

**BME 590: FUNDAMENTALS OF ENGINEERING DESIGN**  
**MEDICAL DEVICE DESIGN: PROJECT TOPICS**  
**PALMERI - FALL 2017 / SPRING 2018**

<b>Project Number</b>	<b>Clinical Department (Faculty Mentor)</b>	<b>Project Description</b>
1	Surgery / Urologic Oncology (Dr. Ali Amin Sharifi, M.D.)	Laparoscopic needle detector system for localization of retrieving a lost needle in the abdomen
2	Surgery / Respiratory Therapy (Dr. Harrison Jones, Ph.D.)	Advanced respiratory training device for Pompe's disease therapy
3	Anesthesiology (Dr. Ian Welsby, M.D.)	Low-cost, combined suction/visualization intubation device for OR, ED, military, & EMT applications
4	Cardiology (Dr. Muath Bishawi, M.D.)	Improved, non-invasive blood pressure monitor
5	Pulmonary, Allergy & Critical Care (Dr. Azfar Ali, M.D.)	Design and validation of device to measure water pressure/saturation in exhaled air-port of ventilator
6	Anesthesiology (Dr. Stuart Grant, M.D.)	Improved depth of anesthesia monitor using muscle stimulation
7	Gastroenterology (Dr. Andrew Muir, M.D.)	Improvement of endoscopy ergonomics
8	Surgery / Urologic Oncology (Dr. Ali Amin Sharifi, M.D.)	Noninvasive medical system to measure the length of intramural ureter in children
9	Gastroenterology (Dr. Katie Garman, M.D.)	Automated cell culture reagent exchanger

Projects will have groups of 3 students assigned to them.

Projects 1-5 are for the undergraduate student section; projects 6-9 are for the masters student section.