CLEMSON UNIVERSITY COLLEGE OF ENGINEERING, COMPUTING AND APPLIED SCIENCES

Professional opportunities for IE graduates

Because of the breadth of the IE profession, sectors such as manufacturing and warehousing, healthcare, finance, logistics, and government all depend on the skills of industrial engineers to operate effectively and competitively.

Only Michigan has a higher concentration of Industrial Engineers than South Carolina, and our graduates are sought after in all parts of the United States. Recent graduates have found jobs at companies including General Electric, BMW, Federal Express, 3M, Lowe's, Michelin, Bank of America, Amazon, UPS, Lockheed Martin, Eaton, Exxon, Boeing, and Disney.

Our Ph.D. graduates receive the opportunity to assist and even lead in course instruction at Clemson. This experience, coupled with their thorough research focus, allows them the flexibility to choose between a career in academia, industry, or research based on their own interest. In addition to the foregoing industry careers, Clemson graduates have taken positions at top domestic and international academic research and education programs.

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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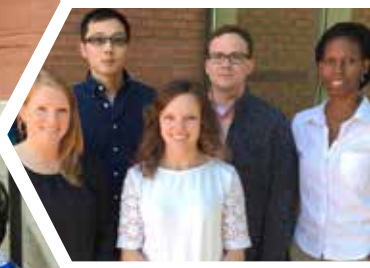

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Why Clemson IE?

Clemson Industrial Engineering (IE) is dedicated to research and education. Our degree programs are innovative and challenging, and IE students are given the education and resources to develop groundbreaking studies that impact their community.

The Department of Industrial Engineering serves the State of South Carolina and the nation through teaching, research, and outreach in the discipline of industrial engineering. A particular focus for industrial engineering at Clemson University is to be a nationally top-ranked industrial engineering department emphasizing the education, research, discovery and application of knowledge in the following information technology driven emphasis areas.

IE Affiliated Centers and Labs

CELDi

CLEMSON ERGONOMICS & APPLIED STATISTICS LAB

Clemson Institute of CISCOL Supply Chain Optimization & Logistics

RIGGS LAB COGNITIVE ERGONOMICS & SYSTEMS ENGINEERING

SmartState SC Centers of Economic Excellence

Energy Systems Design and Security

Energy-related problems in operations research comprise one of the hottest areas in the engineering community.

IE at Clemson features environmental strengths in various areas, especially in optimizing the processing of biofuels. This line of research intersects with existing expertise in supply chain optimization.

Power networks typically involve extraordinarily complex problems that are made over uncertain data, along with imperfect infrastructure. These problems can, for instance, study the design of smart grids that are resilient to spikes in demand, or that maximize the combined efficiency of various power sources such as wind, wave, solar, nuclear, and fossil fuels.

Securing these networks is not only important with respect to accidental failures, but also with respect to intentional attacks. A complementary research area thus involves the fortification of infrastructure in anticipation of a malicious entity that seeks to maximize damage to critical systems. These systems extend beyond energy networks, and include defense, transportation, production, and other systems.

Production, Manufacturing Systems, and Quality

IE at Clemson has traditional strengths in improving multiple facets of production and manufacturing systems,

ranging from ergonomics considerations, cognitive factors in high-tech production processes, scheduling and layout optimization, and other issues related to the systematic design of manufacturing systems.

The IE department is known for its contributions to quality control theory and methodology, which is especially critical in the context of production and manufacturing.

Research Focus Areas

Healthcare Systems Engineering

Industrial engineers have increasingly begun to examine contemporary problems related to healthcare.

The IE department at Clemson has strengths in this area related to the study of how technology can be used in hospitals.

Researchers in IE have also studied tactical issues such as the optimization of machines used in radiation therapy and proper HIV drug treatment programs, and systematic issues such as transplant operations and clinical trial design.

Other areas regard hospital inventory planning, safety analysis and regulations, limited resource allocation (such as hospital beds), and personnel scheduling, among other challenges.

Because operations research, quality control, and human factors are not universally well understood in the healthcare area, the opportunity exists for the IE department to make transformative gains in partnership with our engineering and medical partners.

Transportation, Supply Chain, and Logistics

Transportation challenges in engineering range from automotive manufacturing processes, to the design of information systems used to aid drivers, to the analysis of large-scale traffic flows and design of traffic systems.

Supply chain and logistics problems analyze the movement of goods and materials over complex networks. They integrate the decisions related to the procurement of raw materials, to the manufacture and assembly of the product, and all the way to customer delivery.

Logistics encompasses many of the supply chain issues, but with a focus on orchestrating the movement of items throughout networks. As a result, these three areas overlap one another, and the synergy created in industrial engineering research efforts lends insights outside of the individual subject areas.

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