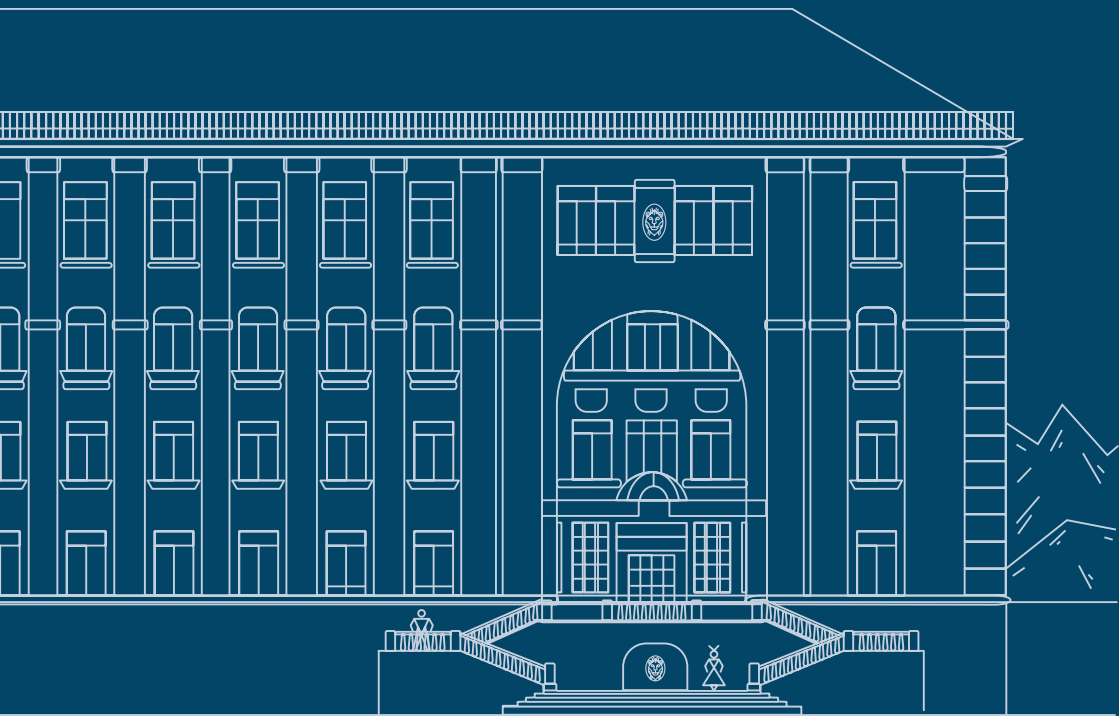




National University of Water
and Environmental
Engineering

PERSPECTIVE AREAS OF SCIENTIFIC COOPERATION



National university of water and environmental engineering is one of leading technological higher educational establishments of water management direction not only in Ukraine but in Eastern Europe.

NUWEE IS:

- 37 specialties
- 12 research schools
- 52 departments
- 4 colleges, technical schools
- 4 educational bases
- 15 research laboratories
- 5 local centers of distant education
- institute of postgraduate education
- 8 educational-scientific institutes:
 - water and environmental engineering;
 - building and architecture;
 - mechanics;
 - automatics, cybernetics and computer engineering;
 - agroecology and land management;
 - economics and management;
 - law;
 - extramural and distance education.



More than 12,000 students get higher education at university, 658 teaching and research workers of higher qualification, including 57 doctors of sciences, professors, 387 candidates of sciences, associate professors work here. 36 academicians and corresponding members of Academies of Sciences of Ukraine and foreign countries are in the staff of university. Teaching and research staff is actively engaged in inventive activity. Each year the University receives more than 60 patents for invention and utility model.



WATER MANAGEMENT

Research work is carried out in such key directions as hydrotechnical reclamation, hydrotechnical, hydropower, thermal power engineering, hydraulics, water management ecology and hydrogeology, geology, and water management.



