Michigan State University
Department of Mechanical Engineering

BIOMECHANICAL CONCENTRATION

(16-17 Credits)

A mechanical engineering degree with the biomechanical concentration prepares students for both traditional mechanical engineering as well as bioengineering. Engineers trained in biomechanical engineering find work designing, for example, prosthetics, artificial joints, automotive safety equipment, robotics for telemedicine, heart valves, left ventricle assist devices, and the whole range of medical devices. Research by biomechanical engineers includes studying the strength of bones and soft tissues, the motion of cells, the kinematics of human motion, and the flow of blood.

To complete a Bachelor of Science degree in mechanical engineering with a biomechanical concentration, students must complete the requirements for the B.S. degree, including the following:

•PSL 250 Introductory Physiology–4 credits (Fall and Spring)
•BS 111 Cells and Molecules–3 credits (Fall, Spring and Summer)

Plus *9 credits* from the following list:

•ME	490 Independent Study[1]	1-4 credits (Fall, Spring, Summer)
•ME	491 Selected Topics[1]	1-4 credits (Fall, Spring, Summer)
•ME	494 Biofluid Mechanics & Heat Transfer	3 credits (Fall Only)
•ME	495 Tissue Mechanics	3 credits (Spring Only)
•ME	497 Biomechanical Design	3 credits (Spring Only)
•BE	445 Biosensors for Medical Diagnostics[2]	3 credits (Spring Only)
•ECE	445 Biomedical Instrumentation	3 credits (Fall of Even Years Only)
•MSE	425 Biomaterials & Biocompatibility[3]	3 credits (Spring Only)

CREDIT DISTRIBUTION: PSL 250 will be applied to the Bioscience requirement, and BS 111 will be applied to Other Electives. The nine engineering credits will be applied to the Senior Elective requirement (*not* the "design intensive" course component, however). Completion of the concentration will be noted on the final transcript.

[1]Requires department approval.

[2]One of the prerequisites is (BS 111).

[3]One of the prerequisites is (PSL 250 or concurrently).