Online Graduate Education in Systems Engineering

SE BS/MS Program
Online Information Session

29 October 2020 – 12:00 to 12:30 pm
Zoom: https://wpi.zoom.us/j/5088316594
YOUR WPI TEAM

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Works with prospective students as they are making the decision about Graduate School.

Works to keep curriculum connected with industry trends.

Works with students once they join a degree program, remaining your main point of contact throughout your entire degree.
AGENDA

- What is Systems Engineering? – Don
- Systems Engineering and Program Success – Don
- Career Paths – Don
- BS/MS Process – Don
- Course Overview – Don
- SYS 501 INCOSE Academic Equivalency – Don
- How Online Learning Works – Lisa
- Program Logistics – Lisa
- Q&A – Don, Lisa, Lori
WHAT IS SYSTEMS ENGINEERING?

“The function of systems engineering is to guide the engineering of complex systems.”

- **Guide** ⇒ Lead, manage, direct … to show the way
- **Engineering** ⇒ The application of scientific principles to practical ends
- **System** ⇒ A set of interrelated components working together towards a common objective
- **Complex** ⇒ Elements of the system are diverse and tightly coupled with one another

Systems engineers lead interdisciplinary teams who perform the appropriate processes throughout the system’s lifecycle.
There is tremendous potential for wasted effort on large projects, because their development requires many subsystems to be developed in parallel.

Without a clear understanding of what must be done for each subsystem, the development team risks having inconsistent designs, conflicting interfaces, or costly duplication of effort.

**Systems engineering provides a systematic, disciplined approach to defining, for each member of the development team, what must be done for success.**

**Systems engineering can contribute significantly to successful systems, and to achieving the right balance of performance, cost, and schedule through the system life cycle.**

**As we work and evolve in this complex age of digitalization, the need for well trained and educated systems engineers is more critical than ever.**
BS/MS IN SYSTEMS ENGINEERING

- Bachelor's degree may be earned in any engineering major at WPI.
- Master's degree is awarded in System Engineering.
  - Note: Math or science majors with a minor in engineering should contact the Director of Systems Engineering to discuss their plans.
- Students may double count up to 12 credits.
- The following courses are recommended for double counting:
  - SYS 501 Concepts of Systems Engineering in 4th year of ug studies – 3 credits
  - MIS 576 Project Management in 4th year of ug studies – 3 credits
  - For SE Elective Courses, students may double count any approved combination of 4000 or 500 level engineering, science or math courses that total to at least 6 graduate credits.
- Students should apply for admission in their Junior year.
- Admitted SE B.S./M.S. program students must satisfy all of the requirements of their selected B.S. degree and all the program requirements of the M.S. SE degree.
- Interested students can learn more at: https://www.wpi.edu/academics/undergraduate/bachelors-masters-degree
Combined Bachelor’s/ Master’s Degree Program Course Designation Form

- Form can be accessed at the WPI Registrar page:
- [https://www.wpi.edu/sites/default/files/docs/Offices/Registrar/Combined_BSMS_Degree_Course_Designation_Fillable_PDF_Form.pdf](https://www.wpi.edu/sites/default/files/docs/Offices/Registrar/Combined_BSMS_Degree_Course_Designation_Fillable_PDF_Form.pdf)
MASTER OF SCIENCE IN SYSTEMS ENGINEERING

30 CREDITS

Core Requirements (12 credits)
- SYS 501. Concepts of Systems Engineering
- SYS 510. Systems Architecture and Design
- SYS 511. Systems Integration, Verification & Validation
- OIE 542. Risk Management and Decision Making

SE Depth Requirement (6 credits)
- Complete two additional 3-credit Systems Engineering graduate courses

Electives (6 credits)
- Course options may include Computer Science, Engineering, Business, and Mathematics, System Dynamics

Leadership/Management Requirement (3 credits)
- MIS 576. Project Management
- MIS 582. Information Security Systems and Management
- OBC 506. The Heart of Leadership: Power, Reflection, and Interpersonal Skills
- OIE 554. Global Operations Strategy
- SD 550. System Dynamics Foundation: Managing Complexity
- BUS 546. Managing Technological Innovation

SYS 585. Capstone Experience (3 credits)
During the 2019 International Symposium, the Certification Advisory Group for the International Council on Systems Engineering (INCOSE) approved Academic Equivalency for WPI’s updated SYS 501 Concepts of Systems Engineering graduate course.

Academic Equivalency allows any student who receives a final score of 85% or better to waive the Knowledge Exam for INCOSE’s SE Professional certification program.

The knowledge exam covers the INCOSE Systems Engineering Handbook 4th Edition and is required for the Associate Systems Engineering Professional (ASEP) and Certified Systems Engineering Professional (CSEP) certification levels.

For more information on the certification program and how to apply, please see https://www.incose.org/systems-engineering-certification/certification.
All online classes are housed in Canvas, a web-based Learning Management System.

Asynchronous delivery allows you to complete your weekly assignments on your own schedule.

Students should expect to spend an average of 15 hours per week on class work, in addition to lectures.
PROGRAM LOGISTICS

• Schedule
  ➢ Typically 3-4 courses a year (August, January, March/April, May)
  ➢ 10 week terms

• Current WPI tuition (Academic Year ending June 30, 2021) is $1,610 per credit, or $4,830 per three-credit course.
  ➢ Tuition will increase each academic year

Tuition is due by the first day of course, even if utilizing tuition reimbursement via your employer.

If you are unable to pay your tuition up-front, you may want to consider Tuition Management Systems (TMS), which allows you to pay in installments. TMS is a third-party service offered by WPI:

www.wpi.afford.com
THANK YOU!

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Questions?