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## **PROFESSIONAL COMPETENCES OF SPECIALISTS FROM LABORATORY DIAGNOSTICS**

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Professional Competences of Specialists from Laboratory Diagnostics

In article reveals the basic professional competences of graduates of higher education in the specialty "Laboratory Diagnostics", singles out their differences and peculiarities characteristic for educational qualification of "Bachelor" and "Master".

We considered the general professional competences and specifically professional competences on each of these educational levels, which should have a graduate respective specialty.

When analyzing professional competencies that should possess bachelors and masters in specialty "Laboratory Diagnostics", we used educational qualification characteristics according to industry standards for higher education in Ukraine.

Along with certain common and characteristic for each educational qualification of professional competences, we revealed the following specific features: at bachelor in specialty "Laboratory Diagnostics" formed the ability to produce, at masters formed the ability to substantiate.

*Key words:* professional competences, general professional competences, specifically professional competences, laboratory diagnostics.

The issue of professional competence of specialists in laboratory diagnosis is important in the formation of two-tier higher education, since it requires examining and distinguishing features of these competencies among graduates which have different educational levels. Getting a person's medical education determine the specific problem and the amount of work that it can perform under this level.

The article is to define the basic professional competencies of graduates of higher education in the specialty "Laboratory diagnosis", singling out their differences and particular features of educational qualification of Bachelor and Master.

According to industry standards of higher education in Ukraine in educational qualification characteristics (hereinafter – EQC) Bachelor and Master of specialty

“Laboratory Diagnostics” defines the professional competence which should have a graduate student respective specialty. These competencies are divided into general-professional and specialized-professional [1; 2].

Comparative analysis EQC bachelors and masters showed that graduates should possess the following characteristic both educational levels, general-professional competencies:

- Know the basic provisions concerning the organization of laboratory services, equipment, workplace according to safety rules, compliance with the epidemiological regime in laboratories in various fields;

- Know the rules preparation laboratory glassware, tools, etc. for research and its decontamination (disinfection, washing, drying and sterilization);

- Know labeling reagents, storage rules, application in practice according to the procedures;

- Know the structure of different types of weights and rules for using them; perform calculations and produce solutions of different concentrations;

- To know the peculiarities of the patient for different types of research;

- Know the structural and functional relationships and general sequence of stages of pathological processes; pathology of organs, cells, causing manifestations of disease;

- Own methods of sampling biological material sampling, taking into account various factors: transport, storage and preparation of material etc. for research in the laboratories of different profiles according to requirements;

- Promote organization of work in laboratories in various fields;

- The ability to bind laboratory studies, hold them in strict sequence in accordance with the procedures;

- The ability to use modern methods of work in the laboratories of different profiles with the appropriate equipment, instrumentation, laboratory glassware, tools, etc.

- The ability to use modern microscopes in the study of native and stained preparations.

Among specialized-professional competencies typical for both educational levels graduates specialties “Laboratory Diagnostics” knowledge of basic legal documents: current orders and guidance letters Ministry of Health of Ukraine, environmental and sanitary-epidemiological status of region, country

Define general-professional and specialized-professional competencies that are specific to each educational qualification of separately (Table 1).

