

# ELECTRICAL ENGINEERING AND ELECTRONICS

## COURSE SYLLABUS ABSTRACT

Specialty: 6-05-0714-02 - Mechanical engineering technology, metal-cutting machines and tools

Concentration: Mechanical Engineering Technology;

Concentration: Equipment and technologies for highly efficient material processing processes

Concentration: Technological equipment for machine-building production

Specialty: 6-05-0714-03 - Engineering design and materials production and products from them

Concentration: Equipment and technology for welding production

	Form of higher education	
	Full-time (day)	Part time
Year	2	2
Semester	4	4
Lectures, hours	34	8
Practical, hours	16	4
Laboratory, hours	16	4
Test, semester	4	4
Total hours in class	66	16
Independent work, hours	42	92
Total hours in the discipline/ credit	108/3	

1. Summary of the academic discipline. The discipline belongs to the module «Electrical engineering and electronics». The task of the discipline is to form the concept of the principles of operation and design of electronic devices, experimental study of their operation in various modes on laboratory devices and computers, as well as the use of electronic and digital devices in solving various technical problems.

2. Learning outcomes. As a result of mastering the discipline, the student should:

know: electrotechnical laws and methods of analysis of electrical and magnetic circuits; the purpose and principle of operation of the main components of modern equipment containing electrical machines, apparatuses and elements of automation, electrical measuring devices; electrical terminology and symbols.

be able to: experimentally determine the parameters and characteristics of typical electrical devices; turn on electrical devices and machines, control them and monitor their efficient and safe operation; professionally draw up technical specifications for the development of automated control systems for production processes together with electrical engineers.

possess: methodology for selecting electrical products to ensure the functioning of electrical machines and apparatuses; methodology for reading electrical circuits and determining the characteristics of typical electrical devices.

3. Formed competencies: Use knowledge about the principles of operation, designs, properties of basic electrical measuring instruments, amplification, logic, digital and converting devices to solve engineering problems in mechanical engineering. (for the specialty “Mechanical engineering technology, metal-cutting machines and tools”),

Apply skills in using the operating principle, designs, properties of basic semiconductor and measuring instruments, amplification, pulse, logic, digital and converting devices to solve practical problems (for the specialty “Engineering design and production of materials” and products made from them”).

4. The form of the current certification: test (oral-written form). In order to be admitted to the test, the student, in accordance with the curriculum, is obliged to perform and defend laboratory work, as well as individual assignments and control work.