and consciously, taking into account the system of general norms of moral behavior of a person and a group of people, the principles of team work, readiness to interact with participants in the educational process and social partners, motivate others and move towards a common goal, adhering to regulatory acts and international standards. GC 13. Ability to practical realization of acquired in the process of learning the fundamental knowledge and skills on the theoretical and methodological aspects of pedagogical and production activity, principles of organization and forms of its conduct.
Professional Competences of the Specialty (PC)	PC 1. Ability to develop educational and scientific projects, demonstrate their implementation in practice and generalize them in scientific papers and scientific and technical reports. PC 2. Ability to manage IT-projects in the field according to the specialization, to carry out their informational, methodical, material, financial and personnel support. PC 3. Ability to design and develop software (web-applications, educational information systems, etc.) on the basis of object-oriented programming approach with corresponding models, methods and algorithms of computing, data structures and mechanisms for creation of IT-projects and cross-platform software systems. . PC 4. Ability to search, critically analyze, systematize scientific information, set goals for research, choose the optimal ways and methods for achieving them. PC 5. Awareness with conceptual and theoretical concepts of e-learning technologies in accordance with the model of distance education. PC 6. Ability to analyze and substantiate the theoretical concepts of psychology and pedagogy of higher and vocational schools for the

	implementation of professional activity in the educational and industrial spheres in accordance with the specialization. PC 7. Knowledge of theoretical foundations of test control at different stages of training, the rules of software selection for testing of academic achievements. PC 8. Ability to design, organize and conduct teaching and research activities in vocational education institutions and institutions of higher education. PC 9. Ability to formulate functional requirements for information management systems, develop technical tasks and choose appropriate algorithms, technical and software tools for their solution. PC 10. Ability to carry out a comparative description of the hardware and software of a personal computer and robotic equipment; to carry out updating and modernization of computer and robotic equipment. PC 11. Ability to analyze, identify and evaluate potential threats, vulnerabilities and destabilizing factors of the information space of the user and information resources. PC 12. Ability to design, develop and implement applied web applications using modern software tools and web-development technologies to create information resources and web services, to introduce innovative information technologies into the educational process, including models of distance and blended learning models.
7 – Program learning results	
Knowledge	PLR 1. Knowledge of methodological approaches, principles and general scientific and special methods of scientific and pedagogical research, identification of research problems and the formulation of own research directions. PLR 2. Knowledge of the basic theoretical, methodological and organizational foundations of project IT-management: the principles of personnel and resources management, basic approaches to make decisions and implementation of modern management systems in professional activities in accordance with specialization in conditions of incomplete / insufficient information and conflicting requirements. PLR 3. Knowledge of methods and means of component-oriented design, educational information systems; understanding of modeling standards and software development techniques of an object-oriented programming paradigm. PLR 4. Knowledge of the methodology (methods and means of obtaining, storing and processing information) knowledge engineering, theoretical and practical foundations of creating knowledge models and means of their presentation. PLR 5. Know the functions and models of distance learning, regulatory documents of the distance learning system, technologies for designing

Ability	distance learning courses and the methodology for developing their content. PLR 6. Knowledge of the theory and methodology of engineering-pedagogical education (principles, methods, procedures for designing the content of education (curricula, specialties) and the discipline, selection and structuring of educational material). PLR 7. Know the psychological and pedagogical foundations of test development, the organization of databases on tasks and the directions of their use in educational activities. PLR 8. Know the modern models of knowledge representation in intellectual systems and the peculiarities of creating intelligent control systems PRN 9. Know the structure and characteristics of the elements of a personal computer, robotic systems, methods and principles of their configuration and testing. PLR 10. Know the mechanisms of functioning of hardware and software to protect personal and corporate information from harmful effects and malicious actions. PLR 11. Possess modern technologies for developing web services, know the peculiarities of architectural models of web applications, data transfer protocols in networks, their routing, to possess with the tools for managing, analyzing and supporting developed applications. PLR 12. Ability to organize the educational process (collaboration in a team) of students, manage project activities, carry out pedagogical control and monitoring of their learning results, apply the latest methods and tools of educational research, formulate conclusions and prepare the results of scientific works for public disclosure. PLR 13. Ability to plan, organize, regulate, obtain optimal strategy of collective activity, interpersonal communication and interaction for realization of IT-projects taking into account available resources and time constraints. PLR 14. Ability to design software, including modeling its structure, behavior and processes of operation using modern object-oriented programming tendencies, independently develop and assemble components of software (including educational) information systems. PLR 15. Ability to carry out systemaologic research using deterministic and systemaologic classification analysis methods in knowledge engineering for projecting elements of knowledge bases, knowledge-oriented systems. PLR 16. Ability to simulate the process of distance learning using modern computer technologies for system, functional, design, technological design and development of information systems for

