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Open Biomedical Engineering education in Africa

Arti Ahluwalia, Daniel Atwine, Carmelo De Maria, Charles Ibingira, Emmanuel Kipkorir, Fasil Kiros, June Madete, Daniele Mazzei, Elisabeth Molyneux, Kando Moonga, Mainen Moshi, Martin Nzomo, Vitalice Oduol, John Okuonzi

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Abstract

Despite the virtual revolution, the mainstream academic community in most countries remains largely ignorant of the potential of web-based teaching resources and of the expansion of open source software, hardware and rapid prototyping. In the context of Biomedical Engineering (BME), where human safety and wellbeing is paramount, a high level of supervision and quality control is required before open source concepts can be embraced by universities and integrated into the curriculum. In the meantime, students, more than their teachers, have become attuned to continuous streams of digital information, and teaching methods need to adapt rapidly by giving them the skills to filter meaningful information and by supporting collaboration and co-construction of knowledge using open, cloud and crowd based technology. In this paper we present our experience in bringing these concepts to university education in Africa, as a way of enabling rapid development and self-sufficiency in health care. We describe the three summer schools held in sub-Saharan Africa where both students and teachers embraced the philosophy of open BME education with enthusiasm, and discuss the advantages and disadvantages of opening education in this way in the developing and developed world.