

II. THE TOTAL CHARACTERISTIC

The total characteristic	
Level of higher education	The first (bachelor) level
Degree of higher education	The bachelor
Field of study	15 – Automation and instrument making
Program subject area	151 – Automation and computer-integrated technologies
Qualification	The bachelor of automation and computer-integrated technologies
The complete name of qualification a source language	A degree of higher education - the bachelor, a program subject area - Automation and computer-integrated technologies
Qualification in the diploma	A degree of higher education - the Bachelor Program subject area - 151 – Automation and computer-integrated technologies Specialization - (for necessities to specify the name of a specialization) Educational program - (to specify the name)
The description of data domain	<p><i>The object:</i> technical, program, mathematical, information and organizational supports of systems of automation of objects and processes in various fields of activity using modern microprocessor and computer equipment, the specialized applied software and information technologies.</p> <p><i>Learning objectives:</i> training of the specialists capable to complex problem solving of development new and modernizing and operating existing automation systems and computer-integrated technologies using modern software and hardware and information technologies, performing theoretical researches of the automation object, justifying the choice of hardware components of automation, designing automation systems and developing application software for various purposes.</p> <p><i>Theoretical contents of the subject area.</i> The concept and principles of the theory of automatic control, automation systems and computer-integrated technologies.</p> <p><i>Methods, techniques and technology.</i> The competitor must master the methods and software of modeling, designing, automated management of complex organizational and technical objects, information technology; knowledge of technical means of automation, skills to develop application software for various purposes for automation systems.</p> <p><i>Tools and equipment:</i> modern software and hardware and computer-integrated technologies for designing, modeling, research and operation of automation systems.</p>
The academic rights of graduates	Possibility of instruction the program second (masters) level of higher education. The acquisition of additional qualifications in the system of postgraduate education.

III. Size of credits ECTS, necessary for obtaining first (bachelor) degrees of higher education:

on the basis of complete general secondary education, 240 ECTS credits;

on the basis of a degree « junior bachelor » (junior specialist education and qualification level), a higher education institution has the right to recognize and transfer no more than 120 ECTS credits received within the previous educational program for the preparation of junior bachelor (junior specialist).

At least 50% of the educational program should be aimed at providing general and professional competencies in a specialty defined by the Standard of Higher Education
Production practice must be at least 4 ECTS credits.

IV. The list competence the graduate

Integrated competence	The ability to decide complex specialized tasks and practical problems that are characterized by integrated approach and uncertainty of conditions during professional activities in the field of automation and instrumentation, or in the learning process, which provides the application of theories and methods of the field.
General competencies	<p>K01. Ability to apply knowledge in practical situations.</p> <p>K02. Ability to communicate in the state language both verbally and in writing.</p> <p>K03. Ability to communicate in the foreign language</p> <p>K04. Habits of usage information and communication technologies.</p> <p>K05. Ability to search, process and analyze information from various sources.</p> <p>K06. Habits of realization of safety activity.</p> <p>K07. Tendency to saving a circumambient.</p> <p>K08. Ability to work in a team.</p> <p>K09. Ability to implement the rights and duties as member of a society to understand worth civil (free democratic) societies and necessity of its constant evolution, the rule of law, the rights and freedom of the person and the citizen in Ukraine;</p> <p>K10. Ability to save and increase moral, cultural, scientific values and reaching of a society on the based on an understanding of the history and legitimacies of evolution of data domain, its place in the common system of knowledge of the nature and a society and in evolution of a society, engineering and technologies to use different types and forms of impellent activity for productive recreation and support of a healthy lifestyle.</p>
Special (trades, subject) competence	<p>K11. Ability to apply knowledge of mathematics, in scope, necessary for usage of mathematical methods for the analysis and a synthesis of automation systems.</p> <p>K12. Ability to apply knowledge of physics, an electrical engineering, an electronics engineering and microprocessor engineering, in scope, necessary for fathoming of processes in automation systems and computer-integrated technologies.</p>

	<p>K13. Ability to perform analysis of automation objects based on knowledge of the processes that occur in them and to apply methods of the theory of automatic control to the study, the analysis and a synthesis of automatic-control systems.</p> <p>K14. Ability to apply methods of the systems analysis, mathematical simulation, identification and numerical methods for development of mathematical models of individual elements and systems of automation in general, for the analysis of quality their functioning using with usage of the newest computer technology.</p> <p>K15. Ability to be proved choice of hardware components of automation on the basis on an understanding of the principles of their work, of the analysis of their properties, purpose and technical characteristics, taking into account the requirements for the automation system and operating conditions; build technical automation equipment and control systems.</p> <p>K16. Ability to use for solving of professional problems the newest technologies in the field of automation and computer-integrated technologies, in particular, designing of multilevel control systems, data collection and archiving for the formation of the database of parameters of the process and their visualization with the help of resources of the human-machine interface.</p> <p>K17. Ability to be proved choice of technical structure and to know how to develop the applied software for microprocessor control systems based on local automation tools, industrial logic controllers and programmed logic arrays and signal processors.</p> <p>K18. Ability to design automation systems with the requirements of appropriate normative - legal documents and international standards.</p> <p>K19. Ability to freely use modern computer and information technologies for solving professional problems, to program and use applied and specialized computer-integrated environments for solving automation problems.</p> <p>K20. Ability to take into account social, environmental, ethical, economic aspects, the requirements of work protection, industrial sanitary and fire safety during the formation of technical solutions.</p> <p>K21. Accounting for the commercial and economic context in the design of automation systems..</p>
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V. A normative contents of preparation of the bachelor, formulated in periods of results of instruction

