School of Engineering - Majors

Bioengineering

Bioengineering is a highly interdisciplinary field in which the techniques, devices, materials and resourcefulness of engineers are used to address problems in biology and healthcare; and lessons from biology are used to inspire design and inform progress in engineering. During the past 40 years, this synergy between biology and engineering has led to a wide range of implantable materials, diagnostic devices, sensors and molecular characterization techniques, and it has produced tools that greatly expedited the sequencing of the human genome. Along with these practical innovations has come a rapidly increasing need for personnel with the necessary hybrid skills to capitalize on them, and undergraduate bioengineering programs have proliferated alongside the continued growth of bioengineering research.

The undergraduate major in Bioengineering is designed to provide students with both breadth and depth in two exciting and rapidly expanding fields: tissue engineering and nanobioengineering. The nanobioengineering track reflects the fact that synergy is here to stay between the "nano" and "bio" themes in engineering and science. The name also highlights an initial focus on things molecular, supramolecular, cellular and material, which will allow the program to draw efficiently on the talents of the biologists, chemists, physicists and other UC Merced faculty in basic engineering and science programs.

BIOE Faculty

Computer Science and Engineering

Computer Science and Engineering students at UC Merced will work with the top computer scientists and engineers in the world. Our faculty has developed a program of study that combines practical exposure to the most modern technologies available, with a theoretical foundation that will empower students to master future changes and innovation as technologies continue to evolve at an astonishing pace. Our graduates will thus have both tools and insights to propel them into positions of responsibility and leadership across virtually any occupation.

Computer science and engineering constitutes one of the strongest industrial sectors in the state and the nation, offering a broad spectrum of career opportunities. Education at UC Merced provides the opportunity to participate in innovative classroom learning experiences, to become involved in laboratory research, to participate with fellow students in team activities and projects, and to interact directly with our remarkable faculty. From introductory programming courses through architecture design experiences, and research and team project activities, our students gain insights that allow them to excel throughout their chosen career path.

CSE Faculty

Environmental Engineering

Environmental engineers are distinguished from other environmental professionals through their focus on problem solving, design and implementation of technological or management systems. Environmental engineers search for creative and economical ways to use resources efficiently, limit the release of residuals into the environment, develop sensitive techniques to track pollutants once released and find effective methods to remediate spoiled resources. They serve as the vital link between scientific discovery, technological development and the societal need for protecting human health and ecological integrity. In the coming decades, environmental engineers will increasingly be called upon to address broader issues of environmental sustainability by minimizing the release of residuals through altered production processes and choice of materials; by capturing the resource value of wastes through recovery, recycling and reuse; and by managing natural resources to meet competing societal objectives.

ENVE Faculty

Material Science and Engineering

Since the beginnings of civilization, technological progress has always relied on the materials that people were able to acquire from nature or through trade or by innovation. Wood, stone, bronze, iron, steel, aluminum, cements, plastics, semiconductors, liquid crystals, nanomaterials and quantum dots all have unique properties that enable—but also limit—what humans can make and do. Nations continue to go to war over access to particular raw materials. The construction of safe dwellings, the conveniences of rapid travel, the efficiency of telecommunications, the calculating and archiving power of computers, the life-prolonging gift of surgical implants and the dazzling performances of athletes all require dependable materials. Future technological progress of any kind will always be driven by the available materials.

MSE Faculty

Mechanical Engineering

Mechanical engineers are recruited in a variety of industries, including automotive, aerospace, power generation, environmental, electronics, bioengineering, food processing, and consulting firms, among many others. Because of the variety of fields that are relevant to this profession, the undergraduate program covers areas in dynamics, materials, thermal/fluids, vibrations, controls, computer aided engineering, design and manufacturing. The innovative curriculum at UC Merced provides hands-on education that exposes students to engineering fundamentals, laboratory work and the use of computational tools to solve realistic engineering problems. The program also prepares students to pursue graduate work in engineering or other disciplines. Mechanical Engineering is an evolving discipline that adapts to the current needs of society. Some of the exciting current areas of research include advanced energy systems, sustainable energy, autonomous vehicles, biomechanics and biosensors, nano/micro-technology, computational modeling, design optimization and complex systems.

ME Faculty

Engineering Programs:

- Student Support
- Service Learning
- Graduate Studies