

## Learning the Related Mathematics to Cryptography by Interactive Way

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**Abstract**—Cryptography is a complex area in the computer science field due to the complexity of the mathematics involved. The main goal of this paper is to discuss how we can take an advantage of the online interactive tools to facilitate this complex topic. These interactive tools can enhance the students learning better than the traditional way especially when we teach mathematic concepts. We are going to illustrate an online interactive tool that uses the Modular Arithmetic in a virtual environment. A case study was conducted on a group of students from the King Abdulaziz University. The result of evaluating the tool indicates that this tool has good usability in terms of learnability, usefulness, ease of use, and outcome.

**Index Terms**— cryptography, virtual learning environment, self-study, learning styles, e-learning.

tool in an education will stimulate the students' interest and enhances their motivation [4].

Through interactive tools and interaction, students are able to analyze and learn complex theories in a short time. They might get amused at it. Nevertheless, the realization of interactive tools for scientific dissemination may require a deep analysis of contents and didactical paths, in order to choose the best and suitable methodology that favors a higher learning and knowledge level.

In the mathematical concepts and algorithmic procedures in the classroom is frequently difficult to