

Michigan State University
Department of Mechanical Engineering

BIOMEDICAL CONCENTRATION

(16 Credits)

IMPORTANT: 1) For the latest and most accurate version of this concentration, please refer to the Dept. of Mechanical Engineering website. Earlier versions are invalid and will not be honored. 2) You MUST meet with the ME junior/senior advisor and arrange for the concentration code to be added to your record PRIOR to applying for graduation. This ensures that the concentration statement will appear on your final transcript. To make an appointment, call 517-355-3338.

A mechanical engineering degree with the biomedical concentration prepares students for both traditional mechanical engineering as well as biomedical engineering. Engineers trained in biomedical 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 biomedical 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 biomedical concentration, students must complete the requirements for the B.S. degree, including the following:

- PSL 250 Introductory Physiology—4 credits (Fall and Spring)
- BS 161 Cells and Molecules—3 credits (Fall, Spring and Summer)

Plus *9 credits* from the following list:

•ME	494	Biofluid Mechanics & Heat Transfer	3 credits (Fall Only)
•ME	495	Tissue Mechanics	3 credits (Spring Only)
•ME	497*	Biomechanical Design ¹	3 credits (Spring Only)
•BE	444	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 (Fall Only)

CREDIT DISTRIBUTION: PSL 250 will be applied to the Bioscience requirement, and BS 161 will be applied to Other Electives. The nine engineering credits will be applied to the Senior Elective requirement (*including* the “design intensive” course component if ME 497 is taken). Completion of the concentration will be noted on the final transcript.

¹Design Intensive. Note: The asterisk (*) signifies that the course is design intensive.

²The prerequisites for this course are (BS 161), (CEM 141 or 151) and (ECE 345).

³PSL 250 is Recommended Background for this course.