



Industrial Engineering: Always in Demand

- Industrial engineering is one of the fastest growing engineering fields, with projected growth of 14 percent in the next 10 years.
- Banks, hospitals, manufacturing and warehousing industries, and government agencies all depend on the skills of industrial engineers.
- Students earning Clemson industrial engineering degrees are employed at world-class companies such as BMW, General Electric, Bank of America, ExxonMobil, Fluor Corp., Boeing, and Microsoft.
- IE is one of the most diverse engineering departments at Clemson; a Clemson IE alumna was the first female inducted into the Thomas Green Clemson Academy of Engineers and Scientists.
- All engineering majors, including industrial engineering, initially apply as a general engineering major on the Clemson admissions application.

For more information about the field of industrial engineering, visit the Institute of Industrial and System Engineers' website:

www.iise.org

For more information about the Department of Industrial Engineering at Clemson, please visit our website:

ie.clemson.edu

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“During my junior year, I had the chance to get experience as an industrial engineer by analyzing and solving some of the logistical challenges that Meals on Wheels experiences in the scheduling of volunteer drivers working in the Greenville area.”

- Kyle Hongsermeier, BSIE '17

What is industrial engineering?



Industrial engineers (IE) improve organized effort, making systems safer, more efficient, and more profitable. Modern industrial engineers can be found in fields including logistics and supply chain, healthcare, manufacturing, consulting, security, finance, and beyond! IE's learn how to model and analyze real-world problems, breaking down decision-making problems into elegant mathematical models. Furthermore, they receive a hands-on education designed to master techniques used to solve complex problems of great value to companies. IE students also analyze how people interact with systems to make working environments safer, and also how to make human-computer interactions more reliable and effective.

How is IE used in practice?

An IE at an auto manufacturing plant would recognize that the plant layout, positioning of the machines, and ordering of the assembly greatly impacts the volume and quality of autos produced. An IE would also be attuned to physical and cognitive stress placed on workers within the system. The IE would integrate these principles to design a more cost-effective, safer, and reliable system.

IE's are also used to optimally construct schedules for athletic leagues (including major professional leagues worldwide), design delivery routes for major shipping operations, construct algorithms that determine hotel and flight prices to maximize revenue, improve our understanding of driver (or pilot) error as a function of driver interfaces or distractions, and even deploy nuclear detectors in a way that thwarts their illegal transportation.

Industrial Engineering at Clemson

Freshmen who major in engineering at Clemson are initially admitted into the general engineering program, where they explore the engineering disciplines offered at Clemson, meet faculty from the various engineering departments, and discover which major fits their personal interests and talents.

Students who decide to major in industrial engineering will take classes in operations research, human factors, design, and quality and reliability. This foundational knowledge will enable these students to address contemporary problems in logistics, transportation, system safety, healthcare, sustainability, and other fields. Their time at Clemson will focus on solving challenging, rewarding, and vital societal problems.



Hands-on learning begins early in the IE curriculum. One of the first IE classes students take requires the completion of a project for a local client, such as parking services or Littlejohn Coliseum. Clemson offers on- and off-campus research opportunities through its Creative Inquiry (CI) program, which places its students in state-of-the-art labs. Recent CI projects have improved hospital triage operations, and have analyzed where and how to place solar arrays both locally and abroad.

Students graduating with an IE degree are pursued by a broad array of companies after graduation. IE students have won Fulbright scholarships, fully-funded doctoral fellowships to Clemson and at other top-ranked departments in the country, and are competitive for national awards as well, such as those sponsored by major professional societies.



Clemson's IE faculty team features experts in operations research, human factors, simulations, and production systems. They teach courses at all levels of the curriculum, and our student body of roughly 500 undergraduates find the IE faculty to be accessible and committed to their learning experience.

A career in industrial engineering

Because of its broad importance, IE is one of the fastest growing and most sought after professions in the world. As a result, IE students master fundamental topics in areas such as calculus, physics, statics, and materials. Elective courses allow students to specialize in application areas of interest to them, or prepare for graduate school at Clemson or elsewhere. The breadth that complements a student's IE core education enables students to pursue careers ranging from highly technical positions to those in leadership and management.



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