Table1

**The professional competence of graduates of higher education in the specialty “Laboratory Diagnostics”**

Education level	
Bachelor	Master
<b>Typical professional competence</b>	
<b>1. General professional:</b>	
<b>Basic knowledge:</b>	
<ul style="list-style-type: none"> <li>- Disease and pathos morphological changes of infectious diseases, diseases of the blood, respiratory, digestive, cardiovascular, nervous, endocrine, urinary, musculoskeletal system, diseases of pregnancy and the postpartum period, and avitaminosis, etc.;</li> <li>- The causes, risk factors, conditions of mechanisms and manifestations of pathological processes typical and most common diseases;</li> <li>- Constitution abnormalities of fetal development on the basis of heredity; importance of age-related changes and violations reactivity in the development of diseases;</li> <li>- Types and criteria carbohydrate protein, lipid, water and electrolyte metabolism and acid-base status;</li> <li>- Pathophysiological processes in diseases of the blood, circulatory system, respiratory, urinary, endocrine, nervous;</li> <li>- Extreme conditions (shock, collapse, coma, etc.);</li> <li>- The main symptoms and syndromes that characterize the disease, of blood, respiratory, digestive, cardiovascular, urinary system, connective tissues, endocrine system, etc., of course, diagnosis and differential diagnosis, and treatment;</li> <li>- Pathology infants (newborn disease), acute indigestion and chronic malnutrition, abnormalities constitution;</li> <li>- Somatic children diseases of internal organs (respiratory, cardiovascular, digestive, blood, urinary and endocrine systems);</li> <li>- Children's infectious diseases (especially tuberculosis and adolescents, children drip infections, acute intestinal infection, hepatitis, polio, etc.);</li> <li>- Infectious disease (intestinal infections, respiratory tract infections, blood, infection external covers, etc.), etiology, pathogenesis, clinical features, modern methods of diagnosis, prevention and treatment ;</li> <li>- Especially the taking of biological material for infectious diseases in compliance with occupational safety;</li> <li>- Rules of serums injections, vaccines, toxoids, immunoglobulin, etc.; of skin-allergic diagnostic tests;</li> <li>- A system of preventive and anti-epidemic measures in general and with certain infectious diseases under the existing documentation;</li> <li>- Etiology, main clinical symptoms, diagnosis, differential diagnosis of surgical diseases;</li> <li>- The physiology and pathology of pregnancy and the postpartum period, current problems of Perinatology;</li> <li>- The methods of examination of gynecologic patients, causes, symptoms, diagnosis typical gynecological diseases; emergency medical care;</li> <li>- Etiology, pathogenesis, clinical features, diagnosis, treatment, preventive measures skin and venereal diseases;</li> <li>- Symptoms of nervous diseases, the basic principles of examination, diagnosis, treatment and care for neurological patients;</li> <li>- Development mechanism, clinical features, course and treatment of patients with mental disorders of various origins, and prevention of extreme crisis in psychiatry; emergency first aid mentally ill in</li> </ul>	<ul style="list-style-type: none"> <li>- Pharmacokinetics and pharmacodynamics main groups of medicines, their pharmacological and adverse effects;</li> <li>- Pharmacological agents that act on the nervous system, respiratory function, cardiovascular, digestive system, blood system and myometrium, metabolism, etc., their impact on laboratory tests;</li> <li>- Emergency conditions pharmacotherapy for acute intoxications medicines and poisons;</li> <li>- The causes, risk factors, conditions of mechanisms and manifestations of typical and atypical pathological processes;</li> <li>- Forensic examination of living, forensic medical trauma, gunshot injury from modern weapons, thermal and chemical burns, toxicology, documentation expert research;</li> <li>- Forensic thanatology, examination of corpses, corpses fetus and newborn.</li> </ul>

