TECHNICAL UNIVERSITY OF MOLDOVA

Faculty of Power and Electrical Engineering
Theoretical Bases of the Electrical Engineering Department

THEORETICAL BASES OF THE ELECTRICAL ENGINEERING

Computer-assisted laboratory guide

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The given manual is intended for the help of the students of High Educational Institutions of no electrical specialty, which study the electrical engineering in English, to perform the laboratory works, including the application of the computer. It can also be used by the post-graduate students and beginning teachers to study the English terminology both for training the skills of their realizations and making up the reports . The manual also contains some items with information about using the MULTISIM 2001 program, which is necessary to carry out the laboratory works.

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INTRODUCTION

The order of the admission to execute the laboratory works

In order to be admitted to execute the next laboratory work, the students should beforehand present and sustain the report on the previous laboratory work, which was done. To be familiarized with its contents, to know basic formulas and theoretical material for execution of the given laboratory work. To have prepared the necessary tables for the initial data and to record the results of measurements.

The experimental part of the laboratory work, the students carry out independently under teacher's supervision with the respect of the safety rules.

The safety precautions for execution of the laboratory works

At assembling the given electrical circuit for the given laboratory work, first of all, the consecutive circuits of the current should be assembled, which includes the current circuits of wattmeter's (varmeters, voltampermeters), phasemeters and ampermeters , at the second, it should be assambled the parallel voltage circuits of the wattmeters (varmeters, voltampermeters), phasemeters and voltmeters.

After the assembling the electrical circuit, before its switching on to a source of the electric power, it should be checked up by the teacher and only after this, it can be switched to the power source.

In case of any malfunctions, the circuit should be immediately switched off from the power source, with the message to teacher about malfunction.

Processing of results

The received experimental data are written in the given tables and are shown to the teacher for confirmation, before dismantle the circuit.

If the experimental data are unsatisfactory, it is necessary to repeat the experiments, until getting the satisfactory data.

The obtained experimental data are partially processed in the laboratory and finally at home. The students prepare a report on the carried out laboratory work by respecting: the requirements to the laboratory report, technical design standards and the standards of presentation of electrical elements. The paper should contain: the theme and purpose of the work, electric diagrams, tables with experimental data, calculation results tables, calculating formulas used with a calculating variant for measurement (experiment), graphs and necessary vector diagrams on millimeter paper, respecting the chosen scale, the experimentally obtained graphs at the oscilloscope or computer, work conclusions. The report is presented and sustained by the student before making the next laboratory work.

CONTENTS

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