

Edward P. Fitts

Department of Industrial and Systems Engineering

Ranked in the top 10, the Edward P. Fitts Department of Industrial and Systems Engineering (ISE) offers an undergraduate program leading to a Bachelor of Science in Industrial Engineering and is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org>.

What is Industrial & System Engineering?

Industrial engineers are problem solvers! We analyze processes and ask “how can we make these processes faster, better, and cheaper?” ISEs play a pivotal role in end to end business operations from product development to product and service delivery. It is this holistic view that makes ISE unique. We rely heavily on gathering and evaluating data to help make decisions that are based on statistical and engineering methods. Here are some of the tasks that ISEs lead in industry today:

- Assess the feasibility of manufacturing a new product with existing technologies, resources, and capacity or develop new ways to make products including automation
- Create and monitor quality plans that ensure that faulty products will not be shipped to the customer.
- Determine improved methods of scheduling patients for surgery that decreases patient wait time and surgeon’s overtime.
- Model a retail chain’s inventory and supply chain methods to improve on-time deliveries.
- Develop computer simulation models to design and control large complex manufacturing, supply chain, or service delivery systems.
- Design controls in an airplane cockpit that are Human-centered.

As you can see ISEs enjoy the freedom to explore almost any industry. The career paths that you can take with ISE are virtually limitless! Discover more about a career in ISE! (<https://www.ise.ncsu.edu/what-is-industrial-engineering/#careers-in-ie>)

Program Educational Objectives

The program educational objectives of the ISE department are to produce graduates capable of world-class performance in the following areas:

1. Applying the discipline’s body of knowledge to the design and management of systems, products and processes by optimizing performance with multiple constraints and conflicting objectives while evaluating the importance of time, cost, and quality.;
2. Leading and collaborating on teams in the workplace, while assessing the economic, societal, and ethical impacts and communicating effectively with all stakeholders; and
3. Adapting to changes in technology and our global society through continuous learning.

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Curriculum

Throughout the curriculum students will develop a breadth of knowledge in all of the ISE focus areas resulting in a broad base of knowledge and skills. There is a pervasive thread throughout the curriculum on the measurement, design, and continuous improvement of production and service systems. The result is a data-driven, efficiency-focused engineer that is highly attractive in many industry segments. Our courses are designed to be hands-on whether that is in our state-of-the-art laboratories or using the latest software applications to solve real problems. The senior design capstone course is designed to give students an opportunity to apply what they have learned in the classroom to solve an industry-sponsored project. In addition to ISE courses, students take a wide variety of science, engineering, math, and statistics courses to form a well-rounded education.

Admissions and Certification of Minor

The minor must be completed no later than the semester in which the student expects to graduate from his or her degree program. Paperwork for certification of the minor can be found online (https://studentservices.ncsu.edu/forms/registrar/declare_minor.pdf).

The form should be completed no later than during the registration period for the student’s final semester at NC State and submitted to Registration & Records for processing.

For more information contact:

Kanton Reynolds, Ph.D.
kreyolds@ncsu.edu
919.515.0605

Health Systems Engineering Certificate Program

This program is designed to provide you with a learning experience in preparation for a career in the healthcare field. After successful completion of the program, you will receive a Health Systems Engineering Certificate which sets you apart and makes you more marketable for a future career in the healthcare industry.

Requirements

- A minimum GPA of 3.3
- Your resume (maximum of 2 pages)
- A brief statement of why you are interested in a career in healthcare (no more than 1 page, please)
- One ISE faculty recommendation
- An unofficial transcript
- All materials should be submitted to healthsystems@ncsu.edu by the deadlines listed below:
- Undergraduates – October 1st * (Must be eligible to graduate by Spring semester of the following year)
- Graduate Students – December 20th

Accelerated Baccalaureate/Masters (ABM) Program

This program will allow exceptional undergraduate students to complete both undergraduate and graduate degrees at an accelerated pace. The

student is allowed up to 12 credit hours to be counted towards both the undergraduate and graduate degrees.

For more information contact:

[Kanton Reynolds, Ph.D.](mailto:kreynolds@ncsu.edu)
kreynolds@ncsu.edu
[919.515.0605](tel:919.515.0605)

Requirements

- Students must have completed a minimum of 75 credit hours and up to a maximum of 96 credit hours by the end of the current semester (includes transfer credits).
- Students must have earned a GPA of at least 3.5 overall with a 3.5 for all Industrial Engineering courses.
- Students must have satisfied all prerequisite requirements for 400 level courses.
- A letter of recommendation from the undergraduate teaching adviser identifying the applicant as a participant in the ABM program should accompany the application as well as the course numbers and titles of the 12 credit hours to be used for both the bachelor's and master's degree programs.

For more information about this department, including contact information, visit the department (<https://www.ise.ncsu.edu/>) website.

4221 Fitts-Woolard Hall
919.515.2362

Faculty

Department Head

Julie Swann, *A. Doug Allison Distinguished Professor*

Director, Graduate Programs

Russell King, *Foscue Distinguished Professor*

Director, Undergraduate Programs

Kanton Reynolds, *Associate Teaching Professor*

C.A. Anderson Professor

R. Uzsoy

Edward P. Fitts Distinguished Professor

O. Harrysson

University Alumni Distinguished Professor

S.C. Fang

Professors

J. Dong

Y. Fathi

J. Ivy, *Director, Engineering Management Program*

Y.S. Lee

M. Mayorga

C.S. Nam

R. Shirwaiker

Professor Emeriti

M. A. Ayoub

R. Bernhard

T. Culbreath, Jr., *Foscue Distinguished Professor Emeritus*

P. Cohen, *Edgar S. Woolard Distinguished Professor Emeritus*

T. Hodgson

H.L. Nuttle

S. Roberts, *A. Doug Allison Distinguished Professor Emeritus*

J. Wilson

R.A. Wysk, *Dopaco Distinguished Professor Emeritus*

R. Young

Associate Professor

H. Wan

O. Ozaltin

M.G. Kay, *Director, IMSE Program*

Y. Liu

X. Xu

Associate Professor Emeritus

E. Sanii

Assistant Professor

K. Chen

X. Fang

L. Hajibabai

B. Rachunok

S. Shashaani

Associate Research Professor

C. Rock

H. West

Associate Research Professor Emeritus

J. Taheri

Assistant Research Professor

B. McConnell

Associate Teaching Professor

S.A. King

Assistant Teaching Professor

N. Ozaltin

Lecturers

C. Irwin

M. Spano

N. Summerville

Lecturers Emeritus

M. Feinstein

C. Smith

Plans

- Industrial Engineering (BS) (<http://catalog.ncsu.edu/undergraduate/engineering/industrial-systems/industrial-engineering-bs/>)
- Industrial Engineering (Minor) (<http://catalog.ncsu.edu/undergraduate/engineering/industrial-systems/industrial-engineering-minor/>)
- Supply Chain Engineering (Minor) (<http://catalog.ncsu.edu/undergraduate/engineering/industrial-systems/supply-chain-engineering-minor/>)