BME 4353  Image Formation and Processing (3)
Cross-listed as ELC 4353
See ELC 4353 for course information.

BME 4370  Biomaterials: Form and Function (3)
Pre-requisite(s): A grade of C or better in ME 3320 and 3322
A traditional mechanical/materials engineering approach will be used to explore the structure and function relationship of naturally occurring biological materials. Emphasis is on mechanical design and function with some discussion of physical properties. Materials used in medical devices will be compared and contrasted with naturally occurring biomaterials.

BME 4372  Bioinstrumentation (3)
Cross-listed as ELC 4372
See ELC 4372 for course information.

BME 4374  Biomechanics (3)
Pre-requisite(s): A grade of C or better in ME 3320
Introduction to biomechanics. Topics covered include: review of fundamental principles of mechanics, human musculoskeletal physiology and anatomy, properties of biological materials, methods and practice of measuring biological signals, biomechanical modeling and simulation, and applications of biomechanical study.

BME 4396  Special Topics in Biomedical Engineering (3)
Pre-requisite(s): Consent of department chair
Study of advanced topics in biomedical engineering. This course may be repeated once under a different topic.

BME 4452  Biomedical Digital Signal Processing (4)
Pre-requisite(s): A grade of C or better in ELC 3335 and STA 3381
Discrete-time signals and systems, sampling theory, z-transforms, spectral analysis, filter design, applications, analysis, and design of digital signal processing systems. Laboratory emphasis on biomedical applications of digital signal processing. Credit cannot be earned for ME 4452 if credit is earned for ELC 4451.

BME 4V97  Special Projects in Biomedical Engineering (1-6)
Pre-requisite(s): Consent of department chair
Advanced topics and/or special project activities in biomedical engineering.

BME 5351  Multidimensional Signal Analysis (3)
Cross-listed as ELC 5351
See ELC 5351 for course information.

BME 5353  Biomedical Signal Analysis (3)
Cross-listed as ELC 5353
See ELC 5353 for course information.

BME 5357  Cardiovascular Engineering and Instrumentation (3)
Cross-listed as EGR 5357, ELC 5357, ME 5357
A quantitative approach to the function and performance of cardiovascular elements, including ECG signal generation, blood flow rheology, and ventricular/vessel wall mechanics. Principles of measurement instrumentation including Fick dilution, ultrasound, and magnetic resonance imaging are explored. Major implant types, as well as FDA submission pathways, are examined.