



# Virtual Laboratory Works in Teaching Practical Circuit Design and Development of Responsibility Component of Students' Academic Integrity

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**Abstract.** The paper deals to the study of the role of virtual laboratory in the development of students' responsibility contributing to their academic integrity support. The aim of our paper is to describe the experience of using virtual technology for organizing of the system of laboratory works on course of Practical Circuit Design with respect to students' responsibility development being the value of academic integrity with the research questions as follows: to determine the students' attitude towards the use the virtual technology in the course; to observe the changes of students' responsibility as a part of their academic integrity development. The quantitative and qualitative results enable us to prove links between the possibilities created by the assistance of virtual technology in the course of Practical Circuit Design and the implementation of student student-centered learning on the way of students' responsibility and academic integrity support.

**Keywords:** Practical circuit design · Engineering students · Virtual laboratory · Academic integrity

## 1 Introduction

The physics of the phenomena used by the energy sector is rather difficult. As a result, knowledge of engineering disciplines requires students to analyse electromechanical processes and use a specific mathematical apparatus for electrical systems. The practical implementation of electrotechnical devices usually involves sophisticated arrangement, which may include electromechanical converters, power and microelectronics, modern analogue and discrete programmable control systems. It is obvious that technological equipment of this type costs a lot. The trainees' teaching is usually accompanied by the emergencies resulting from errors in the performance of laboratory tests. Such circumstances make the whole educational process challenging and expensive. An alternative method of training is the use of virtual technologies in the engineering staff training.

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