



**Book of abstract international conference
«Advanced Education and Management Engineering»
(AEME2016)**

Bangkok, Thailand, 29-30 October 2016

AEME2016 Contents

'Breakthrough Generation' Haters – A Pilot Study

Marta R. JABŁOŃSKA A102

Study on the Course Design of Governance Risk Based on Practical Ability Training

Ling ZHOU, Jie SU and Tao ZHANG A103

The Analysis about the Dominant Position Change of China in International Scientific Collaboration

Jun-peng YUAN, Xiao-xu YUE, Yun-tao PAN, Cheng SU, Ji-ping GAO and Guo-hua JIANG A104

Study on Hardware Courses Teaching Technology of Computer

Cai-xia LIU, San-rong LIU, Xiu-zhen WANG and Yan-yan HOU A105

Hardware-Software Complex in Educational Process on the Course "Electricity and Magnetism"

Yerassyl YERLANULY, Nurzat KENZHEBAEV, Talgat DANIYAROV, Merlan DOSBOLAEV, Tlekkabul RAMAZANOV and Maratbek GABDULLIN A107

The Study of Intellectual Property Pledge Financing Risk Evaluation Index

Jie-qian ZHANG A108

Natural Runoff Prediction of the Yellow River in the Future under Climate Change

Chao-qun LI, Yi-wen LI, Peng WANG and Jie SHEN A109

Study on the Sustainable Development of Foreign Women's Football Movement

Peng ZHOU, Yong-mei ZHANG and Meng-jiao DING A111

Analysis and Path Selection of Quality Education from the Perspective of Lifelong Education

Yong-jia QI A113

Study on the Cultivation of Comprehensive Ability and System Knowledge of the Design Professional Graduate Student

Cheng-yuan REN and Qian-ce SONG A114

Study on How to Cultivate the Design Semantic Expression Ability of Design Graduate Students

Cheng-yuan REN and Jin-ling DU A115

The Assessment on Industrial Synergistic Effect in Pearl River Delta Metropolitan Area: A Comparative Perspective

Hong-min ZHANG and Liang JING A116

An Empirical Analysis of the Impact of Interest Rate Liberalization on the China's Inter Bank Bond Market Liquidity

Juan-juan ZHOU and Wei-wei LANG A118

The Effects of Rumors on Stock Prices: A Test in an Emerging Market

Yan ZHANG and Hao-jia CHEN A119

Technology Spillover Effect of Intermediate Goods Imports for Each Region of China

Min ZHONG A120

Channels of FDI R&D Spillover in Chinese Producer Services

Jun-chen LIU A121

Discussion the Urgency of Implementing Compliance Management Systems Guidelines Standard in China

Xue-jing WU and Hong-li LIANG A124

Analysis and Solution to Difficult Employment Problem of University Students

Yang LIU and Liang-shan SHAO A129

The Embarrassment between Companies and Graduates——The Exploration of University Students' Employment

Yang LIU and Liang-shan SHAO A130

A Practice on Lego Mindstorms for Computer Science Freshman Experimental Education
Qiang CHEN, Yan TANG, Li LI, Guo-cai YANG, Ming YANG, Zhong XIE, Huai-dong CHEN, Fu-yuan XIAO, Yan-tao LI and Ren-jie HUANG A132

Differentiation, De-differentiation and Collaboration between Vocational Education and Universities
Xiao-yan WU and Chun-yan JIANG A133

A Teaching Content Design of Embedded System in Accordance with the Characteristics of the Computer Science
Wei-gong LV, Ce ZHANG, Zhi-peng CHEN, Xin-sheng WANG and Jun BAI A135

Study on Effect of Dual Networks Embeddedness on College Students' Entrepreneurial Growth Based on Professions
Ling-yun XUE, Hong-bo LI, Xiang-bo TONG and Jing XU A136

Some Thoughts on Curriculum Reform for Art Design
Li-jing CHEN A137

Art Heritage Treasures - "The Research on the Color of Chinese Painting"
Liang GUO A138