<p>compliance with safety rules in the industry;</p> <ul style="list-style-type: none"> <li>- Etiology, pathogenesis, clinical features, differential diagnosis, treatment and prevention of major endocrine diseases, tuberculosis;</li> <li>- Modern classification of tumors, causes of their origin, pathogenesis, clinical features, diagnosis, differential diagnosis, treatment and prevention;</li> <li>- Diseases of the ear, nose and sinuses prynosnyh, their causes, symptoms, diagnosis, treatment;</li> <li>- Examination methods in ophthalmology; pathology of eye orbits, eye membranes, lens, optic nerve, glaucoma and injuries of eye;</li> <li>- Etiology, pathogenesis, clinical signs, diagnosis, treatment and prevention of diseases of the urinary system;</li> <li>- Modern methods of diagnosis of various diseases using the latest diagnostic technologies;</li> <li>- Lesions toxicology and radiology in conditions of peace and war;</li> <li>- The rules and features of search and selection of new laboratory and computer technology, scientific and medical literature and patent documents, etc. and their subsequent analysis.</li> </ul>	
<b>Modern views on:</b>	
<ul style="list-style-type: none"> <li>- Diseases of blood and lymph circulation, inflammation, immune pathological processes, tumors, etc.;</li> <li>- The role of microbial flora in the development of purulent surgical infection; rules of aseptic and antiseptic;</li> <li>- Instrument preparation, dressings, anesthetic equipment, anesthetics, etc. to the operational procedures in compliance with safety regulations, the basics of occupational safety and health in the industry.</li> </ul>	<ul style="list-style-type: none"> <li>- Healthy Living and dangerous factors of the risk of civilization diseases, alcoholism, HIV, drug abuse, metabolic syndrome, physical inactivity, disease “drug”; negative effects on health of smoking, use of modern computer technology etc.;</li> <li>- The impact of harmful environmental factors, chemicals (at home and at work), pollutants, various types of radiation, consumption of transgenic products and products with food additives, growth of urban population, stress etc.;</li> <li>- Changes in the structure of infectious diseases caused by protozoa, viruses, bacteria, fungi, etc., leading to increase in number and spread of epidemics, including influenza epidemics;</li> <li>- The impact of human activity in the modern world the formation and spread of genetically determined diseases.</li> </ul>
<b>Possession:</b>	
<ul style="list-style-type: none"> <li>- Methods of determining the qualitative and quantitative composition of substances and mixtures;</li> <li>- The main methods of patient examination in the clinic of internal medicine (medical history, physical examination, physical, instrumental and laboratory methods, etc.);</li> <li>- The main methods of examination of organs and systems in children;</li> <li>- The main methods of examination of surgical patients;</li> <li>- Skills of treatment and care of patients with various diseases therapeutic, pediatric, surgical, infectious and implementation of relevant medical procedures;</li> <li>- Basics desmurgy, transport, immobilization; stop bleeding in compliance with safety regulations, the;</li> <li>- The ability to provide emergency medical assistance in case of accidents, acute conditions and emergency situations of natural and techno genic character.</li> </ul>	<ul style="list-style-type: none"> <li>- Methods of decontamination of biological material;</li> <li>- The main methods of patient examination in the clinic of occupational diseases (history, physical examination, physical, instrumental and laboratory methods, etc.);</li> <li>- Methods of research and experimental work, independent research with the processing of the results using statistical methods, computer technology with the design of experiments protocols, reports, theses, articles, master's thesis;</li> <li>- Recognize the signs of toxic effects of drugs on the results of laboratory tests to prevent unwanted consequences;</li> <li>- To make the right choice the most effective and safe therapeutic agents for diseases specific character;</li> <li>- Monitor the impact of medications on the human body, evaluate their effectiveness in the application on the basis of laboratory measurements;</li> <li>- To the interpretation of laboratory results together all indicators of diagnostic, prognostic and therapeutic purposes;</li> <li>- Perform an advisory relationship with clinicians, doctors SES on the interpretation of indicators to diagnose disease, assess the effectiveness of treatment, prognosis and health of the patient;</li> <li>- Ability based on clinical protocols apply certain laboratory tests, inspect their efficacy and safety of diagnostic techniques for the benefit of the patient;</li> <li>- The ability to use file of periodicals, catalogs, Internet and more, search and selection of scientific and medical literature and patent documents and their subsequent analysis.</li> </ul>
<b>2. Specialized-professional</b>	
<b>Knowledge:</b>	
<ul style="list-style-type: none"> <li>- The normal range of general clinical, hematological, biochemical studies and their changes in various diseases;</li> <li>- Color smears simple and complex methods; defining morphology different groups of microorganisms - the structure of microbial cells;</li> <li>- Sanitary-bacteriological standards in accordance with the documentation;</li> <li>- Parameters hygiene standards;</li> <li>- The methods of calculation and collection statistic information processing methods.</li> </ul>	<ul style="list-style-type: none"> <li>- International anatomical classification of tumors TNM system (T - primary tumor, N - lymph nodes; M - metastasis) and by degrees of differentiation: G1 - highly differentiated tumor; G2 - the average degree of differentiation; G3 - low differentiation degree; G4 - undifferentiated tumor that can be used for all localizations of tumors;</li> <li>- The normal range of immunological research and its changes in a variety of pathologies interpretation of results;</li> <li>- Safety and life safety in terms of human presence in the environment and at work in laboratories in various fields;</li> <li>- Urgent medical care, general principles of intensive care, monitoring of medication using laboratory diagnostics; natural and man-made disasters, measures of emergency care by them.</li> </ul>
<b>Skill:</b>	
<ul style="list-style-type: none"> <li>- Give a conclusion on the basis of Knowledge of sanitary-bacteriological standards;</li> <li>- Monitor the quality of disinfection and sterilization.</li> </ul>	<ul style="list-style-type: none"> <li>- To develop preventive measures to eliminate or reduce the impact of negative factors in order to maintain and strengthen public health;</li> <li>- Have basic methods of determination of the immune status: the level of populations and subpopulations of T and B lymphocytes and their</li> </ul>

