

Erik Jonsson School of Engineering and Computer Science

Department of Systems Engineering

Objectives

Systems engineering is an interdisciplinary field of systems engineering, focusing on the design, modeling, interconnection, and management of large complex systems. In addition to the methods of traditional engineering, systems engineering relies on skills and expertise in areas such as optimization, simulation, economics and finance, risk management, and decision making under uncertainty. These skills come together to address the challenges of designing and managing complex interconnected systems, ranging from an automobile or an airplane to communication systems, financial markets, the power grid, and many more.

The Department of Systems Engineering at UT Dallas focuses research and curriculum in the fundamentals of systems engineering and management, with applications in interdisciplinary areas of interest to industry, such as energy systems, financial engineering systems, software systems, healthcare systems, control and mechatronic systems, and others. In so doing, the Department of Systems Engineering offers an MS degree in Systems Engineering and Management (MS-SEM), a joint program with the UT Dallas Naveen Jindal School of Management. The program brings together faculty and disciplines from the engineering and management schools into a single program that has traditional and executive education formats.

Research

While many diverse areas of research and curriculum are represented by the core faculty and affiliated faculty in the Department of Systems Engineering, we identify with a few basic, core areas of concentration, which combine graduate level research and curriculum:

- Control Systems and Mechatronic Systems
- Robotic and Autonomous Systems
- Energy Systems
- Compressed Sensing

Other curriculum-centric concentration areas in our Systems Engineering and Management (MS-SEM) program are possible research focus areas.

In keeping with the established tradition of research at UT Dallas, the Systems Engineering Department, through its research efforts and its MS-SEM degree program, encourages students to

interact with researchers in other programs in the Erik Jonsson School of Engineering and Computer Science and the Naveen Jindal School of Management, including computer science, electrical engineering, mechanical engineering, bioengineering, computer engineering, operations management, finance, marketing, innovation and entrepreneurship, and business management.

Master of Science in Systems Engineering and Management (MS-SEM)

Department Faculty

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Professors: Stephanie Adams, S.O. Reza Moheimani, Mark W. Spong, Steve Yurkovich

Assistant Professor: Justin Ruths

Chair Emeritus: Mathukumalli Vidyasagar

Professor of Instruction: Nhut Nguyen

The Systems Engineering and Management MS-SEM is a joint program offered by the Erik Jonsson School of Engineering and Computer Science and the Naveen Jindal School of Management.

Features are:

- Two program formats
 1. Professional Master's - with classes offered on weekends only for those in the workforce
 2. Traditional Master's - with classes offered on weekdays
- Flexible choice of core courses in both engineering and management disciplines.
- Elective courses for concentrations in various industry sectors.
- Qualifying students may enter the program in the spring, summer or fall semester.
- Program may be completed in 18 to 24 months with typical course load.
- Opportunity for pursuing combined MS-SEM and MBA in a Dual Degree Program.

More information is available under [MS-SEM](#).

Apart from the MS-SEM program, the Department of Systems Engineering offers several courses that may be included in a MS-SEM concentration or taken by students in other disciplines:

[SYSE 6322](#) Digital Control of Automotive Powertrain Systems

[SYSE 6323](#) ([EECS 6323](#), [MECH 6323](#)) Robust Control Systems

[SYSE 6324](#) ([BMEN 6388](#), [EECS 6336](#), [MECH 6313](#)) Nonlinear Systems

[SYSE 6325](#) ([MECH 6325](#)) Optimal Estimation and Kalman Filter

[SYSE 6326](#) ([BMEN 6324](#), [EECS 6324](#), [MECH 6324](#)) Robot Control

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