Areas of research activities Institute of Water Management and Environmental Engineering (IWMEE):

- improving the construction and operation of water systems and nature protection objects;
- developing of improved structures drainage systems and water regulation technologies of drained soils;
- control optimization of water regime drained land with using modern computer and information technology;
- development of measures to improve operational reliability and efficiency of water use in the Danube rice irrigation systems;
- functioning problems of irrigation systems Ukraine and ways of their use;
- development of scientific foundations and water management in Ukraine;
- water management and use;
- develop criteria and modeling of permissible anthropogenic pressures on ecosystems of water bodies and their basins;
- strategy for environmentally sound water use on river basins and ecologically allowable water withdrawal from rivers;
- a complex environmental assessment of water resources and around water ecosystems;
- water management and Ecological regionalization of river basins to identify priority investments in environmental protection measures;
- streamlining water protection zones of rivers;
- improving of the constructions, methods of calculation and design of hydropower facilities and hydraulic machines;
- improving thermal and hydraulic calculations of energy installations and apparatus;



- hydraulic study of open and closed watercourses;
- riverbed processes and flood protection on mountain and lowland rivers;
- investigation of filtration processes in earthen dams and protecting dams;
- full-scale survey and research of hydraulic structures and channel processes;
- participation in the expertise, counseling, planning, in construction and in the hydraulic research of hydraulic structures;
- studying conditions of formation of surface and underground runoff, its qualitative and quantitative assessment in conditions of intensive and comprehensive anthropogenic load;
- assessment of engineer geological conditions built-up areas.

More than 12,000 students get higher education at university, 658 teaching and research workers of higher qualification, including 57 doctors of sciences, professors, 387 candidates of sciences, associate professors work here. 36 academicians and corresponding members of Academies of Sciences of Ukraine and foreign countries are in the staff of university Teaching and research staff is actively engaged in inventive activity. Each year the University receives more than 60 patents for invention and utility model.



Гідротехнічна лабораторія.
Великий дзеркальний лоток та макети
берегозахисних споруд





There is the most powerful in Ukraine and CIS laboratory base total area of 915m² at Hydraulic engineering department.

HYDRAULIC ENGINEERING LABORATORY is unique in its kind not only in Ukraine but also abroad. The squares of experimental platforms and installations and available tools allow modeling of hydraulic processes and waterworks on order water economic construction companies, design firms and institutions.



BUILDING AND ARCHITECTURE. CIVIL ENGINEERING.

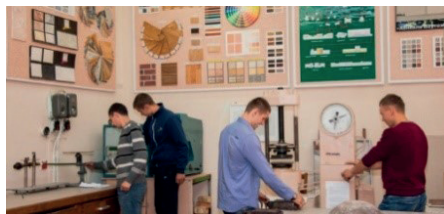
Research activity presents achievements in such directions as industrial and civil construction, technologies building products and materials engineering, urban construction and municipal economy, heat and gas supply and ventilation, water supply, wastewater and water treatment, car roads and foundations of, resistance of materials and building mechanics, bridges and tunnels, and and environmental design, drilling, occupational work and life safety, architecture.



Areas of research activities of the Institute of Building and Architecture (IBA):

- theory of strength, deformability and fracture toughness of concrete and reinforced concrete structures considering of prehistory and character of loads;
- basis of calculation of concrete and reinforced concrete structures to the changing physical and mechanical properties of materials under the action of prolonged and repeated loads;
- theory of calculation statically indeterminate reinforced concrete systems based on modern deformation model;
- development of theoretical foundations, of methodologies calculation and algorithms with planning on many parameters of compositions concretes different types using mathematical modeling;

- development of basic theory of active micro fillers and multifunctional modifiers in cement concretes, concretes technology with improved properties based on cast and very rigid mixes;
- application of industrial waste, the use of technogenic and local raw materials in the production of building materials;
- trends of change in terms of functioning transport planning systems in large cities;
- integrated mastering and modern accomplishment of urban areas.
- reconstruction of urban utilities, buildings and structures;
- the use of alternative energy sources in systems heat supply and heating;
- the complex of technologies of wastewater treatment and disposal of heat wastewater;
- improving systems agricultural and communal watersupply, circulating water supply systems of industrial enterprises;
- develop and implement filters with floating foam polystyrene filling.
- improvement of water supply and distribution systems;
- the development of reagent technological schemes clarifying and discoloration of water;
- scientific basis forecasting deformation of arrays soil by changing of hydrogeological conditions and actions of man-made factors;
- development of methods for assessing and design conformity of road conditions and traffic flows;
- development of modified variation principles for receiving geometrically nonlinear systems of equations of the stress-strain state (SSS) and stability of shells of revolution in three-dimensional and specified productions;
- using of options geometrically nonlinear theory for solving problems SSS, sustainability and supercritical behavior of shells of revolution with anisotropic layers, with one plane of elastic symmetry;
- research on occupational work, fire and environmental safety;
- theory of architecture, restoration of monuments;
- research of topical issues of history, theory and practice of architecture, design architectural environment and town planning;



- the energy-efficient and resource-saving methods of architectural and building design.

