4450: COMPUTER ENGINEERING

In addition to traditional large computer applications, devices containing some form of embedded computing system are becoming pervasive in our society. Computer engineers design and develop hardware and software for all of these systems, ranging from software applications to communication networks to components in computing systems to small embedded sensors. Branches of computer engineering include operating systems, embedded systems design, digital circuits, algorithms, software design, and computer architecture among others. Important applications include wired and wireless networks, simulation, automation, digital control, sensing, robotics, “apps,” data management, and many others.

The Computer Engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org. Our comprehensive curriculum prepares students to identify, formulate, and implement solutions to real-world problems. Students learn how to use modern engineering tools in well-equipped laboratories, with activities that reinforce the concepts learned in the classroom. The curriculum emphasizes design and teamwork, and culminates in a capstone senior design project that integrates the material learned in earlier courses. Our well-established co-op program enables students to strengthen the connections between theory and practice in a professional setting, and provides valuable industrial experience.

The educational objectives of the Computer Engineering program are that its graduates:

• Achieve competitively compensated computer engineering positions of related professional positions, or entry into programs of advanced study
• Prove to be highly competent and productive in computer engineering or related practice
• Continue to develop professionally through both practical experience and a lifelong commitment to learning, and
• Exhibit high standards of ethical conduct, societal responsibility, and professionalism in engineering.

In order to achieve these objectives, students graduating from the Computer Engineering program have:

• an ability to apply knowledge of mathematics, science, and engineering
• an ability to design and conduct experiments as well as to analyze and interpret data
• an ability to design a system, component, or process to meet desired needs within realistic constraints
• an ability to function on multi-disciplinary teams
• an ability to identify, formulate, and solve engineering problems
• an understanding of professional and ethical responsibilities
• an ability to communicate effectively
• the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
• a recognition of the need for, and ability to engage in life-long learning
• a knowledge of contemporary issues

• an ability to use techniques, skills, and modern engineering tools necessary for engineering practice
• an understanding of safety issues in computer engineering