

University of Kansas Middle School Summer Camp 2019

Hands-On 3D Design and Manufacture of Medical Devices

July 11-12, 9am-5pm

Day 1 – July 11, 2019

Introductions (9-9:15am)

Session I – Introduction to Biomedical Engineering and Heart Valve Design. Lecture followed by team project: designing an artificial heart valve. (9:15-10:30am)

Break (10:30-10:45am)

Session 2 – Introduction to Medical Devices and Procedures for the Cardiovascular System. Imaging and Image-guided Cardiac Procedures. Lectures followed by Leap Motion Demo (10:45am-12:15pm)

Lunch Break (12:15-12:45pm)

Session 3 – Introduction to Computer Algorithms. Lecture followed by Pancake Making Activity and Cardiac Simulation Activity (12:45-1:45pm)

Break (1:45-2pm)

Session 4 – Introduction to Cardiac Function and Algorithms. Lecture followed by Computer Algorithm Demonstration (2-3pm)

Break (3-3:15pm)

Session 5 – Autodesk Fusion 360: Introduction/Tutorials/Hands-on (3:15-4:45pm)

Day 2 – July 12, 2019

Overview of the Day's Activities (9-9:15am)

Session 1 – Introduction to Meshing. Lecture followed by hands-on activity (9:15-10:30am)

Break (10:30-10:45am)

Session 2 – From Images to Animation via Meshes. Hands-on activity. (10:45am-11:30am)

Session 3 – 3D Scanning and Mesh Manipulation. Hands-on activity. (11:30am-12:15pm)

Lunch Break (12:15-12:45pm)

Session 4 – Interacting with and Understanding the Effects of a Computer Algorithm (12:45-1:45pm)

Break (1:45-2pm)

Session 5 – 3D Printing: Intro and Applications. Lecture followed by hands-on assembly activity and demo (2-4:15pm)

Session 6 – Wrap-up and Evaluation (4:15-4:45pm)