<ul style="list-style-type: none"> <li>- To provide pure cultures of microorganisms, automated microbiology systems, molecular genetic techniques</li> <li>- Possess the technical implanting and replanting material.</li> </ul>	<ul style="list-style-type: none"> <li>functional properties killer effects of macrophages and other immune cells;</li> <li>- Methods of setting own skin, inflammatory, allergy in vitro tests to identify the causative allergens;</li> <li>- Participate in the implementation of the state sanitary and epidemiological expertise, followed by the issuance of opinions on compliance with the sanitary requirements of Ukraine.</li> </ul>
<b>The ability to use professional - specialized knowledge, practical skills and abilities</b>	
<p style="text-align: center;"><b>for:</b></p> <ul style="list-style-type: none"> <li>- Blood collection in clinical-diagnostic laboratory</li> <li>- Measurement of natural and artificial lighting</li> <li>- Staining of histological sections general and special methods</li> <li>- Recognition of the different cell structures and specimens for electron, different types of tissue structures of various organs</li> <li>- Interpretation of the microscopic structure of various human relationships in terms of tissue that make up their composition at different ages</li> <li>- Fixing, marking, weighing laboratory animals, infected them in different ways;</li> <li>- Implementation of sanitary-bacteriological examination of environmental, food, bacteriological quality control of final disinfection</li> <li>- Entry forms results of analyzes, reports, acts of inspections, registration accounting records by type of research using computer technology in the field of laboratory medicine.</li> </ul>	<p style="text-align: center;"><b>for:</b></p> <ul style="list-style-type: none"> <li>- Immunecorrective choice of products;</li> <li>- Understanding the principles of classification and types uspadkuvan for the diagnosis of monogenic hereditary pathology genealogical method.</li> </ul>
<p style="text-align: center;"><b>for research:</b></p> <ul style="list-style-type: none"> <li>- Punctate bone marrow myelogram counting, determination of bone and brain index;</li> <li>- Gastric contents; duodenal contents, punctate liver and differentiation of elements in a variety of pathology;</li> <li>- Feces to diagnose scatological syndromes;</li> <li>- Cerebrospinal fluid (physical, chemical, cytosin, tsytohrama);</li> <li>- Liquids with serous cavities, morphological differentiation of cells;</li> <li>- For kolpotsytolohichnoho research to diagnosis, amenorrhea, uterine bleeding dyzfunktsionalnyh, pathological menopause, hormonal forms of female infertility etc.</li> <li>- Vaginal discharge for purity; mucus from the cervix and punctate from the rear arches; laboratory diagnosis of gonorrhea and trichomoniasis;</li> <li>- Semen and prostate secretion in various diseases of male genital organs</li> <li>- Spectrum enzyme in serum (<math>\alpha</math>-amylase, cholinesterase, ALT, AST, CK, <math>\gamma</math>-GTP, CF, LF, LDH and its isozyme spectrum)</li> <li>- Exchange indices porphyrin derivatives hemoglobin and liver function in biological material</li> <li>- Various diseases using rapid methods: radioimmunoassay method, immunofluorescence, imunoblotynhu immunoassay etc.</li> <li>- Cytological diagnosis of diseases of the digestive tract of the scheme: the norm, pathology; diseases and uterine cervix, ovary.</li> </ul>	<p style="text-align: center;"><b>diagnose:</b></p> <ul style="list-style-type: none"> <li>- Hereditary genetic disease;</li> <li>- Based cytology tumors of the digestive tract background, pre-cancerous, benign and malignant tumors of the cervix and uterine, ovarian, tumors of the skin; tumors of soft tissues (connective, fat, muscle, blood vessels of tumors, synovial membrane);</li> <li>- The morphological features of tumor cells maxillofacial area and neck;</li> <li>- Cancer screening practices and detection of tumor specific antigen Rights (tumor markers) in biological material;</li> <li>- Serologically detect soluble antigens serum and use monoclonal antibodies labeled with radioisotopes for immunodiagnostic malignant tumors.</li> </ul>
