

BIOMEDICAL ENGINEERING (BME)

Courses

BME 206. Biomechanics of Human Motion. 3 Credits.

Biomechanics of Human Motion will describe the typical processes—from small scale protein interactions to large scale joint torques—that result in human locomotion. Clinical problems and athletic performance will be discussed. Students will learn about musculoskeletal tissues related to force generation/transmission and will perform kinematic/kinetic analyses. Prerequisite: Senior or Graduate student standing in Engineering, Instructor permission. Cross-listed with: ME 206.

BME 227. Biomedical Instrumentation. 3 Credits.

Measurement techniques for biomedical engineering research and industry, and health care institutions. Integrated biomedical monitoring, diagnostic, and therapeutic instrumentation. Prerequisite: EE 100 or EE 004 or EE 075 or EE 021. Co-requisite: EE 120, ANPS 020, or Instructor permission. Cross-listed with: EE 227.

BME 240. Wearable Sensing. 3 Credits.

Covers current state-of-the-art in wearable sensors and the biomechanical and physiological phenomena they are being used to measure. Emphasis will be given to applications related to human health and medicine. Prerequisite: ME 111 or EE 171 or equivalent with Instructor permission.

BME 241. Biomedical Signal Processing. 3 Credits.

Covers several important physiological signals often monitored in biomedical contexts (e.g. EMG, ECG, PPG). Content will include the physiology that generates the signals as well as the signal processing techniques (e.g., LTI filters, empirical mode and wavelet decomposition) and algorithms used for analysis. Prerequisite: ME 111 or EE 171 or equivalent with Instructor permission.

BME 250. Nanobiomaterials. 3 Credits.

Covers the classes of nanomaterials used biomedically, the biological response, and material testing. Content includes applications of nanomaterials in drug delivery, nano-topography of surfaces, sensors, and imaging as well as the topic of nanotoxicity. Prerequisite: ME 101 or equivalent with instructor permission.

BME 391. Master's Thesis Research. 1-18 Credits.

Credit as arranged.

BME 393. Graduate Seminar. 1 Credit.

Presentation and discussion of advanced problems, research, and current topics in Electrical Engineering by faculty, graduate students, and outside guest speakers. Prerequisite: Graduate Student standing.

BME 396. Advanced Special Topics. 1-18 Credits.

See Schedule of Courses for specific titles.

BME 491. Dissertation Research. 1-18 Credits.

BME 492. Independent Study. 1-18 Credits.

A course which is tailored to fit the interests of a specific student, which occurs outside the traditional classroom/laboratory setting under the supervision of a faculty member, for which credit is awarded. Offered at department discretion.

BME 496. Advanced Special Topics. 1-18 Credits.

See Schedule of Courses for specific titles.