

University of Notre Dame

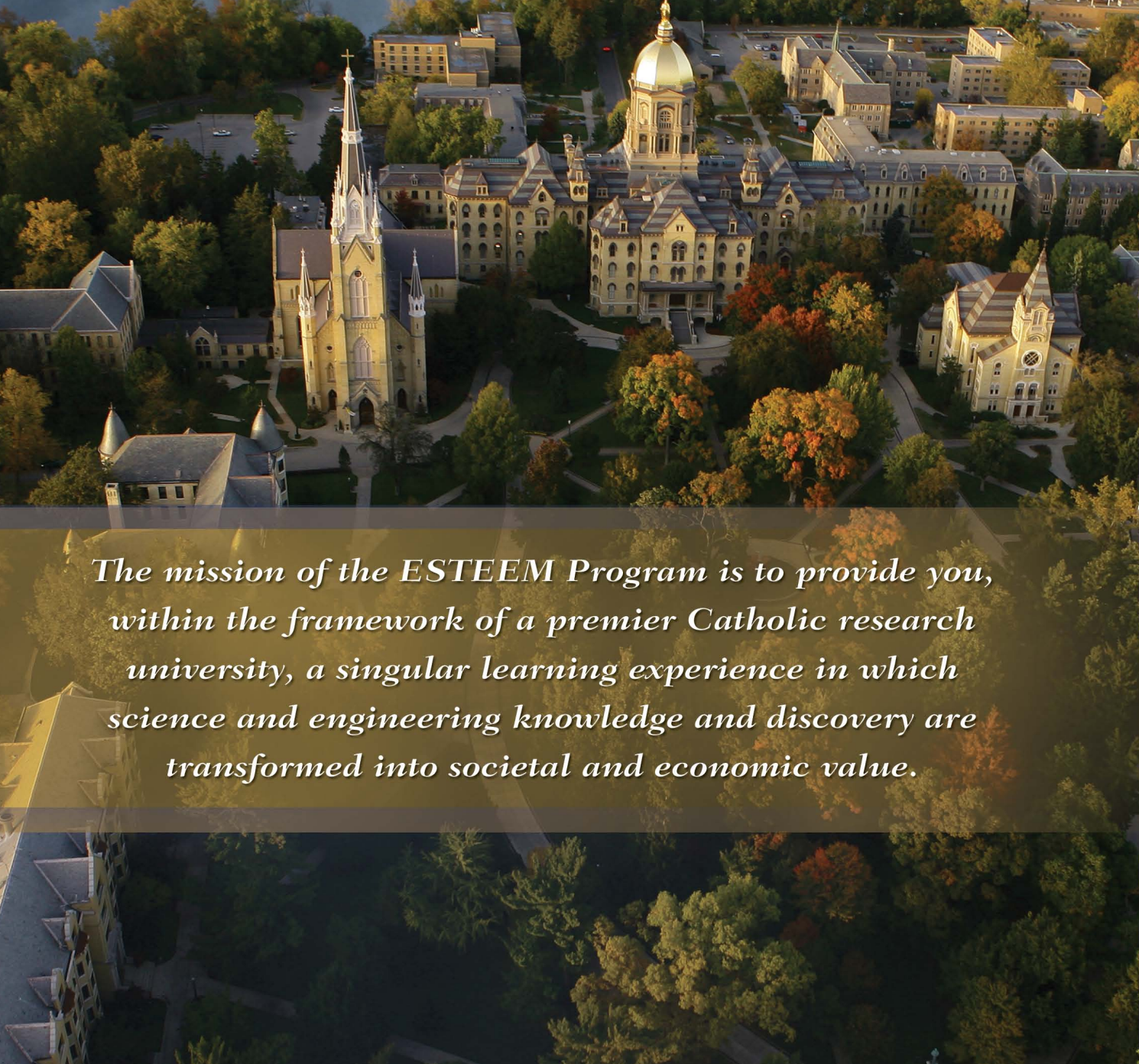
ESTEEM

ENGINEERING, SCIENCE, AND TECHNOLOGY
ENTREPRENEURSHIP EXCELLENCE
MASTER'S PROGRAM



A Formula
for Success





The mission of the ESTEEM Program is to provide you, within the framework of a premier Catholic research university, a singular learning experience in which science and engineering knowledge and discovery are transformed into societal and economic value.

Letter from the DEANS

More than ever before America needs technologically gifted men and women who want to push the limits of what is possible, explore the possibilities, and develop solutions to a variety of pressing problems. It needs innovators with an entrepreneurial spirit, who can command technology and business practices. One of the key challenges, however, to improving our country's technological preeminence is that most science, engineering,

and mathematics students have not been exposed to the innovation process or to the utilization of intellectual property for the creation of vibrant

new companies and enterprises. As a recent graduate you, better than anyone, understand how few and far between are the opportunities to study the fundamentals of business while also pursuing advanced science and engineering concepts. But there is an option, one that focuses as much on business acumen as it does technical leadership.

