#### **What is Biomedical Engineering?**

Biomedical engineering leverages the vast knowledge base of engineering, biology, and medicine to solve problems focused on health care and the human body. Biomedical engineers design instruments, devices, and software; bring together knowledge from many technical sources to develop new medical procedures; and conduct research needed to solve clinical problems. They often serve as coordinators and big picture problem solvers. By utilizing their extensive backgrounds in engineering, biology, science, and medicine, biomedical engineers are often the bridge that connects the clinical aspect of medicine with the technological understanding of engineering to design, develop, and implement dynamic solutions to health care problems.

Biomedical engineers are intimately involved in the development of devices and techniques to address issues to improve human health. The field is highly multidisciplinary, requiring expertise from a wide range of professionals, and in particular engineers from disciplines as diverse as chemical, electrical, and mechanical engineering. This is true whether in industrial, research, or clinical settings. A successful multidisciplinary team must have at least one member, a biomedical engineering, who possesses a comprehensive understanding of the highly variable and intricate nature of the biomedical system of interest, such as the heart or a prosthetic limb. Biomedical engineers must possess the quantitative and analytical engineering skills needed to precisely define the challenge that is being addressed and assess the effectiveness of any plausible solutions

**What is Chemical Engineering?**

Chemical engineering applies the core scientific disciplines of chemistry, physics, biology, and mathematics to transform raw materials or chemicals into more useful or valuable forms, invariably in processes that involve chemical change. All engineers employ mathematics, physics, and engineering to overcome technical problems in a safe and economical fashion. The chemical engineer provides the critical level of expertise needed to solve problems in which chemical specificity and change have particular relevance. They not only create new, more effective ways to manufacture chemicals, they also work collaboratively with chemists to pioneer the development of high-tech materials for specialized applications. Well-known contributions include the development and commercialization of synthetic rubber, synthetic fiber, pharmaceuticals, and plastics. Chemical engineers contribute significantly to advances in the food industry, alternative energy systems, semiconductor manufacturing, and environmental modeling and remediation. A special focus on process engineering cultivates a systems perspective that makes chemical engineers extremely versatile and capable of handling a wide spectrum of technical problems.

**Computer Engineering**

In the computer industry, rapid innovation is the name of the game, and there is a great demand for computer engineers who can do it all—from designing high performance computer hardware components and software to developing next-generation intelligent, resilient and sustainable products and appliances that contain embedded systems.

As computer technology becomes more essential to commerce and daily life, companies will need computer engineers who possess a well-developed set of skills and who can quickly adapt to changes.

#### **Industrial Engineering**

Industrial engineers design, optimize, and manage the process by which products are made and distributed across the world (i.e., global supply chain), or the way services are delivered in industries such as banking, health care, energy, or entertainment. Industrial engineers ensure that high-quality products and services are delivered in a cost-effective manner.

Industrial engineering is ideal for those who enjoy both technology and working with people. Industrial engineers frequently spend as much time interacting with other engineers and product users as they do at their desks and computers. Typical work involves developing applied models and simulations of processes to evaluate overall system efficiency.

**Electrical Engineering**

Electrical engineers synthesize science, mathematics, technology, and application-oriented designs into world-class consumer products, timely microprocessors, state-of-the-art computers, advanced electronic components, and much more. From cutting-edge technology revolutions to real life applications, the innovations of electrical engineers continue to lead the future and elevate the standards in the marketplace. With a shortage of electrical engineering talent in the job market, the demand for graduates with an electrical engineering degree remains at an all time high.

**Mechanical engineering**

Wherever there is motion or energy, mechanical engineers have played a role in the innovations that define modern life. RIT’s mechanical engineering degree provides students with a broad academic base complemented by hands-on laboratory activities and cooperative education experience. Students may also choose to concentrate their studies with professional electives focusing on aerospace engineering, automotive engineering, energy and the environment, bioengineering, or manufacturing and design.

Mechanical engineering is perhaps the most comprehensive of the engineering disciplines. The mechanical engineer’s interests encompass the design of automotive and aerospace systems, bioengineering devices, and energy-related technologies. The spectrum of professional activity for the mechanical engineering graduate runs from research through design and development to manufacturing and sales. Because of their comprehensive training and education, mechanical engineers often are called upon to assume management positions.

**Salaries:**

**https://www.mtu.edu/engineering/outreach/welcome/salary/**