<p style="text-align: center;"><b>determine:</b></p> <ul style="list-style-type: none"> <li>- Periods of embryogenesis, malformations rights;</li> <li>- Reticulocytes, osmotic resistance of red blood cells, platelet count, hemostasis systems and so on;</li> <li>- Blood group, Rh, Rh antibodies and their titer;</li> <li>- Exchange rates of simple proteins (total protein, protein fractions, C-reactive protein) and end products of protein metabolism (urea, creatine, creatinine and uric acid);</li> <li>- Indicators of carbohydrate (glucose, pyruvic acid, lactic acid, sialic acid seromucoid and the test for glucose tolerance);</li> <li>- Indicators of lipids (cholesterol, triglycerides, phospholipids, <math>\beta</math>-lipoprotein, cholesterol, <math>\alpha</math>-lipoprotein, total lipid);</li> <li>- Indicators of vitamin content;</li> <li>- The contents of hormones (17 COP 11-COP, catecholamine);</li> <li>- Indicators of water-salt metabolism (potassium, sodium, chloride, calcium, phosphorus, magnesium, iron, etc.);</li> <li>- Hemostasis (activated recalcification time, prothrombin time, tolerance plasma heparin, the concentration of fibrinogen, fibrinolytic activity of plasma);</li> <li>- Immune status of the human body: the reaction of phagocytosis, rosette, blasttransformatsiyi lymphocytes, inhibition of leukocyte migration, etc.;</li> <li>- Indicators of modern methods in clinical diagnostic laboratories;</li> <li>- Species belonging protozoa pathogens (vegetative forms and cysts) in biological material (urine, infiltrates skin ulcers, punctate bone marrow, lymph nodes, cerebrospinal fluid, duodenal contents, etc.); helminthes (mature forms, larvae and eggs) in biological material (duodenal contents, sputum, urine);</li> <li>- Human karyotype in perinatal and postnatal periods in order to detect chromosomal abnormalities;</li> </ul>	<p style="text-align: center;"><b>determine:</b></p> <ul style="list-style-type: none"> <li>- Indicators of immune individual organism histocompatibility antigens for evaluation of transplantation immunity; specific immunity during bacterial, viral, fungal, parasitic infections, etc. to diagnose these diseases; humeral immunity: the basic level of immunoglobulin class specific antibodies against pathogens, immunosuppressive drugs for the evaluation of the functional state of the immune system B;</li> <li>- Autoantibodies for the diagnosis of autoimmune diseases;</li> <li>- Adrenal hormones to diagnose a violation of their functions;</li> <li>- Hormones of male and female reproductive system for the diagnosis of pathologies;</li> <li>- Active phagocytosis of complement activity and its separate factions, lysozyme, interleukins, etc. for the diagnosis of immunodeficiency;</li> <li>- Biochemical markers for the diagnosis of liver diseases, prenatal disease, coagulopathy, pathology of the pancreas and diabetes monitoring in type and its treatment; tumor markers for the diagnosis of cancer; diagnostic tests to assess acid-base balance and electrolyte homeostasis; hormones for the diagnosis of pituitary dysfunction;</li> <li>- Thyroid hormones and antibodies for the diagnosis of the pathology of the body.</li> </ul>

