

# SYSTEMS ENGINEERING

## Systems Engineering Master's Degree

Administered by the Department of Industrial and Manufacturing Systems Engineering

The Systems Engineering Program focuses on developing an individual's analytical skills to design, evaluate, and build modern complex engineered systems. Engineers who can conceptualize, model, and integrate hardware, software, data, and humans are critical in technology driven multi-disciplinary design teams. The Iowa State University Master of Engineering in Systems Engineering Program is designed to train engineers to excel in the technology driven design environment commonly found in developing modern complex engineered systems. The program can be completed on line or in residence, part-time or full-time.

### Admission Requirements

Unrestricted admission requires (1) a 3.0 grade point average from an ABET accredited undergraduate engineering program, (2) minimum of 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 for this program.

Applicants for admission to the Systems Engineering Program apply through the Graduate College at Iowa State University. Each applicant must submit:

- Application and application fee
- Official academic transcripts
- Three letters of recommendation
- Resume

Applications should be submitted as early as possible before the beginning of the semester for which admission is sought. Individuals may also take up to 9 credits at Iowa State as a non-degree seeking student and then transfer them to the program when they are admitted. (<http://www.elo.iastate.edu/how-elo-works/admission-and-enrollment>)

The Master of Engineering in Systems Engineering Program at Iowa State University is focused on supporting working professionals so teaching or research assistantships typically are not available.

Degree Requirements (10 courses total = 30 credits)

Intro Core (required first year)

I E 563	Engineering Management Theory	3
I E 565	Systems Engineering and Analysis	3

Additional Core

I E 564	Decision Analysis in System Design	3
I E 570	Systems Engineering and Project Management	3
I E 585	Requirements Engineering	3

Electives (select 5 courses from any categories)

Manufacturing Courses

I E 448	Manufacturing Systems Engineering
I E 541	Inventory Control and Production Planning
I E 549	Computer Aided Design and Manufacturing
I E 561	Continuous Quality Improvement of Process
I E 572	Design and Evaluation of Human-Computer Interaction

I E 577	Human Factors
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Engineering Courses

I E 582	Enterprise Modeling and Integration
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AER E 568	Large-Scale Complex Engineered Systems (LSCES)
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I E 503	Introduction to Sustainable Production Systems
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Software Courses

I E 581	e-Commerce Systems Engineering
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I E 588	Information Systems for Manufacturing
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1	Other from any graduate program (optional)
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Students working in research and development who are interested in furthering their research skills may select a creative component option as part of their supporting courses.

### Systems Engineering Certificate 2016 (4 courses total = 12 credits)

Intro Core (required first year)

I E 563	Engineering Management Theory
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I E 565	Systems Engineering and Analysis
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Core (required to pick 2)

I E 564	Decision Analysis in System Design
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I E 570	Systems Engineering and Project Management
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I E 585	Requirements Engineering
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Other focus areas in related disciplines, such as systems engineering, human factors, supply chain management, or manufacturing, may be substituted for supporting courses. A program of study is developed by the student and academic adviser to fit individual needs.

Students working in research and development who are interested in furthering their research skills may select a creative component option as part of their supporting courses.