

BIOMEDICAL ENGINEERING (BME)

BME 4000 Biomedical Device Design 1 (5 Credits)

This course will focus on designing devices for a) solving biomedical engineering problems in various biomedical applications, and b) sensing and measuring various biomedical phenomena followed by displaying the results. The designs will focus on making measurements on biological fluids, tissues, organs, and/or functions to aid diagnoses or treatments. The course will include a combination of theory, labs, and projects.

Typically offered: Alternate Years.

Course Schedule (<https://catalog.spu.edu/course-search/?keyword=BME%204000>)

BME 4100 Biomedical Device Design 2 (5 Credits)

This project-based course will focus on participating in biomedical device design or research. Topics will include research or design in areas such as lab-on-chip, cell mechanics, muscle analysis with ultrasound, isokinetic dynamometry, electromyography, electrocardiograms (EKG and ECG), signal processing of biomedical signals, and biooptics. Typically offered: Alternate Years.

Course Schedule (<https://catalog.spu.edu/course-search/?keyword=BME%204100>)

BME 4500 Ethical issues in Biomedical Technology (3 Credits)

This course discusses ethical challenges in designing, developing, and deploying biomedical technologies. Students will practice identifying and analyzing ethical challenges surrounding issues such as costs of medical care and devices, impacts of modifying or supplementing human abilities, and the availability, effectiveness, and accessibility of biomedical technologies. Students will also consider ethical issues surrounding human subjects and animal research, including learning about FDA and human subjects research requirements. The goal will be to prepare students to respond ethically when in professional practice knowing that ethical challenges will arise.

Course Schedule (<https://catalog.spu.edu/course-search/?keyword=BME%204500>)