DEVELOPMENT OF VIRTUAL REALITY RADIATION LAB TO STRENGTHEN RADIATION SAFETY AWARENESS IN UNDERGRADUATE STUDENTS

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Radioactivity, the spontaneous disintegration of atomic nuclei, is invisible and its effects are not directly perceptible (odourless, intangibility). Therefore, radioactivity must be handled with a particular care to prevent harmful health effects.

In the Physics Laboratory courses of the undergraduate programmes at the Faculty of Science and Engineering, approximately 200 students each year work with various radioactive sources while conducting experiments independently. Although students receive both theoretical and practical instructions in radiation safety, observations indicate that safety protocols are not always consistently followed by students during handling of the radioactive sources.

To enhance students' understanding of radiation and its associated risks, an engaging Virtual Reality environment, the "Virtual Radiation Lab", is being developed. The platform allows students to practice safe handling of radioactive sources, distance effects and shielding properties in real time.

The educational goal is to bridge the gap between theory and practice. Integrated prior to hands-on experiments, the VR experience aims to strengthen conceptual understanding, enhance risk awareness and promote responsible laboratory behaviour of students in physics and applied physics courses.

[1] T. Gunn, P. Rowntree, D. Starkey, L. Nissen (2021). The use of virtual reality computed tomography simulation within a medical imaging and a radiation therapy undergraduate programme. J. Med. Radiat. Sci. 68, 28–36.
[2] https://www.advancedtrainingsystems.org.au/in-the-media/virtual-radioactivity-launch/