

THE MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

National Aviation University

**ELECTRONIC ENGINEERING AND MICROCIRCUITRY.
VIRTUAL LABORATORY**

**The methodical indicatings to fulfilment of
Laboratory works 1 – 9, Term paper, Design-graphic task for the
students of the control systems faculty**

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Electronic Engineering and Microcircuitry.

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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. The tasks for term paper and design-graphic activities are illustrated by examples.

This guide is destined for the students of the specialities: 8.092502A "Computer-integrated engineering processes and operation", 8.091401 "Control and automation systems", 8.090603 "Electrical power systems".

Електроніка і мікросхемотехніка. Віртуальна

лабораторія: Методичні вказівки до виконання лабораторних робіт 1-9, курсової роботи, розрахунково-графічної роботи (англійською мовою) / Уклад. В.С. Мартинюк, Л.Г. Костель. – К.: НАУ, 2003. – 124 с.

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 дослід. Завдання на курсову та розрахунково-графічну роботи пояснюються прикладами.

Призначені для студентів спеціальності 8.092502А

„Комп'ютерно-інтегровані технологічні процеси і виробництва”, 8.091401 „Системи управління і автоматики”, 8.090603 „Електротехнічні системи електроживлення”.

PREFACE

The laboratory practical work plays the important role at learning a modern electronics engineering making the basis of circuit technique maintenance of overwhelming majority of control systems.

The laboratory works give the students visual representation about activity of separate electronic and optoelectronic units and microcircuits, about their properties, characteristics and capabilities, develop skills of construction and research of separate electronic devices.

General problems of an offered laboratory practical work:

The detailed learning heard on the lectures and theoretical material, acquired as a result of independent activity, development of practical skills of calculation, construction and adjustment of electronic circuits, their experimental research, processing of the obtained results, design of the account documentation, usage of the standard equipment for generation of standard signals, measurement and registration of the obtained results;

Development of skills of a formulation of researches, detection and calculation of critical operational modes of the schemes in view of influence of an environment, spread of parameters of units, power sources, analysis of the obtained results and skill to make justified conclusions of experimental data;

The detailed learning of operation principles of researched electronic and microelectronic units and schemes, technique of their calculation, search of faults and their elimination, basic normative documents on compilation and design of the engineering specifications.