## Courses

### Intro/Core
*(Required first year)*

IE 563. Engineering Management Theory  
IE 565. Systems Engineering & Analysis

### Core
*(Required)*

IE 564. Decision Analysis in System Design  
IE 570. Systems Engineering & Project Management  
IE 585. Requirements Engineering

### Electives*
*(Select 5 courses/15 credits)*

**Manufacturing Courses**

IE 448. Manufacturing Systems Engineering  
IE 541. Inventory Control & Production Planning  
IE 561. Continuous Quality Improvement of Process  
IE 572. Design & Evaluation of Human Computer Interaction  
IE 577. Human Factors

**Engineering Courses**

IE 452. Introduction to Systems Engineering  
IE 503. Introduction to Sustainable Production Systems  
IE 560. Engineering Risk Analysis  
IE 561. Continuous Quality Improvement of Process  
ME 525. Optimization Methods for Complex Designs  
Aer E 554. Metaheuristic Optimization & Modelling for Complex System Design  
Aer E 563. Intro to Multidisciplinary Design Optimization  
Aer E 568. Large-Scale Complex Engineered Systems

**Software Courses**

IE 581. e-Commerce Systems Engineering

**One Graduate-Level Course of Your Choice**

* Elective courses are subject to change by IMSE Department

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## Department of Industrial and Manufacturing Systems Engineering

Iowa State University  
3004 Black Engineering  
Ames, IA  50011

 systems-eng@iastate.edu  
(515) 294-4702

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Iowa State University does not discriminate on the basis of race, color, age, ethnicity, religion, national origin, pregnancy, sexual orientation, gender identity, genetic information, sex, marital status, disability, or status as a U.S. veteran. Inquiries can be directed to the Office of Equal Opportunity, 3350 Beardshear Hall, (515) 294-7612.
This Master of Engineering in Systems Engineering program is designed to enable engineers to develop the analytical abilities needed to design and manage complex systems. The intent of this program is to extend the ability of engineers to work across disciplinary boundaries and to develop their management and leadership capabilities for today’s work environment. Iowa State University offers both online and on-campus courses, so you can fulfill your professional obligations and enhance your educational credentials.

The International Council of Systems Engineering (INCOSE) defines Systems Engineering as follows:

Systems Engineering (SE) is a design and management discipline that is very useful in the designing and building of large or complex systems. It is a discipline that was conceived of and introduced by the U.S. Government and was developed to counteract the difficulties encountered in the engineering of increasingly large, complex, and interdisciplinary technological systems.

**Admission requirements**

Unrestricted admission requires (1) a 3.0 grade point average from an ABET accredited undergraduate engineering program, (2) two years of engineering experience or current full-time employment as an engineer, (3) calculus, engineering statistics, and engineering economy. A GRE is not required.

Applicants for admission to the Systems Engineering program apply through the Graduate College at ISU.

Each applicant must submit:
- Application and application fee
- Official academic transcript
- Three letters of recommendation
- Resume

Students enrolling full-time into the program must have two years of work experience as an engineer. Students enrolling part-time into the program must be currently employed as an engineer.

Application should be submitted as early as possible before the beginning of the term for which admission is sought. Applicants may apply for admission to the Systems Engineering program online through the Graduate College website at:

www.admissions.iastate.edu/apply/graduate.php

"The Systems Engineering program has given me a new perspective of the things that surround me. I have learned to critically analyze problems and have become a better decision maker”

- Silvia Quintero, graduate student in systems engineering

*Complete your degree for under $26,000*  

*expected total cost of all courses required for the program as of 2018.*