Program results of instruction
<p>ПП01. Know linear and vector algebra, differential and integral calculus, functions of many variables, functional series, differential equations for one and many changeable functions, operational calculus, complex replaceable function theory, probability theory and mathematical statistics, theory of random processes in the volume required for use mathematical apparatus and methods in the field of automation.</p> <p>ПП02. Know physics, electrical engineering, electronics and circuitry, microprocessor</p>

technology at the level necessary to solve typical problems and automation problems.

ПП03. To be able to apply modern information technologies and mother habits to develop algorithms and computer programs using high-level languages and object-oriented programming technologies, to create databases and to use Internet - resources.

ПП04. Understand the essence of the processes that occur in automation objects (beyond areas of activity) and be able to analyze the automation objects and justify the choice of structure, algorithms and control schemes based on the results of the study of their properties.

ПП05. To be able to apply the methods of the theory of automatic control to research, analysis and synthesis of automatic control systems.

ПП06. To be able to apply the methods of system analysis, modeling, identification and numerical methods for the development of mathematical and simulation models of individual elements and automation systems as a whole, to analyze the quality of their operation using the newest computer technologies.

ПП07. To be able to apply knowledge of the basic principles and methods of measurement physical quantities and basic technological parameters to substantiate the choice of measuring instruments and the evaluation of their metrological characteristics.

ПП08. Know the principles of operation of technical means of automation and be able to prove their choice based on an analysis of their properties, purpose and technical characteristics, taking into account the requirements for the automation system and operating conditions; have the habits of debugging technical automation equipment and control systems.

ПП09. To be able to project multilevel control systems and data collection to form a database of process parameters and visualize them using human-machine interface tools using the newest computer-integrated technologies.

ПП010. Be able to be proved the choice of structure and develop application software for microprocessor control systems based on local esources of automation, industrial logic controllers and programmed logic arrays and signal processors.

ПП011. To be able to perform work on the design of automation systems, to know the content and rules for the design of design materials, the composition of project documentation and the sequence of design work, in view of demands of appropriate normative - legal documents and international standards.

ПП012. To be able to use the various of specialized software for solution typical engineering problems in the field of automation, in particular, mathematical modeling, computer-aided design, database management, computer graphics methods.

ПП013. To be able to take into account social, environmental, ethical, economic aspects, requirements for the protection of work, industrial hygiene and fire safety during the formation of technical solutions. To be able to use different types and forms of physical activity for active recreation and maintaining a healthy lifestyle.

ПП014. To be able to use in production and social activities the fundamental concepts and categories of the creation of a state to substantiation their own ideological positions and political convictions, taking into account the processes of the socio-political history of Ukraine, legal foundations and ethical norms..

VI - FORMS OF CERTIFICATION OF CANDIDATE OF HIGHER EDUCATION

Forms of certification of candidate of higher education	Certification is carried out as public protection of qualifying operation
Requirements for qualification work	<p>Qualification work involves the solution of a complex specialized problem or a practical problem, using theories and specialty methods, which are characterized by complexity and uncertainty of conditions, during professional activity in the field of automation.</p> <p>Qualification work must be tested for plagiarism.</p> <p>Qualification work should be announced on the official website on the official website of the institution of higher education or its structural subsection, or in repository institutions of higher education.</p>

VII - Requirements to presence of the system of internal support of quality of higher education

The institution of higher education should have a system for ensuring that a higher education institution has the quality of educational activities and the quality of higher education (the internal quality assurance system), which provides for the implementation of such procedures and provisions:

- 1) determining of principles and procedures of support of quality of higher education;
- 2) the implementation of monitoring and periodic review of educational programs;
- 3) an annual estimation of competitors of higher education, scientific and pedagogical and pedagogical workers of a higher educational institution and regular notification of the results of such estimations on the official website of the institution of higher education, on information stands and in any other way;
- 4) the provision of improvement training for pedagogical, scientific and scientific-pedagogical workers;
- 5) ensuring the availability of the necessary resources for the organization of the educational process, including the independent work of students, for each educational program;
- 6) ensuring the availability of information systems for effective management of the educational process;
- 7) ensuring the publicity of information about educational programs, degrees of higher education and qualifications;
- 8) ensuring of observance with academic integrity by employees of higher education institutions and applicants for higher education, including the

creation and support of an effective system of prevention and identification of academic plagiarism;

9) other procedures and provisions.

The system of providing higher education institutions with the quality of educational activities and the quality of higher education (internal quality assurance system) is presented to the higher education institution by the National Agency for the quality assurance of higher education or independent institutions accredited by it for evaluation and the quality assurance of higher education for its compliance with the requirements for the security system qualities of higher education that are approved by the National Agencies.