<ul style="list-style-type: none"> <li>- Temperature, humidity, speed, atmospheric pressure air;</li> <li>- The physical properties of phlegm, sputum differentiated wool items in various diseases;</li> <li>- The mobility of micro-organisms in microbiology;</li> <li>- Sensitivity of microorganisms to antibiotics, their concentration, detect bacteriophage.</li> </ul>	
<p style="text-align: center;"><b>conduct:</b></p> <ul style="list-style-type: none"> <li>- Fixing, washing, dewatering test material;</li> <li>- Physical and chemical examination of urine, urine sediment quantitative research, in particular by Nechyporenko;</li> <li>- Sample Zimnitskiy;</li> <li>- Serological reaction: agglutination, precipitation, indirect hem agglutination, lysis, hemolysis, complement fixation, etc.;</li> <li>- Skin-allergic test;</li> <li>- Disposal of waste materials, utensils, tools, etc. in different laboratories profile;</li> <li>- Indication and identification of viruses (RHA, RZHA, RN, CPS, etc.)</li> <li>- Total blood count;</li> <li>- Necropsy, sowing biological material on nutrient media, its disinfection;</li> <li>- Molecular genetic studies of chromosomal mutations and mitochondrial DNA to identify hereditary diseases;</li> <li>- Dissymmetric control of the environment;</li> <li>- Cytology of spleen and lymph nodes;</li> <li>- Quality control research laboratories in various fields.</li> </ul>	<p style="text-align: center;"><b>conduct:</b></p> <ul style="list-style-type: none"> <li>- Modern techniques for cytological analysis of chromosome karyotype rights; diagnosis of chromosomal abnormalities;</li> <li>- Methods of prenatal diagnosis of congenital malformations (PVR) and hereditary pathologies;</li> <li>- Mass screening program for the detection of monogenic diseases with defects of metabolism;</li> <li>- Specific studies for the diagnosis of metabolic diseases;</li> <li>- Selection of material from biopsies of organs and tissues, excreta, secretions, zishkryabiv, etc. punctate obtained by other means, to make smears and conduct microscopic examination of cell differentiation morphology characteristic of various pathological processes;</li> <li>- Modern molecular genetic methods and mitochondrial DNA to diagnose chromosomal abnormalities inherited;</li> <li>- Intra-laboratory and interlaboratory quality control studies in laboratories in various fields;</li> <li>- Research offered in the standard diagnostic cardiovascular system.</li> </ul>
<p style="text-align: center;"><b>differentiate:</b></p> <ul style="list-style-type: none"> <li>- Morphological changes of leukocytes and leukocyte formula in various diseases;</li> <li>- Degenerative changes in epithelial tumor cell morphology;</li> <li>- Urine sediment elements in various diseases of the urinary system;</li> <li>- Elements of cerebrospinal fluid in diseases of the central nervous system, traumatic brain injury, etc.;</li> <li>- Morphology of cellular elements from the nipple of the breast in a variety of pathologies;</li> <li>- Morphological features of cells in various types of anemia, hemoblastoses, neleykemichnyh diseases and others;</li> <li>- Morphology of cells in biological material in a variety of diseases and interpret results.</li> </ul>	<p style="text-align: center;"><b>differentiate:</b></p> <ul style="list-style-type: none"> <li>- Changes in tissue for diagnosis of dysplasia;</li> <li>- Changes in tissue for diagnosis of benign and malignant tumors of the lungs, digestive system; male and female reproductive systems; urinary system; CNS; maxillofacial area and neck, soft tissue, bone and cartilage tissues; leather;</li> <li>- Tumor processes, benign and malignant breast tumors;</li> <li>- Changes in the red bone marrow, lymph nodes and their metastatic lesions for diagnosis hemoblastoses;</li> <li>- Different types of epithelial morphology and its degenerative changes;</li> <li>- Morphological changes in the epithelium for diagnosis: benign and malignant lung tumors; mesothelioma and peritoneal metastatic lesions and cancer of the pleura;</li> <li>- Changes in tissues and organs to diagnose inflammation, degenerative changes;</li> <li>- Morphological changes in the cells for the diagnosis of tumors, lymph nodes and their metastatic lesion of male genital organs, central nervous system, bone and cartilage;</li> <li>- Morphological changes in the epithelium to diagnose tumors of the kidneys and the bladder.</li> </ul>
<p style="text-align: center;"><b>interpret:</b></p> <ul style="list-style-type: none"> <li>- The results of biochemical research.</li> </ul>	<p style="text-align: center;"><b>interpret:</b></p> <ul style="list-style-type: none"> <li>- Research results in a variety of diseases in complex analysis based therapy for each individual patient parameters and hygiene standards in accordance with the documentation.</li> </ul>
<p style="text-align: center;"><b>select:</b></p> <ul style="list-style-type: none"> <li>- Samples of soil and its physical and chemical research;</li> <li>- Preserving samples of drinking and waste water, of physical and chemical research, control of disinfection;</li> <li>- Samples and physic-chemical study of food;</li> <li>- Air samples for laboratory testing, determination of dust in the air of toxic substances in the air industry, noise measurement;</li> <li>- Samples and conducting sanitary-bacteriological research.</li> </ul>	<p style="text-align: center;"><b>select:</b></p> <ul style="list-style-type: none"> <li>- Test for health expertise, to carry out complex physical and chemical methods with subsequent interpretation; analysis of dosimetric and radiometric control to assess their safety.</li> </ul>
<p style="text-align: center;"><b>produce:</b></p> <ul style="list-style-type: none"> <li>- Simple and complex clamps, different concentrations of alcohol, dyes in histological laboratories;</li> <li>- Paraffin and frozen sections;</li> <li>- Medium;</li> <li>- Strokes of bouillon and agar cultures, pathological material, smears; in microbiology;</li> <li>- Smears and thick drops of blood from the test material to identify the malaria plasmodium, trypanosomes, Toxoplasma;</li> <li>- Histological preparations from placenta, internal organs stillborn to identify Toxoplasma;</li> <li>- Preparations of muscle fibers and applying serological research methods to identify the species of helminthes belonging;</li> <li>- Products from the affected areas of skin to determine the type of plant species ectoparasites arthropods;</li> <li>- Viruliferous material for research, infect his cell cultures, tissues, chicken embryos, laboratory animals and so on.</li> </ul>	<p style="text-align: center;"><b>justify:</b></p> <ul style="list-style-type: none"> <li>- The results of studies of air, indoor air, drinking water, water reservoirs, wastewater, soil chemical and physical environment factors, food products, food industry inspections of facilities and catering to assess their compliance with state standards;</li> <li>- Compliance with children's furniture, books, toys, clothes, shoes, hygiene requirements;</li> <li>- These laboratory studies of polymer materials, pesticides and agrochemicals in environmental objects and food for toxicological evaluation of their safety;</li> <li>- Compliance arrangement, equipment and operation of healthcare facilities, including laboratories of different profiles, sanitary, toxicological, clinical diagnostic, histological, bacteriological, virological etc. to building codes and hygiene requirements.</li> </ul>

