

BME 580/RBE 580/ME 5205 : Biomedical Robotics

This course will provide an overview of a multitude of biomedical applications of robotics. Applications covered include: image-guided surgery, percutaneous therapy, localization, robot-assisted surgery, simulation and augmented reality, laboratory and operating room automation, robotic rehabilitation, and socially assistive robots. Specific subject matter includes: medical imaging, coordinate systems and representations in 3D space, robot kinematics and control, validation, haptics, teleoperation, registration, calibration, image processing, tracking, and human-robot interaction. Topics will be discussed in lecture format followed by interactive discussion of related literature. The course will culminate in a team project covering one or more of the primary course focus areas. Students cannot receive credit for this course if they have taken the Special Topics (ME 593U) version of the same course.

Department

Robotics Engineering

Biomedical Engineering

Mechanical Engineering

Credits 2.0**Prerequisites**

Linear algebra, ME/RBE 301 or equivalent.