THEORETICAL FOUNDATIONS OF ELECTRICAL ENGINEERING

ABSTRACT
to the curriculum of the education institution

Specialty: 6-05-0716-03 – Information-measuring devices and systems

Concentration: Information systems and technologies of nondestructive testing and diagnostics.

	Study mode
	Full-time
Year	2
Term	3
Lectures, hours	34
Practical, hours	16
Laboratory, hours	16
Exam, term	3
Total hours in class	66
Independent work, hours	78
Total hours in the discipline / credits	144/4

1. Summary of the content of the discipline.
   The discipline "Theoretical foundations of electrical engineering"includes two blocks: the theory of electrical circuits and electromagnetic field theory. The aim of the discipline — examination of one of the forms of matter — electromagnetic field and its manifestations in various technical devices, and modern methods of modeling electromagnetic processes.

2. Learning outcomes.
   As a result of mastering the discipline, the student must
   Know: basic set of ideal circuit elements; methods of making topological equations of electric circuits in general form; methods of representation of signals; in time and frequency domains; methods of calculation of electric circuits; basic laws of linear and nonlinear electric and magnetic circuits; laws and theorems of electromagnetic field.

   Be able to: set and solve problems of analysis and synthesis of electric and magnetic circuits of various complexity; to form models of signals and circuit elements with a certain degree of idealization of physical phenomena in real electrical devices to choose and set up equipment, measuring instruments and other devices to perform experimental research in electrical circuits to comply with safety rules when working with electrical installations, competently conduct experimental research and correctly evaluate the results; to use modern computer tools when performing calculations and graphics

   Master: the methods of analysis of electric circuits and electromagnetic fields; the methods of determining the main parameters of electric circuits.

3. Competencies to be formed: «Solve electrical circuit analysis and synthesis problems»

4. Requirements and forms of ongoing assessment: exam (oral and written form). To be admitted to the test student in accordance with the curriculum must perform and defend laboratory work, as well as individual assignments.