Discussion of Establishing Metallic Mineral Processing Courses in the Major of Coal Preparation
Zhi-jun ZHANG and Hai-tao NONG A139

The Mediation Effects of Choice on Relationship between Information Availability and Quality Targeting Elderly Care Service Users
Han-ra CHO, Yeong-hun YEO and Myeong-sook YOON A140

Effects of After-school Childcare Services on the Academic and Adjustment of Children from Multicultural Families in Korea
Soongyu KIM, Ayeong JANG, Soim LEE and Anna YOU A141

Challenges and Countermeasures of China Sports International Communication
Xiao-ya CHEN and Zai-hui LI A142

Research to the Second Transformation of Teacher Education in China
Jiu-ying CHU A143

Moderating Effect of Partner Support on the Association between Grief and Posttraumatic Growth among Women with a History of Abortion
Myeong-sook YOON, Nam-hee KIM, Ji-hye KIM, Hae-rim LEE A144

The Relationship between the Discrimination Experience and Life Satisfaction among the Elderly with Disabilities: Focusing the Multiple Mediating Effects of Health and Social Participation
Eun-sil YI and Mi-ok KIM A145

Research on the Development of Circuit Curriculum Based on Practical Teaching in Higher Vocational Colleges
Bing LUO, Yong-liang ZHANG and Xi-rui WANG A147

Exploration on the Reform of Experimental Teaching System in Colleges and Universities Based on the Cultivation of Innovation Ability
Jing-feng HE A149

Analysis of the Relationship of Institution and Chinese Economic Growth
Ting-ting LIU A151

The Power of Music and Cooperation: A study of the Experience of Orchestra Activity by Youth with Developmental Disabilities Using 'Photovoice' Method
Miok KIM and Min Ah JUNG A152

Approaches to Enhance the Public Environmental Capacity in the Perspective of Ecological Civilization
Xiao-ying WANG and Lu-yi ZHANG A154

A107

**Hardware-software complex in educational process on the course
“Electricity and Magnetism”**

YERASSYL YERLANULY^{1,2}, NURZAT KENZHEBAEV^{1,2}, TALGAT
DANIYAROV¹, MERLAN DOSBOLAEV^{1,3}, TLEKKABUL RAMAZANOV^{1,3},
MARATBEK GABDULLIN^{1,3}

¹ Scientific Technology Park, al-FarabiKazNU, Kazakhstan,050040Almaty, 71 al-Farabiave

²Institute of applied sciences and information technology, Kazakhstan,050040Almaty, 71
al-Farabiave

³List 3National nanotechnological laboratory of opened type, al-FarabiKazNU, Kazakhstan,050040
Almaty, 71 al-Farabiave

yerlanuly@physics.kz

Keywords: Hardware-software system, information technology, electricity, magnetism, laboratory installation, an information system.

Abstract. In this paper the method of application of information technologies in the laboratory studies of physics is considered along with using this to stimulate the student to the study of the physical laws of electricity and magnetism. To achieve this the authors of the article suggest using innovative hardware and software package, which consists of two parts: the original laboratory installation and information system which allows to store and process the results.

1. Introduction

Today, informational technologies are used in educational processes throughout the world. Information technology is different ways, mechanisms and devices of information processing and transmission. The main tool for this is the personal computer, additional - special software, possibility of information exchange via the Internet and related equipment.

2. Problem Formulation

As we know, one of the important parts of the course of physics is the electrical and electromagnetic phenomena. One of the methods of teaching is laboratory and practical classes where students can experimentally verify the validity of the physical laws, consolidate theoretical knowledge in practice, get acquainted with a variety of measuring instruments, devices and their operating principles. In many countries of the world laboratory classes are still conducted without the use of modern laboratory facilities and information technologies. In this paper, the authors show the possibility of creating affordable modern hardware and information systems for the study of electrical and magnetic phenomena.

