

# Medical Modelling and 3D Printing of Implants and Surgical Guides

**Students name:** Ali Rashid Mahil Al Mamari, 32J161617; Hussam Hamed Salim Al Siyabi, 32S14133;  
Omar Masi Hamed Al-Mamari, 32S15357

**Project Supervisor/Technician:** Mr. Sheikh Ghulam Mohammad, Lecturer / Mr. Vidhu Kumar

**Abstract:** Medical modelling and rapid prototyping is being used extensively to produce accurate implants, helps better surgical planning and patient counselling. Medical modelling can be done by using numerous available software like 3D doctor, MIMICS, Slicer-3D, etc. However, for our study we are using open source software, Slicer-3D. The study involves developing 3D model of the arm of the patient who had a fracture in his wrist while playing cricket. The CT Scan of the patient is taken as an input to develop the 3D model using Slicer software. After developing 3D model a surface model for replacing the plaster procedure would be developed best suiting the anatomical features of the patient hand and wrist for his sound recovery. The skin problems associated with plaster for long time would be avoided moreover the patient can comfortably wash his hands and need to worry about taking extra care for the plaster. Once the 3D model is generated for the region of interest we can also develop surgical guide for reducing surgery time and enhancing the accuracy of the surgical cut for the doctor who is engaged in surgery.

