COLLEGE OF ENGINEERING AND COMPUTER SCIENCE

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The College of Engineering is home to the Departments of Chemical Engineering and Materials Science, Electrical and Computer Engineering, Industrial and Manufacturing Engineering, and Mechanical Engineering. Programs offered through the college focus on a variety of subject areas including embedded computer systems, signal process, control systems, robotics, manufacturing and human processes, safety, bioengineering, automotive design, alternative energy and much more.

Academic Programs

Chemical Engineering

The Chemical Engineering program is designed to prepare graduates with an understanding of advanced chemistry topics; fun, fundamental material and energy balances for chemical processes, thermodynamics, fluid dynamics and heat transfer, chemical reaction engineering, separations and mass transfer technology, process design, optimization, and control. Students are also exposed to experimental and computational methods related to chemical engineering in a sequential set of courses beginning in their sophomore year. Many of these laboratory courses require students to work in teams to submit written and oral reports or apply computational software to complete their projects. In their senior year, students take part in a capstone design course which allows them to integrate the knowledge acquired from their prior foundational courses. Throughout the curriculum, process safety and health as well as environmental and ethical issues in engineering are incorporated. Chemical engineering elective courses are designed to expose students to applications of chemical engineering - including polymer science and engineering, sustainable engineering design, battery technology, and process safety.

Computer Engineering

Computer Engineering is a discipline that integrates principles of electrical engineering and computer science to design, develop, and maintain hardware and software systems. At Kettering University, the Computer Engineering program prepares students for careers focused on embedded computer system design and implementation with applications that span many industry sectors, including consumer electronics, internet technology, advanced mobility systems, and intelligent manufacturing.

The curriculum includes a broad set of general education courses, a strong sequence of mathematics and basic science courses, and a core Computer Engineering curriculum that covers hardware design, software development in both assembly and higher-level languages, computer networking, and embedded computer applications through a combination of computer engineering, electrical engineering, and computer science courses. Additionally, the program includes a rich selection of technical elective course options that provide breadth and depth to the core topics.

Computer Science

Computer Science is one of the fastest growing majors in the world.   Computer scientists are needed in every imaginable industry, from the automotive industry, programming autonomous vehicles to the cybersecurity industry, protecting the world's most sensitive computer systems. Kettering faculty know that our students have to be exposed to state of the art technologies in their curriculum, and our faculty bring their expertise in artificial intelligence, gaming and virtual reality, and cybersecurity right into the classroom. Faculty have designed the Computer Science courses with significant laboratory and project-based content to allow students to deeply explore and personalize the key concepts studied in class. Kettering students have co-op opportunities in top industries, in sectors ranging from e-commerce, automotive, healthcare, and government, and they also have the chance to work directly with faculty on current cutting edge research.

Electrical Engineering

Electrical Engineering is a broad discipline that integrates mathematical and scientific principles of electricity and magnetism to analyze electrical phenomena and to design electrical systems. At Kettering University, the Electrical Engineering program prepares students for a wide range of careers involving the design and implementation of electrical systems through its curriculum, experiential learning, including cooperative education, and co-curricular activities sponsored by the department and the university.

The curriculum includes a broad set of general education courses, a strong sequence of mathematics and basic science courses, and a core Electrical Engineering curriculum that includes fundamental courses in electrical circuits, electronics, electrical signals and systems, electromagnetic fields and waves, digital systems, and embedded computer systems. Additionally, the program includes a rich selection of technical elective course options that provide breadth and depth to the core topics.

Engineering

The Bachelor of Science in Engineering program prepares students for careers in multidisciplinary engineering. The program includes a core set of engineering courses, which provides students with a foundation in Computer, Electrical, Industrial, and Mechanical Engineering principles. Students will then select one of the following application areas: Engineering Management, Manufacturing Systems, Mechatronics Systems or Robotic Systems.

Industrial Engineering

Virtually every organization – banks, the military, theme parks, airlines, restaurants, retail companies, manufacturers, software companies, and even hospitals – needs industrial engineers to find new ways to improve quality, save money, and increase productivity. And there's no better place to launch your career as an expert in innovation than Kettering. Small classes, state-of-the-art labs, co-op, and experiential learning opportunities—it's no surprise that U.S. News & World Report ranked us at the top for fourteen straight years.

Mechanical Engineering

Mechanical Engineering is a broad field that involves the design, analysis, and manufacture of mechanical systems, energy systems, and dynamic systems. The ME curriculum provides students a sound foundation in engineering, math, and science fundamentals that include hands-on learning experiences, and integrated computational and experimental analysis tools. Additionally, they benefit from broad-based exposure to

the social sciences, including management, leadership, and innovation. Mechanical Engineering students may elect to customize their degree by taking a set of elective courses in a specific area; either by pursuing a concentration within the Mechanical Engineering program or by pursuing a Minor with non-Mechanical Engineering programs.

Semiconductor Materials and Devices

Minors

Computer Engineering
Electrical Engineering
Manufacturing
New Energy

Dual Majors

The department heads of the programs have agreed upon a curriculum that satisfies all requirements for the following dual majors. Programs not listed require approval of the appropriate department head(s).

- Computer Engineering & Computer Science
- Electrical Engineering & Computer Science
- Electrical Engineering & Computer Engineering
- Industrial Engineering & Management
- Mechanical Engineering & Electrical Engineering
- Mechanical Engineering & Industrial Engineering