The scientific activity is carried on the powerful laboratory base at institute, which includes the following research laboratories::

- **RESEARCH LABORATORY BUILDING MATERIALS AND PRODUCTS**
- **RESEARCH PRODUCTION BUSINESS CENTER**
- **RESEARCH LABORATORY BUILDING STRUCTURES AND CONSTRUCTIONS**
- **RESEARCH LABORATORY OF WATER SUPPLY AND WATER TREATMENT**

MECHANICS. TRANSPORT AND MINING.

This direction of scientific and technical activity at the University is presented by researches in engineering, road transport theoretical mechanics, development of mineral deposits and extraction of minerals.



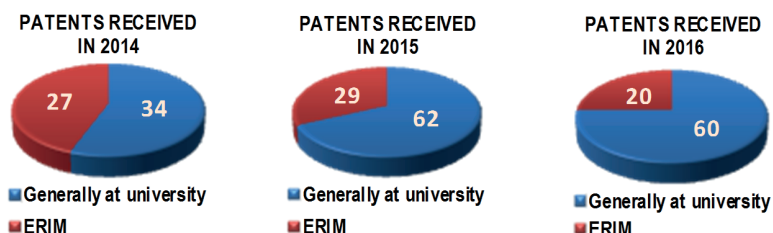
Areas of research activities of the Institute of Mechanics (IM):

- increasing of productivity and reduction of energy consumption of work processes of construction machines, road, reclamation machines, agricultural machinery and equipment;
- theoretical and experimental study of new machine parts;
- the increase of productivity and reduction of energy consumption of the drum-type equipment and other technical systems;
- the increase of operational properties of machine parts;
- research of dynamics and increase durability of machines and

mechanisms;

- optimization of the parameters of existing structures boilers;
- rational selection of design-technological parameters and working modes of aggregates for construction;
- the study of the geological structure of deposits in the hydraulic mining of mineral resources;
- research and justification the technology of complex processing of raw materials that contains metal in the field development of basalt deposits;
- improving technological processes and equipment for mining and processing of amber;
- determination of conceptual bases of forming and realization of state policy in ensuring of stable and efficient functioning of the road transport industry;
- development of assessment methods of the existing road environment for compliance with the traffic flows through the determination of the functional state of the driver.

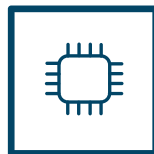
EDUCATIONAL AND RESEARCH INSTITUTE OF MECHANICS IS A LEADER IN INVENTIVE ACTIVITY





IT TECHNOLOGY

The research activity in this area is represented by such research directions as the development of automation systems of technological processes, integrated computer technologies, mathematical modeling of engineering systems, higher mathematics and applied mathematics.



Areas of research activities of the Institute of Automatics, Cybernetics and Computer Engineering (IACCE):

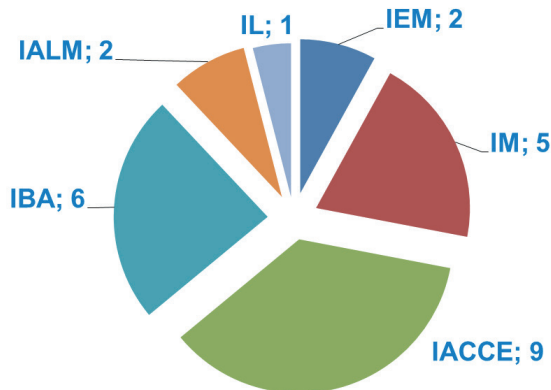
- mathematical modeling of complex systems;
- development of software for monitoring and support social, economic and environmental processes by the concept of Smart City;
- implementation of ICT for information and technical support of the educational process;
- creation of auxiliary computer-oriented tools for spatial orientation, social rehabilitation and training for the visually impaired;
- development and research of methods and systems of control of physical and mechanical parameters of liquids and gases;
- limited and almost periodic solutions of nonlinear differential, difference and functional differential equations;
- geometry vector fields in homogeneous and generalized spaces;
- calculation of temperature field soils;
- study stress fields and deformations in the structural elements of power during operation;
- determining the stress state of oblique and rectangular thick plates and arrays on elastic foundation;
- use of modified difference methods for solving boundary value problems for ordinary differential equations;
- contact interaction plates with disjunct ribs;



- contact problems of theory elasticity;
- study of the properties of highly reliable systems of protection;
- development of algorithms best uniform approximation of functions;
- limited interchanges of telegraph equations;
- development and improvement of mathematical methods and algorithms for solving problems using computers;
- mathematical modeling of processes in porous media;
- mathematical and computer modeling of natural, technological and information systems.



