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# Using virtualised laboratory environments to enhance hands-on learning experiences in cyber security courses.

Computer Security has become significantly important in this digital world and knowledge economy. Many universities have responded to the rise in the need for computer security by offering security courses within their curricula with components of computer security or that are entirely dedicated to computer security. The teaching of these courses presents a number of challenges like lack of resources and infrastructure especially to developing nations or universities in these nations. This research explores the challenges that teachers and learners face when teaching security courses with respect to provision of practical laboratory experiences. The course chosen in this case was digital forensics. The research analyses how the use of Virtualised Learning Environments can enhance the teaching and learning process in security courses. A survey was conducted on the concerns students in a digital forensics class had when learning. Experimental work using virtualised learning techniques was then given to students studying digital forensics to ascertain the effect of such interventions. It was discovered in the whole that there were some significant improvements that were recorded after these Virtualised Learning techniques were used.

Keywords: Virtualised laboratories, hands-on learning, cyber security courses, digital forensics, virtualised learning environments.

## Summary

## Sub-Theme

SMART Teaching and Learning: Services and tools

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