# Integrated Manufacturing Systems Engineering

The Integrated Manufacturing Systems Engineering (IMSE) Institute was established in 1984. IMSE provides multidisciplinary graduate-level education and practical training opportunities in the theory and practice of integrated manufacturing systems engineering at the masters level. IMSE focuses on providing a manufacturing presence and a program environment in the College of Engineering where faculty, graduate students and industry can engage cooperatively in multidisciplinary graduate education, basic and applied research, and technology transfer in areas of common interest related to modern manufacturing systems technology. The objective of the IMSE program is to offer students with traditional discipline backgrounds in engineering and the physical sciences an opportunity to broaden their understanding of the multidisciplinary area of manufacturing systems. Core areas of concentration are offered in manufacturing systems, logistics, mechatronics, and advanced manufacturing.

## Admission Requirements

Admission to the IMSE master's program requires a B.S. degree from an accredited institution in engineering, physics, mathematics, or computer science. Check with the Institute if your degree is in a field other than these listed.

## Master's Degree Requirements

The IMSE program requires a minimum of 27 hours of graduate course work and six hours of research project. The graduate course work includes five required core courses that provide a multidisciplinary overview of subject materials basic to manufacturing systems, logistics, mechatronics, and advanced manufacturing. Specialization is provided in the student's elective courses. The six hours of research project is performed either individually or in teams in areas that complement and reinforce the graduate course work.

The IMSE degree is now available through Engineering Online as a distance program. Application to the IMSE Distance Education program is the same as the on-campus program. More information is available via the IMSE Institute (https://www.imsei.ncsu.edu/) (wjirwin@ncsu.edu, 919-515-3808).

## Student Financial Support

Assistantships and internships are available to qualified students. The full financial support package covers tuition and health insurance. Internships are also undertaken directly with host companies.

## Internship

The IMSE internship program was established to provide a cooperative industrial and academic experience for some IMSE students and our industrial sponsors. Several Internship awards are made available every year for special training in IMSE host companies. Students who are selected to participate in the internship program may receive financial support for up to four semesters and one summer. Typically, the student attends classes for two semesters (fall and spring), works at the sponsor company for the following summer and fall semester, and completes the IMSE course requirements the following spring semester. The student uses the experience at the sponsor company as the basis for their IMSE research project.

## Other Relevant Information

IMSE Students are supported by companies across the country during their internships. Both full-time and part-time internship support is provided depending on availability. These companies have included: ABB, ABCO Automation, Applied Materials, AT&T, Bayer, BSH, Bosch, Biogen, Castle Hill Technologies, Caterpillar, Closure Medical, Corning Cable Systems, CSX, Cummins, Disney, Dupont, Daimler Trucks, Elkay, Ford, GE, GKN, GSK, IBM, Ingersoll Rand, Intel, John Deere, Mack Trucks, Mayne Pharma, Michelin, Morganite, MTS Systems, Nekton Technologies, Rubbermaid, RxMedic, Samsung Semiconductor, Schwanns, Snap-On, Tesla, UPS, Volvo Trucks, and ZF Corporation and many others.

## Degrees

- Integrated Manufacturing Systems Engineering (MR) (http://catalog.ncsu.edu/graduate/engineering/integrated-manufacturing-systems-engineering/integrated-manufacturing-systems-engineering-mr/)
- Integrated Manufacturing Systems Engineering (Minor) (http://catalog.ncsu.edu/graduate/engineering/integrated-manufacturing-systems-engineering/integrated-manufacturing-systems-engineering-minor/)

## Full Professors

- Roger L. Barker
- Michael D. Boyette
- Marianne Bradford
- Gregory D. Buckner
- Yuan Sung Al Chen
- Mo-Yuen Chow
- Timothy Gladstone Clapp
- Elizabeth Carol Dickey
- Yahya Fathi
- Tushar K. Ghosh
- Robert B. Handfield
- Ola Lars Anders Harrysson
- Thom Joel Hodgson
- Julie Simmons Ivy
- Warren J. Jasper
- Jeffrey Allen Joines
- Russell E. King
- James Woodrow Leach

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Yuan-Shin Lee
Trevor J. Little
Ning Lu
Louis A. Martin
Michael A. Rappa
William John Rasdorf
Jon Paul Rust
Abdel-fattah Mohamed Seyam

**Associate Professors**
Jacob James Adams
Dennis R. Bahler
Pamela Banks-Lee
Kristin Anne Barletta
Ramon R. Collazo
Jingyan Dong
George Lawrence Hodge
Hsiao-Ying Shadow Huang
Michael G. Kay
Karlyn Mitchell
Daniel Erique Saloni
Donald P. Warsing

**Assistant Professors**
Timothy Joseph Horn

**Practice/Research/Teaching Professors**
Semra Sebnem Ahiska King
Billy L. Edge
Steven D. Jackson
David Lee Lubkeman
Brandon Mark McConnell
Henry Lee Nuttle
Tania Milkova Paskova
Claude Lewis Reynolds Jr.
Javad Taheri

**Emeritus Faculty**
Roy E. Carawan
Stephen N. Chapman
Charles Thomas Culbreth Jr.
Perry L. Grady
Thom Joel Hodgson
Thomas Johnson
Stephen Dean Roberts
Ezat Sanii
William A. Smith Jr.
James Reed Wilson
Richard Allen Wysk
Robert E. Young
Carl Frank Zorowski

**Adjunct Faculty**
Brian Denton
Mihail Devetsikiotis
Tania Milkova Paskova