**Institute of Automatics, Cybernetics and Computer Engineering -
leader from all institutes for the number of winners
of the student scientific works**





ECOLOGY. LAND MANAGEMENT. HUMAN HEALTH.

Research activities is carried out in such directions as agricultural chemistry, soil science and agronomy, the environment, land management, cadaster, land monitoring and geoinformatics, geodesy and cartography, chemistry and physics, water bioresources, tourism, health and physical rehabilitation, theory and methodology physical education.



Areas of research activities of the Educational and Research Institute of Agroecology and Land Management (IALM):

- research is aimed at monitoring of environmental objects;
- carrying out of ecological expertise of the activities of the enterprises;
- forecasting of environmental change and development of projects directed in rational use of natural resources;
- development of science-based land management projects for the rational organization of the territory;
- forecasting, planning, organization of functional use and protection of land for economic, local, regional and national level;
- sustainable development of socio-economic and ecological systems and natural ecosystems;
- complex research problems related to the efficient use soil in humid zone of Ukraine;





- recovery of species diversity and restoration of native fish fauna anthropogenically disturbed river and lake systems;
- organization of agricultural and non-agricultural enterprises' territory;
- prediction of areas development with regard to functional properties and the impact of geodynamic processes;
- regulation technological territorial processes of land management;
- land management and cadaster of settlements;
- improving the methods and models for monetary valuation of land and immovable property;
- optimization and organization of environmentally sustainable land use on drained lands Western Polissya Ukraine;
- forecasting emergencies in riverine areas using GIS technology ;
- methods of monitoring and control territories;
- environmental and energy efficiency of agricultural technologies;
- stabilization of state agrosphere;





- research and evaluation of the ecological state basins of small rivers ;
- assessment of environmental risks that arise in provision of the population water from centralized and decentralized water supply sources;
- study of the impact of anthropogenic factors on biological systems of different levels in water bodies;
- developing approaches and methods that provide systematic environmental researches of aquatic ecosystems;
- development and implementation of biomonitoring methods of aquatic ecosystems into the regional system of environmental monitoring ;
- the tertiary treatment of municipal and storm water with getting of live feed for young fish;
- formation populations of fish from pond in polyculture adapted to water bodies;
- biotechnology of catfish breeding in farms all year round;
- standardization of the quality of fisheries products from fisheries farm to the consumer;
- the impact of cycles of solar activity on meteorological conditions and water in breeding ponds;
- rehabilitation of river ecosystems affected by economic activity (shaping of water quality, feed base, natural conditions of reproduction populations aboriginal ichthyofauna);
- research of the crisis situations and fish perishing in the river-lake network;
- diagnosis and monitoring of human health;
- methodology of scientific researches in medicine;
- the rehabilitative inspection;
- organization and conduct rehabilitative and recreational activities;
- development of programs of rehabilitative interventions in case of health problems;
- physical rehabilitation at various nosologies;
- research in the field of tourism.

Highly skilled employees perform research in the following research laboratories of the Institute:

- **RESEARCH LABORATORY OF LAND MANAGEMENT AND GEOINFORMATION**
- **RESEARCH LABORATORY STRATEGY FOR SUSTAINABLE REGIONAL DEVELOPMENT**
- **RESEARCH LABORATORY OF CONSERVATION AND RESTORATION OF NATURAL RESOURCES**
- **RESEARCH LABORATORY OF PROCESSES AND DEVICES OF THE PHYSICO-CHEMICAL METHODS OF CLEANING**
- **RESEARCH PHYSIC TECHNOLOGICAL LABORATORY OF SEMICONDUCTOR MATERIALS**

ECONOMICS AND MANAGEMENT

Scientific activity is carried out in such directions as economics of enterprise, national economy, public management and administration, economic cybernetics, economics, economic theory, international economics, management, labor resources, marketing, accounting and audit, finance and environmental economics, Ukraine study and foreign languages.



Areas of research activities of the Institute of Economics and Management (IEM):

- the estimation of efficiency of activity of economic entities;
- the study of the process of transition of Ukraine to sustainable development model;
- the development and identification of models of productivity, cost and profitability of grain production in different regions of Ukraine;
- the substantiation of priority directions and mechanisms of efficient use of economic resources of Ukraine;
- the analysis of actual linguistic problems in the framework of cognitive-discursive paradigm on the material of Ukrainian, English, German, Spanish, French languages, the study of problems of foreign and Ukrainian languages teaching in the universities of Ukraine, USA and countries of the European Union;
- the study of moral, aesthetic and religious aspects of personal self-determination of man in the world culture in the context of



the methodological transformations of European philosophical thought in the problem field;

- the elaboration of mechanisms for the development of the socio-economic system in the context of European integration;
- the development measures perfection schemes of the economic mechanism of resource potential of subjects of managing;
- the development of theoretical and methodological bases of modernization of institutional governance mechanisms and processes for sustainable spatial development;
- the improvement of the economic mechanism of resource potential of managing subjects use;
- the improvement of accounting, analysis, audit (control) of economic resources of entities and their use under the conditions of information technologies development;
- the development of organizational-economic mechanism of management and stimulation of rational nature management;
- assessment and forecasting effectiveness of investments in business projects, logistic and economic systems on different levels, in human capital.



