

GENERAL TRAINING CYCLE

Compulsory components

High Maths. Analytic geometry, linear and vector algebra. Elements of field theory. Functions of a complex variable. Differential calculus. Elements of functional analysis. Integral calculus. Differential Equations. Sequences and series. Harmonic analysis.

Physics. Physical principles of mechanics. Fundamentals of molecular physics and thermodynamics. Electricity and magnetism. Elements of solid state physics. Optics. Nuclear Physics.

Theoretical mechanics. Theoretical mechanics. Theory of mechanisms and machines. Mechanics of materials and structures. Machine parts.

Compulsory components by decision of the Academic Council of the University

Annotations of components "History of Ukrainian Statehood", "Ethnocultural", "Philosophy", "Ukrainian for Professional Purposes", "Foreign Language (English, German, French, Spanish)", "Physical Training", "Labour and Life Safety", "Legal Personal Culture".

SPECIAL (PROFESSIONAL) TRAINING CYCLE

Compulsory components

Engineering and Computer Graphics. Descriptive Geometry. Terms and conditions.

Computer Technologies and Programming. Computer architecture. Operating systems and software computing technologies. Systems and Technology Management database. Computer networks. Working in local area computer networks and the Internet. Basic programming and algorithmic languages. High-level programming languages. Mathematical package MathCAD. Programming in the mathematical package MathCAD. Computer graphics and image editors.

Electrical Apparatus. Manual control devices. Automatic switches. Electromagnetic starters, contactors. Devices of protective shutdown. Hybrid electric vehicles. Electromagnets. Vacuum breakers.

Electrical Machines. Electrical Machines DC. Transformers. Asynchronous machines. Synchronous machines.

Electronics and Microcircuitry. Element base electronics. Electronic devices. Amplifiers. Sensors. Regulators.

Electrical Materials Dielectrics. Conductor and semiconductor materials. Magnetic materials and materials for electronic devices.

Electrotechnical Systems of Power Consumption. Basic usage and sources of optical radiation. Lighting installation and networks. Irradiation installation. Physical and technological and electro-physical properties of agricultural products and materials. Methods of electrical heating. Electric equipment and its calculation. Electro-technological methods of cultivation of agricultural products.

Metrology and Electrical Measuring. Analog gauges. Digital gauges. Methods and tools for measuring electrical, magnetic and non-electrical quantities. Metrology and metrological activities.

Foundations of Automation. Automation systems and elements. Means of

automation. Linear systems of automatic control. Nonlinear and optimal automatic control.

Fundamentals of Electricity Supply. Parameters calculation. Electrical powersystems: operation, structure, purpose and choice. Monitoring, protection and control of electrical networks. Reliability, quality and efficiency of power supply systems.

Fundamentals of Electric Drive. Mechanical and Electrical Specifications DCmotors and AC. Transients in electric drives. Adjust the coordinate drive. Power drive. Choice of electric vehicles and electric control and protection. Scheme electric. General procedure for selecting drive.

Mathematical Problems of Energetics. Analytical methods of mathematical modeling of production facilities. The models of typical objects construction based on the experiment results. Algorithms of realization of models on computers. Euler, Runge- Cutta's algorithms.

Fundamentals of Heat Engineering. Fundamentals of Heat Mass Transfer. Thermal power plants and the application of heat in agriculture.

Economy and Energy Services Organization. Economic efficiency of investment in the energy sector. The economic mechanism. Scheduling and wages in the energy sector. Revenue, profitability, financial activities in electricity. Energy planning. Recovery costs of fixed income.

Electrical Part of Stations and Substations. Circuit breakers. Contactor. Devices of emergency shutdown. Olives switches. Vacuum switches. Gas circuit breakers.

Theoretical Foundations of Electrical Engineering. DC circuit. AC circuit. Turn on the RL, RC, RLC circuit on a sinusoidal voltage. Three-phase three-and four leading range of AC. Asymmetry in power grids and measures for its reduction. Asymmetrical loading three-phase transformer and power losses. Transients in electrical circuits.

Compulsory components by decision of the Academic Council of the University

Safety of Labour and Activity. Safety system "man – technology environment." General concepts of analysis and risk assessment. Means and security measures. Public administration and supervision of Safety. failure of the system. Direct and indirect assessment of harm to people and the environment. Assessment of environmental and social risks of adverse effects.

Fundamentals of Scientific Research. Methodological foundations of scientific research organization. The specificity of research activities. Total research methodology. Principles of scientific information. General requirements for the design and writing scientific works.

Basics of Business, Management and Marketing. HR management system in the organization. Analysis and quality of staff turnover. Plan of personnel. Methods of recruitment and selection, assessment of motivation and professional development.

Optional components

Optional components by specialty

Hydraulics. Hydrostatics and hydrodynamics. Hydraulic machines. Basics of agricultural water supply and sanitation.

Diagnostics of Power Equipment. Methods for determination electrical equipment reliability. Various types of electrical equipment operational reliability. Control methods electrical equipment operability. Device providing of the test measurings and tests of electrical equipment. Modeling of emergency operating modes. Algorithms of troubleshooting technical products.

Fundamentals of AIC Energy Objects Design. Methods of design of electrification, automation and energy in agriculture. Computer technologies in design. Requirements for the project.

Electronic Devices in Control Systems. Development and debugging of microprocessor systems in agricultural production. Discrete signals, their coding. DAC and ADC. The synthesis of digital systems.

Electric Drive of Industrial Machinery and Mechanisms. Driving characteristics of machines and mechanisms. The principles and control of electronic circuits. Complete equipment for automatic control. Experimental methods of driving characteristics.

Special electric machines. Feeding machines. Processing enterprises. Systems and equipment of poultry farms. Machines for mechanization of agricultural work.

Mounting of Energy Equipment and Control Systems. Working drawings for Electroinstallation works Instruments, machinery and tools for electric installation works. The main types of electric installation works technology implementation. Planning and organization of electrical work.

Basics of Technical Operation of Energy Equipment and Control Facilities. Legal and regulatory principles and operating power equipment problems. Power equipment in agriculture, optimization and reliability. Maintenance and repair of power equipment. The organization commissioning, acceptance testing and operation of rural energy.

Industrial Electronics and Transforming Equipment. Passive components of electronic circuits. Diodes and their models. Transistor schemes. Feedback. The operational amplifier. Characteristics of logic integrated schemes families. Digital microcircuits.

Technical Service of Energy Equipment. Maintenance and repair of electrical equipment. The organization commissioning, acceptance testing and operation of rural energy. Maintenance of transformer substations and transmission lines.

Technology of Production, Storage and Processing of Agricultural Products. Technologies crop production. Technology of production of livestock and poultry. Technologies of processing and storage of crop production, livestock and poultry.