3 Problem Solution

To conduct laboratory studies in a modern format, the authors of this article have developed a hardware-software complex (HSC). HSC is a complex solution for the problems related to the laboratory works on the course "Electricity and Magnetism", process visualization, as well as storage, processing and analysis of the obtained data (Figure 1). Each student can apply information

technologies in laboratory studies, thus, such opportunity will encourage the student to study physical laws.

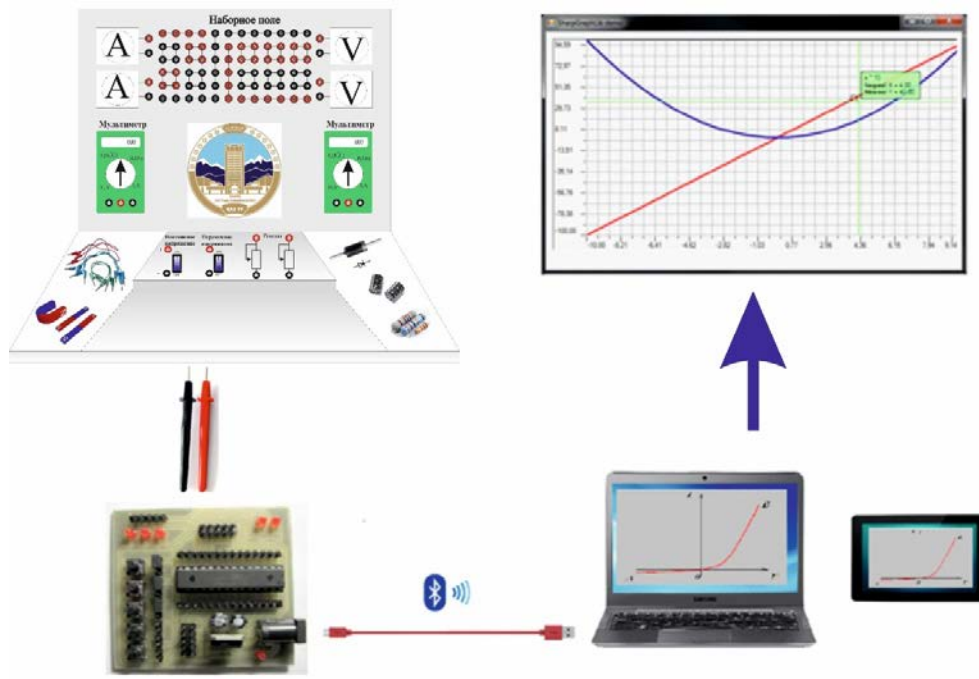


Figure 1. Scheme of HSCAIIK

HSC is composed of two parts: a laboratory installation and an information medium for storing and processing of experimental data. All of the experimental work will be carried out on laboratory installation, after all data is transferred to a personal computer using a USB cable, or tablet via Bluetooth.

The laboratory setup is universal, also very convenient in operation (autonomous, i.e. it has the ability to be used for training at home). The power source is a lithium-ion battery (12V), the elements of the electrical circuits designed in one platform (stand). The stand has a minimum possible size. The element base of the stand is integrated circuits of common series with low power consumption. The uniqueness of this stand is its versatility, which can perform more than 20 laboratory works. Software and information system will save data from laboratory installation and allow students to process them (the calculation of power in the circuit, the definition of current and voltage at selected sites, as well as obtain current-voltage characteristic of circuit or particular element).

The program was written in C++ programming language, thus is quite simple for student to use.

Information system HSC will read and process experimental data as well as plot graphics of current-voltage characteristics of given circuit. To get started, you need to connect a USB cable to the computer, after connecting the message should appear at the bottom, otherwise the program will give an error. Information is transmitted via an analog-to-digital converter based on a microcontroller. All information on how to connect and work with the program can be found in the Help section (Figure 2).

Once connected, you need to press button “to plot graph” and the program will automatically receive the numerical data of the experiment and display them on the screen in a table on the right side of the screen.