Бізнес-центр
Національного
університету водного
господарства та
природокористування



WEST BUSINESS CENTER is operated on base of Institute and its structure includes:

- **RESEARCH LABORATORY IN MANAGEMENT AND ENGINEERING**
- **EDUCATION AND TRAINING LABORATORY**
- **BUSINESS SCHOOL**
- **CONSULTING GROUP**
- **BUSINESS INCUBATOR**

LAW

Scientists-lawyers carry out research activities in the field of constitutional law and sectoral disciplines of international law, legal journalism, jurisprudence and social sciences.



Areas of research activities of the Institute of Law (IL):

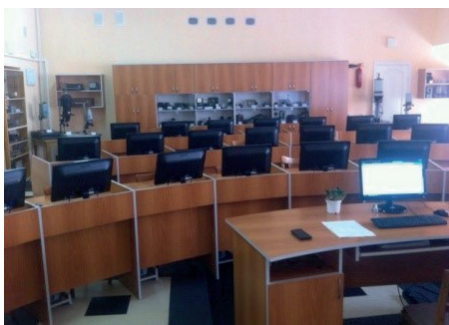
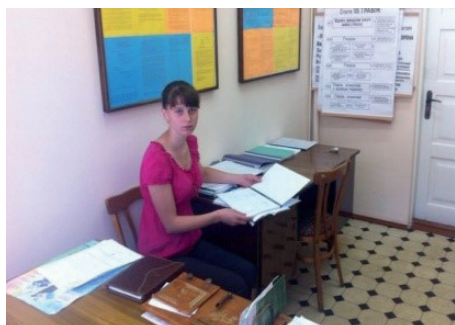
- modern constitutional problems of organization and functioning of public authorities and local self-government in Ukraine;
- administrative regulation of organ transplantation and other anatomic human materials;
- the social function of local government in Ukraine: problems of theory and practice;
- legal regulation of the state anti-corruption;
- administrative and legal regulation of health;
- the legal status of civil and other legal relations;
- peculiarities of Ukrainian constitutionalism;
- implementation of restorative justice in Ukraine legislation;
- the use of means and methods of legal science in the fight against crime;
- current issues of law;
- modern research opportunities securities and documents used in the country;
- research innovations in criminal proceedings;
- formation of professional competence of future lawyers in the course of professional training;
- modern constitutional problems of organization and functioning of public authorities and local self-government in Ukraine;
- innovative educational technology, psychological problems of management;
- continuous education technology in terms of European integration;
- liberalization of the educational process in the technical universities, ethnocultural learning technologies;
- political cultures;



- European law;
- genesis of formation of executive power in Ukraine;
- political theory and the concept of European legal education;
- media education as a form of political consciousness of society;
- current issues of economic law and process;
- modern research opportunities of alternative ways of resolving economic disputes;
- political culture and education of young people in terms of European integration;
- theory of mass communication and journalism skills in forming professional competence of lawyers;
- the legal basis of mass communication and Legal Linguistics.

There are in the Institute:

- **RESEARCH CENTER OF UKRAINIAN CONSTITUTIONALISM**
- **VI KAFARSKOHO**
- **RESEARCH SECTOR LEGAL INFORMATICS VI TSIMBALYUK**
- **SCIENTIFIC SCHOOL OF RESTORATIVE JUSTICE VI TSIMBALYUK**
- **INDEPENDENT CENTER FOR FORENSIC EXAMINATION**
- **LEGAL CLINIC**
- **CRIMINALISTICAL LABORATORY**
- **LEGAL JOURNALISM LAB**
- **TRAINING LABORATORY «COURTROOM»**
- **PRESSROOM**





UWEE

Soborna Str., 11,
Rivne, 33028, Ukraine
nuwm.edu.ua

Reception rector

tel.: (0362) 63-30-98

e-mail: mail@nuwm.edu.ua

Research Department

tel.: (0362) 63-32-42

e-mail: nds@nuwm.edu.ua

Department of innovation
and technology transfer

e-mail: transfer@nuwm.edu.ua

