

THE MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

National Aviation University

FUNDAMENTALS OF ELECTRIC AND MAGNETIC CIRCUITS

**Laboratory works 1–15 for the students of specialities:
7.092502 “Computer technological processes and production”,
8.091501 “Computer systems and network”**

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The authors: V.S. Martynjuk, L.G. Kostel

The reviewers: A.E. Aslanjan, L.J. Ishenko

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The description of each laboratory work includes the purpose of research, methodical instructions, control questions for the admission to the work performance, description of the working circuit, tasks and order of laboratory research, processing of the experiment results.

This guide is destined for the students of the specialities:
7.092502 "Computer technological processes and productions",
8.091501 "Computer systems and network".

Теорія електричних і магнітних кіл: Лабораторні роботи 1-15
(англійською мовою) / Уклад.: В.С. Мартинюк, Л.Г. Костель.-К.:
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Опис кожної лабораторної роботи містить мету заняття, методичні вказівки, контрольні питання для допуску до виконання роботи, опис робочої схеми, завдання і порядок виконання роботи, обробку результатів досліджу.

Призначені для студентів спеціальностей 7.092502
„Комп'ютерно-інтегровані технологічні процеси і виробництво”,
8.091501 „Комп'ютерні системи та мережі”.

THE GENERAL ITEMS OF INFORMATION ON LABORATORY BASE And TECHNIQUE OF REALIZATION OF LABORATORY CLASSES

I. THE FUNDAMENTAL RULES OF WORK IN LABORATORY OF ELECTRICAL ENGINEERING

At work in a laboratory the students are obliged to carry out rules of work in the laboratory of electrical engineering.

On fact-finding class under the supervision of the teacher the students must: study the rules of work in the laboratory; study the rules of regulations of technique precautions; familiarize with the device of the stand used devices and assembly order of electrical circuits; acquire the order of preparation and realization of laboratory class, registration and defence of the reports on them.

Before arrival to laboratory the students should be prepared for work. The unprepared students are not allowed for classes.

At work in the laboratory it is necessary to carry out the safety regulations strictly.

After completion of experiment it is necessary to put a workplace in order.

In the laboratory it is forbidden: to transfer devices from one workplace to another; to leave the laboratory and to change the workplace without permission of the teacher; rotate terminals and handles of switches of the equipment without necessity; to talk loudly.

II. THE REGULATIONS OF TECHNIQUE PRECAUTIONS IN THE LABORATORY OF ELECTRICAL ENGINEERING

The electrical current exerts thermal (burn), chemical (electrolysis) and mechanical (break of tissues) influence on human organism. Two kinds of defeats by an electrical current are distinguished: electrical traumas and electrical impact.

The electrical traumas represent local defeats of tissue and bodies by an electrical current: burns, electrical marks and electrometallization of a skin. The electrical impact (shock) is a defeat of the organism as a whole, accompanying by a paralysis of breath or heart. The paralysis of respiratory muscles and also heart muscles can cause death. The electrical impact is observed at long (some seconds) influence of