



Office of Education Development  
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## 3D printing user-interactive training models for enhancing learning experience in regenerative medicine

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**Abstract:**

Regenerative medicine is a dynamic and rapid growing subject that students need to master not only fundamental knowledge from biochemistry to pharmacology, but also cutting-edge technologies from tissue engineering to regenerative biology. The diverse requirement on knowledge and skills makes the subject challenging for most students. For example, students need to understand anatomy and physiology of the diseased organs as well as material and engineering consideration on scaffolds for the design of bio-implants, and those interrelated factors cannot be presented well on illustrated diagrams. Furthermore, tissue and organ regeneration involves long-term and complicated development processes, making it extremely difficult for students to gain hands-on experience through lab practicals. In this project, representative teaching models with complicated geometries will be created by 3D printing to mimic the anatomical structures in a real human body and corresponding regenerative therapeutics. Students will be involved in the model design and preparation, which can facilitate their adsorption on course content and promote their learning interest and enthusiasm in interdisciplinary subject. Through intensive communication between teachers and students, and innovative discoveries will be implemented in the presentation of 3D printed models to maximize learning outcomes.