



# College of Engineering Biomedical Engineering Research Capabilities

Biomedical engineering combines engineering expertise with physical, chemical and mathematical sciences to solve problems in biology, medicine, behavior and health. Biomedical engineers are employed by pharmaceutical industries, government agencies, biomedical product companies, universities, medical center labs and emerging high-tech industries.

## About the Department

Biomedical engineering at Ohio State began in 1971 as a research center within the Department of Electrical Engineering as a result of an award from the National Science Foundation. Professor Herman Weed, who also is an Ohio State alumnus, pioneered the center and developed a graduate program to address the applications of engineering to health care and agriculture and to address the basic science approach in physiology, engineering and physics. The Biomedical Engineering Center's connections to five Ohio State colleges - Engineering, Medicine, Veterinary Medicine, Arts and Sciences and Agriculture - allowed the department to grow to its current association of 60 participating faculty members from 29 departments in nine colleges.

## Research

Research opportunities abound in the areas of biomicroelectromechanical systems, imaging and tissue engineering toward cardiovascular, orthopaedic and vision applications. Breakthroughs in nanotechnology for cell transplants, microfabrication of biodegradable polymers for drug delivery, design of virtual bone dissection simulations, biomechanics of breast tissue, magnetic resonance imaging and spectroscopy, corneal topography and biocompatibility of novel implant materials name only a few of the areas under investigation within the Department of Biomedical Engineering. Twelve core faculty in biomedical engineering plus more than 60 participating faculty researchers collaborate through the department, providing extensive resources for research. Among the collaborators are researchers from the Dorothy M. Davis Heart and Lung Research Institute and the Nanotech West Lab, dedicated to bioMEMS. In addition to the technical and clinical research facilities across campus and at the Ohio State University Medical Center, research also is conducted at Children's Hospital of Columbus. Research and teaching in the department covers the following biomedical engineering domains:

- Biomechanics and Biotransport
- Biomaterials
- Bioimaging
- Molecular, Cellular and Tissue Engineering
- Biomedical Devices and Instrumentation: Biomedical Micro/Nano Technology

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