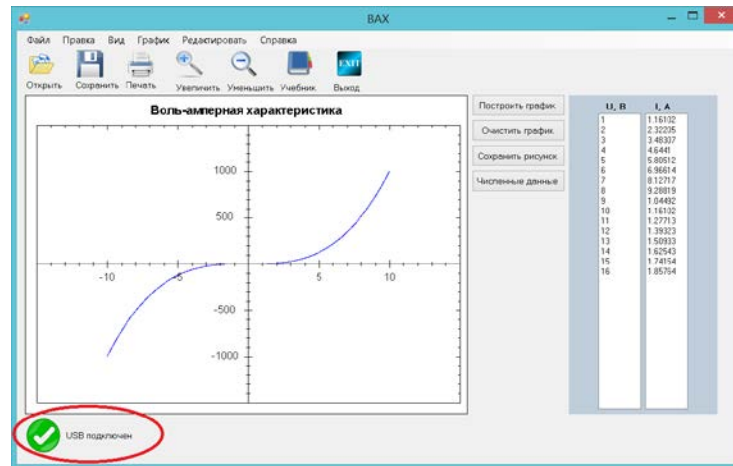


Figure 2. Interface of information system

For reference section tutorial was created (Figure 3). For example, to read the description of the CVC.

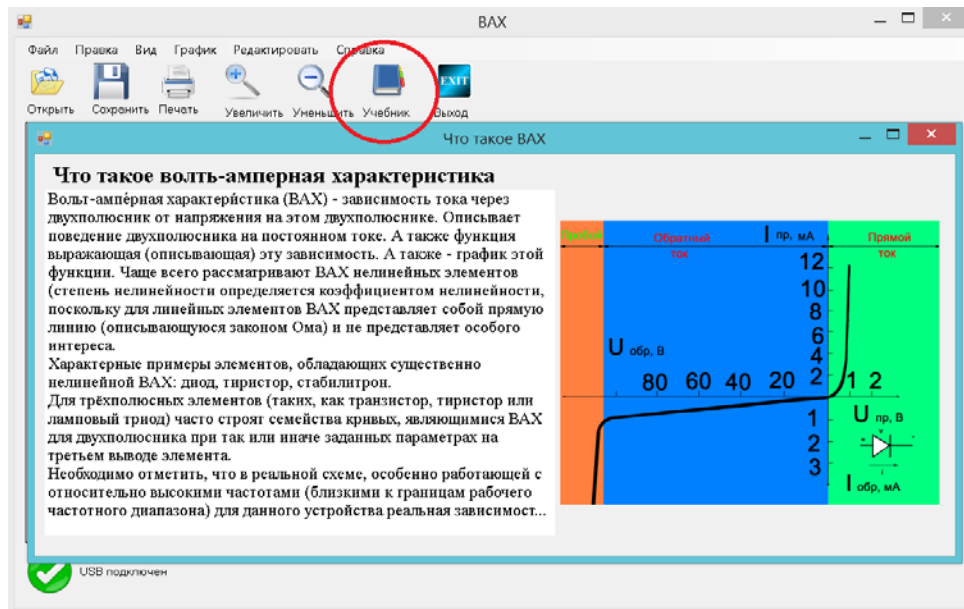


Figure 3. Textbook section in program medium

In this program, you can edit the graph, for example, you can save the image, print, copy, etc. Also you can obtain numerical data in a table format of dat.

4 Conclusion

In this paper HSC to study electromagnetic phenomena was designed. Computer program was written and integrated with the laboratory installation.

References

[1] X1. Cleborne D. Maddux, Information Technology in Education: The Need for Skepticism//International Journal of Technology in Teaching and Learning, 5(2), 182-190. 2009.

Reference to a book:

[2] F Mikre, The Roles of Information Communication Technologies in Education: Review Article with Emphasis to the Computer and Internet// Ethiopian Journal of Education and Sciences. ISSN: 1998-8