



Cornell University  
College of Engineering  
Systems Engineering Program

# Master of Engineering in Systems Engineering

## Distance Learning

Presented by  
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# Agenda

1. Why Systems Engineering?
2. Cornell University
3. M.Eng. degree components
4. Distance Learning delivery and courses
5. Projects
6. Application requirements and deadlines
7. Contact us



'Top Ten' engineering knowledge and skills  
World-class faculty and students  
Management and leadership training is project-based

Core Classes	Model-Based Systems Engineering (Fall, 4 credits) Systems Analysis Behavior and Optimization (Spring, 3 credits) Project Leadership/Management (Fall/Spring 4 credits)
Electives	At least one Modeling and Analysis Course (3-4 credits) At least one Applications Course (3-4 credits) No more than one additional business class
Design Project	Faculty-supervised team effort Minimum 6 credit hours

30 credit hours total for degree



*Lectures in Ives Hall connected to remote sites*



*LT Matthew Zarracina completed his degree while serving in Iraq*

## Asynchronous transmission

Web-streaming of instructor and classroom (website)

Synchronized crisp images of lecture material

Jump to any point of lecture

Search lecture content

View a portion of a lecture on the Systems Engineering website video gallery

<http://www.systemseng.cornell.edu/about/video.cfm>.

## Online course management system (Canvas)

Posted announcements, schedules, lecture notes, assignments, lecture video links

Electronic submission of assignments

## Proctored exams



*Intensive One-Week  
On-Campus Course*  
50 hours, 1 credit  
TBD- FA2023



- Form your cohort: Social groundwork for team projects
- Engage in experiential content of Systems Engineering Management
- Complete a significant design challenge
- Complete leadership lab and design: Self-assess your leadership style
- Meet our faculty and staff







## Second Intensive One-Week On-Campus Course

*45 hours. 1 credit*

Re-establish your cohort connections

Engage others in experiential content of  
systems engineering management

Emphasis on individual creativity  
and organizational innovation

Develop your systems engineering  
leadership skills





Can be earned through

## **SYSEN 5300: Design of Highly Reliable Systems**

- Identify and remove defect causes and variability to meet and exceed customer expectations
- Black and Green Belts offered
  - 3 credits with a grade of B+ or higher earns a green belt
  - 4 credits with a grade of B+ or higher earns a black belt

Can be earned through

## **SYSEN 5800 & 5880: Industrial Big Data Analytics and Machine Learning & Computational Optimization**

- Real-world applications of large-scale computational optimizations
- Must take both classes offered fall and spring to receive certificate





## **SYSEN 5100: Model Based Systems Engineering, fall, semester , 4 credits**

- **Notification of Outcome – INCOSE**
  - Students must pass the SE Course with 85% or greater. Marcella Purcell will provide a list of students to Certification Office who have achieved this score in the course. Certification office will send emails to students notifying them of their academic equivalency and what their next steps should be.
- What if student doesn't pass with minimum score?
  - Students are encouraged to apply for Certification through the standard process, which starts with submitting your completed individual application form. Students can then take a computer-based knowledge exam.
- What if student passes?
  - Students will not have to pass the INCOSE Knowledge exam required for ASEP and CSEP certifications as long as they apply within 12 months of completing their equivalent course. We recommend students apply for ASEP as there is no requirement to document experience or get references, and then they have 5 years to gain experience in order to transition from ASEP to CSEP.





# Distance Learning (DL) Courses

- SYSEN 4200 Inventory, Operations and Supply Chain Management
- SYSEN 5100 Model Based Systems Engineering
- SYSEN 5130 Service Systems Modeling and Design
- SYSEN 5200 Systems Analysis Behavior and Optimization
- SYSEN 5220 Systems Dynamics
- SYSEN 5300 Systems Engineering Design and Operation of Reliable Systems
- SYSEN 5400 Theory and Practice of Systems Architecture
- SYSEN 5500 SysML
- SYSEN 5740 Design Thinking for Complex Systems
- SYSEN 5800 Computation Optimization
- SYSEN 5880 Industrial Big Data Analytics and Machine Learning
- SYSEN 6100 Systems Seminar Series
- CEE 6910 Principles of Project Leadership
- CEE 6970 Risk Analysis and Management
- ECE 5830 Intro to Technical Management
- MAE 5340 Innovation Product Design
- MAE 5780 Feedback Control Systems
- NBA 5070 Entrepreneurship for Scientists and Engineers

Many other courses found [here](#)



Small groups or geographically dispersed teams

Possibly a work-related project

Gain valuable experience in the application of Systems Engineering

Proven experience





- Bachelor's degree with STEM background preferred (Engineering, mathematics or science) with suitable GPA
- Undergraduate course in Probability and Statistics (matriculation requirement)
- Statement of Purpose ( Why Systems? Why Cornell)
  - 1-1.5 page, don't overthink it, meaningful
- 1 Letter of Recommendation- from an immediate supervisor
- TOEFL exam for international applicants
  - Minimum score of 105 iBT overall
  - Exemptions may apply
  - <https://gradschool.cornell.edu/admissions/prepare/english-language-proficiency-requirement>
- Application Fee \$105 waiver code: Email Jessica
- GRE Waived



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# Thank you!