Comparing a specialized-professional competence of bachelors and masters in “Laboratory Diagnostics” revealed that in the formation provided graduates ability to use specialized professional knowledge, practical skills and the ability to identify, conduct, differentiation, research, diagnostics, screening etc. In the same graduate educational qualification of “Bachelor” appears this ability as production. In the same graduate educational qualification of “Master” appears this ability as justification.

Thus, each educational levels a graduate student in the specialty “Laboratory Diagnostics” contains in general a professional and specialized and professional competencies that are the similarities and differences and specific features.

The aim of further research sees the formation of these professional competencies in students in the specialty “Laboratory Diagnostics” during the practical and laboratory classes in professional disciplines through the use of special forms and methods.

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Степаненко В. В.

Професійні компетенції фахівців з лабораторної діагностики

В статті визначено основні професійні компетенції випускників вищого навчального закладу зі спеціальності «Лабораторна діагностика», виокремлено їх спільні та відмінні особливості, характерні для освітньо-кваліфікаційного рівнів «бакалавр» та «магістр».

Розглянуто загально-професійні та спеціалізовано-професійні компетенції на кожному із зазначених освітньо-кваліфікаційних рівнів, якими повинен володіти випускник відповідної спеціальності.

При аналізі професійних компетентностей, якими повинні оволодіти бакалаври та магістри спеціальності «Лабораторна діагностика» використано їх освітньо-кваліфікаційні характеристики відповідно до Галузевих стандартів вищої освіти в Україні.

Поряд з визначеними спільними та характерними для кожного освітньо-кваліфікаційного рівня професійними компетенціями, окремо виявлено такі специфічні особливості: у бакалаврів спеціальності «Лабораторна діагностика» формується здатність виготовляти, магістрів навчають обґрунтуванню.

*Ключові слова:* професійні компетенції, загально-професійні компетенції, спеціалізовано-професійні компетенції, лабораторна діагностика.

Степаненко В. В.

Профессиональные компетенции специалистов по лабораторной диагностике

В статье определены основные общие профессиональные компетенции выпускников высшего учебного заведения по специальности «Лабораторная диагностика» образовательно-квалификационного уровня «бакалавр» и «магистр» и профессиональные компетенции, характерные для каждого указанного уровня отдельно.

Рассмотрены общепрофессиональные и специализировано-профессиональные компетенции, которыми должен овладеть выпускник соответствующей специальности.

При анализе профессиональных компетенций, которыми должны овладеть бакалавры и магистры специальности «Лабораторная диагностика» использованы их образовательно-квалификационные характеристики согласно Отраслевым стандартам высшего образования в Украине.

Наряду с выявленными общими и характерными для каждого образовательно-квалификационного уровня профессиональными компетенциями, отдельно определены такие специфические особенности: у



бакалавров специальности «Лабораторная диагностика» формируется способность изготавливать, магистров обучают обоснованию.

*Ключевые слова:* профессиональные компетенции, общепрофессиональные компетенции, специализировано-профессиональные компетенции, лабораторная диагностика.

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