8. Graduate model

	« 6B06103 - Computer systems and software engineering»	**«M06103, 7M06108 – «Computer systems and software engineering»**
Be able to:	- Work and repair equipment of modern computer technologies ; - Conduct software performance assessment - Evaluate software code for compliance with required quality criteria - Develop and implement procedures for assembling software modules and components . - Develop procedures for data migration and transformation (conversion) - Design typical databases , develop and optimize complex SQL queries . - Choose and use suitable ORM systems . - Develop functionality for working with the database .	- plan and organize scientific research; - use knowledge of fundamental sciences to solve specific research, information retrieval, and methodological problems; - use knowledge of university psychology and pedagogy in practical activities; - conduct an IT audit of the organization in order to identify weaknesses and concentrate resources to eliminate them ; - carry out coordination based on the results of the IT audit and technical specifications -to carry out long-term planning for the development of the organization's IT infrastructure - develop target indicators for the development of information technologies in the organization for the long term - analyze existing development plans and proposed projects in terms of their compliance with information needs, business development strategy and management organization . - organize the development of design solutions for infrastructure modernization - Develop plans for development and software and hardware re- equipment - develop regulations for the modernization and modification of software and hardware .

Know and understand:	- Preparation of the software development process, - Analysis of software requirements, Software design, Software programming and testing, Integration of software modules and software components. - Design, installation and maintenance of the organization's LAN; - Assembly, installation, configuration and maintenance of the organization’s server equipment; - Installation, configuration and maintenance of video surveillance systems, - organization's access control system; - Ensuring system security of the organization - Principles of designing DB schemas, query optimization, storing and reading data from DBMS (transactions, isolation levels, indexes) ORM systems	- the basics of fundamental sciences corresponding to the master's degree; –Identification of existing information systems and business processes –Technologies for the operation of information systems –Business planning methods –Business processes and organization strategy –Principles for developing a strategy for the development of information systems –Principles of construction and improvement of management systems of the organization –Principles of organizing the information technology infrastructure of an organization –Knowledge of modern software applications –to conflicting user requirements –international and national standards for the organization of IT infrastructure –t requirements for the characteristics of equipment and software –methods and ways of interaction between a software tool and its environment. –modern trends in IT development - knowledge of industry laws, rules, requirements, standards and other regulatory legal acts on issues .

	- modern trends in the development of computer technologies and ways of their application in research, design, production, technological and organizational and managerial activities ; - the basic principles of organizing the user interface with the software system; – methods of analysis, research and modeling of computational and information processes associated with the functioning of objects of professional activity and their components;	- in the application of methodological and methodological knowledge, conducting scientific research, pedagogical and educational work. - in writing scientific articles, theses , speaking at conferences, symposiums . - in working with lexographic sources in a foreign language (traditional and on - line) . **in** solving the problems of higher pedagogical education and the prospects for its further development; - in the issue of applying effective university teaching technologies; applications in the environment of modern database management systems (DBMS). In matters of the consept and meth of methodology analysis and synthesis of complex systems, principles of comnstruction of PCSU, based on the application of modern economic and mathematical methods, new information technology.

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