	educational purposes; to create elements of educational activity in accordance with the requirements of distance education. PLR 17. Ability to apply forms, methods and techniques of personal development of a specialist; to use the knowledge of pedagogy in teaching process, team management; to apply psychological and pedagogical knowledge in the organization of educational, research activities, to establish a pedagogical interaction with students. PLR 18. Project a test according to the goals set, to organize the testing process using ICT; develop instructions for those who are tested and those who carry on testing; to work out the results of testing using ICT, to compare different forms and means of monitoring the educational process. PLR 19. Ability to apply intelligent technical means for automation management processes in professional activity. PLR 20. Ability to use hardware and software tools for diagnostics and selection of the configuration of a personal computer, robotic complexes. PLR 21. Ability to use the basic concepts of the legal framework for the protection of information in compliance with world standards and ways of protecting information to ensure and maintain a resource management system (personal, software and hardware) in accordance with the established security policy. PLR 22. Ability to design, develop and implement modern web-based applications and web services, customize the environment, use libraries, modules and frameworks, ensure database interaction, session support, data visualization, and security from standard attacks. PLR 23. Ability to carry out educational communication between the participants of the educational process, to perceive and to provide educational and scientific information. PLR 24. Ability to improve with high level of autonomy acquired during training qualification and to design directions for further professional growth and self-development.
Communication **Autonomy and responsibility**	
8 – Resource support for the implementation of the program	
Personnel support	Conducting lectures on educational disciplines by scientific and pedagogical workers of the corresponding specialty having a degree and / or academic rank and working at their main place of work is more than 50% of the number of hours determined by the curriculum; having academic degree or doctorate title of professor - over 25%
Material and technical support	Material and technical support complies with licensing requirements for providing educational services in the field of higher education and is sufficient to ensure the quality of the educational process. Department rooms with the appropriate equipment and inventory: six computing laboratories equipped with computer equipment, integrated into the local network, which is connected to the Internet$ there is a multimedia class and four multimedia projectors, screens.

	According to the agreement on participation of the University in the Microsoft Developer Network Academic Alliance, the following training software is provided by Microsoft on licensed software: • perating systems of the MS Windows family and SlackWare Linux 14; • database servers Microsoft SQL Server 2012 Std. R2; • visual programming environments Microsoft Visual Studio 2012; • RDBMS Microsoft Visual FoxPro 9; • visual design tools MS Office Visio; • package of office applications LibreOffice; Microsoft Office 2013 Pro Plus. Other software is used freely and does not require licensing
Information and teaching and methodological support	Use of the virtual learning environment of the Rivne State University of the Humanities and the author's scientific works of the teaching staff.
9 – Academic mobility	
National Credit Mobility	It is regulated by the Resolution of the Cabinet of Ministers of Ukraine No. 579 “On Approval of the Regulations on the Implementation of the Right to Academic Mobility” of August 12, 2015.
International Credit Mobility	On the basis of bilateral agreements between the Rivne State University for the Humanities and foreign educational establishments.
Teaching foreign applicants for higher education	Possible.

3. The certification form of the applicants for Higher Education

The certification of graduates of the educational program by the specialty 015.10 Professional education (Computer Technologies) held in the form of defense of thesis or preparation of complex examination on specialty and completion of the issuance of the diploma of the established sample about awarding him a master's degree with qualification: Master of Secondary Education, lecturer of Informatics. Teacher of Informatics. Expert in computer science.

The certification is carried out openly and publicly.

The certification forms of the applicants for Higher Education	Certification of graduates of the educationalprofessional program "Professional education (Computer Technologies)" in the specialty 015.10 Professional education (Computer Technologies) is carried out in the form of public defense of the thesis or qualification examination
Requirements of thesis and its public defense	The degree thesis is educational and scientific work of the applicant of higher education, which is performed at the final stage of obtaining the qualification of master of professional education (computer technologies), software engineer, teacher of computer disciplines to establish compliance with the applicants of higher education General and professional competencies (program learning outcomes).
Requirements of attestation exam (exams)	The specialty qualification examination is conducted in writing. The specialty qualification examination is conducted like complex verification of knowledge of the applicants for Higher Education professionallyoriented theoretical preparation for papers folded in full accordance with state certification programs. The tickets content of specialty qualification examination covers the material of profile disciplines within their programs. Paper set approved and signed by the Head of the Department.

6. System of internal quality assurance of higher education

The Rivne State University of the Humanities has a system for providing higher education establishment with quality education and higher education quality (internal quality assurance system), which provides for the following procedures and activities:

1) definition of principles and procedures for ensuring the quality of higher education;

2) monitoring and periodic review of educational programs;

3) annual evaluation of higher education graduates, scientific and pedagogical and teaching staff of a higher educational establishment, and regular publications of the results of such evaluations on the official website of the higher educational establishment, on information billboards and in any other way;

4) providing the professional development of pedagogical, scientific and scientific and pedagogical workers;

5) providing the availability of the necessary resources for the organization of the educational process, including the independent work of applicants for higher education for each educational program;

6) providing the availability of information systems for the effective management of the educational process;

7) providing publicity of information about educational programs, degrees of higher education and qualifications;

8) providing an effective system of preventing and detecting academic plagiarism in scientific works of higher education and higher education graduates;

9) other procedures and activities.

The system of providing by the higher education establishment with the quality of educational activity and the quality of higher education (the system of internal quality assurance) may, upon submission by the Rivne State University of the Humanities, be assessed by the National Agency for the Quality Assurance of Higher Education or independent establishments accredited by it, for the assessment and quality assurance of higher education on the subject of its compliance with the requirements systems of quality assurance in higher education, approved by the National Agency for the Quality Assurance of Higher Education, and international standards and guidelines for quality assurance.

In addition, there is a list of EP components and their structural logic, as well as an explanatory note to the EP.