The College of Science, College of Engineering, and the Mendoza College of Business are pleased to introduce the ESTEEM (Engineering, Science, and Technology Entrepreneurship Excellence Master's) degree program. The first interdisciplinary, inter-college graduate degree program in the history of the University, ESTEEM will help prepare you for lifelong engagement with innovation that is wholly congruent with Notre Dame's distinctive Catholic character and fosters a culture of excellence, inclusion, collaboration, and respect for diverse ideas and care for the common good.

Twenty-nine students are currently enrolled in the ESTEEM program, and they are pursuing a wide range of projects in a variety of fields, from energy to transportation and environmental studies to cancer research. Over the course of the next 12 months as they work toward a master's degree, they will learn technology entrepreneurship and professional practices so that when they graduate they will be fully capable of starting their own small companies or creating new opportunities in large corporations. As you think about your future, consider the ESTEEM program and where it can take you.



Gregory Crawford
William K. Warren
Foundation Dean
of Science



Peter Kilpatrick
Matthew H. McCloskey
Dean of Engineering



Carolyn Woo
Martin J. Gillen Dean
of the Mendoza
College of Business

Created for graduates in engineering, mathematics, and science programs, ESTEEM integrates learning and creativity, the extension of knowledge to enable solutions, the expression of personal values, talents, and a commitment to the common good. Through a series of carefully crafted courses, in-depth research, and rigorous project requirements, your capabilities will be stretched.

The ESTEEM Curriculum

From graduate-level science and engineering courses to further refine your technical skills to courses in technology business fundamentals, (including finance, technical marketing, strategy, and ethics) and technology and operations management (including statistical methods, financial mathematics, operations research, and R & D management), you will be challenged to think creatively

about what products or processes to design and how best to bring them to market.

For your capstone thesis project, you will be required to develop a high-tech business analysis and plan from an embryonic seed concept through commercialization. But you won't be working alone. Each ESTEEM student works with a faculty mentor from the College of Science or the College of Engineering and, because the program is interdisciplinary in nature, you will have the resources of Notre Dame's College of Engineering, College of Science, and Mendoza College of Business at your fingertips. Everything is geared for your success. In addition, you will be able to take full advantage of Innovation Park, a business incubator designed to facilitate the migration of research and new venture ideas into the marketplace. Innovation Park will be a "second home" for ESTEEM students, especially those working on their projects with the businesses located there.



... America needs technologically gifted men and women who want to push the limits of what is possible, explore the possibilities, and develop solutions ...

To be considered for admission to the ESTEEM program, by the time of matriculation you must hold a bachelor's degree in engineering, science, or math from an accredited American university or from a foreign institution of acceptable standing; have earned at least a B average in your undergraduate major courses; meet the level of academic achievement that implies a developed ability for advanced study and independent scholarship; and complete an electronic application form, including all fees, test scores, and additional materials before February 15.

For more information visit esteem.nd.edu

The Admission Process

Completed in two semesters and one summer, the ESTEEM program consists of:

- 12 credits in business fundamentals and operations management for technology based business;
- 6 credits in graduate-level science/engineering courses complementing individual projects and refining your technical skills and undergraduate science/engineering background;

- 12 credits focusing on a capstone project where students work with a chosen faculty member, who will seed an idea for the student's project. The thesis is based on either an existing or new Notre Dame invention, patent, or disclosure and will involve in-depth evaluation of the invention and associated technology.
- Final examination for the master's degree will comprise a written thesis and defense describing the detailed evaluation of the invention

The Curriculum Requirements

that culminates in a business plan for commercialization of the intellectual property. The thesis will incorporate experimental and theoretical findings from the project work, target market analysis and applications, competing alternatives, milestones, timelines, financial projections, and an analysis – of technical, logistical, and other hurdles to commercialization.

a partial list of ESTEEM Student Projects

Students in the ESTEEM program are able to pursue many project options in a variety of fields, including but not limited to:

HEALTH

- Tissue vaccines
- The role of lipids in biological membranes
- Water-soluble cytotoxic cancer treatment

SOCIAL PROGRAMS

- Genetics and genomics to fight dengue fever

ENVIRONMENT

- Portable diagnostics for invasive species

- Remote sensors for water pollutants

ENERGY

- Harnessing wasted energy
- Nanotechnology-based solar cells

CHEMICALS AND PHARMACEUTICALS

- Nanotechnology-based active sunscreen

MANUFACTURING

- Passive smart windows

NATIONAL SECURITY

- Nuclear detection and forensics

GENERAL TECHNOLOGIES

- Adjustable acoustics
- Optimum design of structures for crashworthiness



A key characteristic sought by today's employers is the ability of the engineers and scientists they hire to take innovative ideas from concept to product to market. Building on your science/engineering background, ESTEEM will teach you how to anticipate emerging opportunities, exploit value from fundamental research or seed ideas, and assume leadership roles in businesses ... from small start-up companies to Fortune 500 corporations.

The ESTEEM Graduate



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