Systems Engineering
Think Connections

Biological Networks
Traffic & Transportation Engineering
Carbon Sequestration
City Planning
Infectious Disease
Systems Engineering

Systems Engineering is a contemporary interdisciplinary field where students design and manage large, complex systems over their lifecycles. Follow the Systems Engineering track to combine academic rigor with tangible applications critical to designing and managing large scale urban networks.

“I want to join a growing company, so I can use my passion to push the type of infrastructure that I believe we need to make a real impact on peoples’ lives everywhere.” Anthony McHugh ’16

Systems Engineering Track

With a career focus on Sustainable Buildings and Cities.

Civil and Environmental Engineering

Example Subject Roadmap:

Sophomore Fall Term
1.010 Uncertainty in Engineering
1.101 Introduction to Civil and Environmental Engineering Design I
18.03 Differential Equations
Unrestricted Elective (1)
HASS (5)

Sophomore Spring Term
1.00 Engineering Computation and Data Science
1.102 Introduction to Civil and Environmental Engineering Design II
1.074 Multivariate Data Analysis (second half of term)
Unrestricted Elective (2)
HASS (4)

Sophomore Fall Term
1.011 Project Evaluation and Management, CI-M
1.020 Principles of Energy and Water Sustainability
1.041 Transportation Systems Modeling
HASS (8)

Sophomore Spring Term
1.044 Fundamentals of Energy in Buildings
1.075 Water Resource Systems
Unrestricted Elective (3)
HASS (7)

Junior Fall Term
1.022 Urban Networks (second half of term)
1.085 Air Pollution
Unrestricted Elective (4)
HASS (8)

Junior Spring Term
1.013 Senior Civil and Environmental Engineering Design, CI-M
1.153 Transportation Policy, the Environment, and Livable Communities
1.056 Building Structural Systems
4.110 Design Across Scales

Senior Fall Term
1.023 Senior Department Requirement I (or 2)
1.151 Senior Project, CI-M
1.152 Senior Project, CI-M
1.154 Senior Project, CI-M

Senior Spring Term
1.011 Project Evaluation and Management, CI-M
1.153 Transportation Policy, the Environment, and Livable Communities
1.056 Building Structural Systems
4.110 Design Across Scales

Degree requirements include satisfactorily fulfilling both MIT’s General Institute Requirements (GIRs) subjects and CEE’s Departmental Program.

Track = General Department Requirements (GDR) + Core Subjects + HASS + Restricted Electives + Unrestricted Electives

Unrestricted electives: 24-36 units

Choose unrestricted electives to tailor your degree to gain depth in areas such as Cyber-Physical Systems, Transportation Systems and Policy, Structural Engineering and Management.

Subject schedules may change in advance of the start of the term.
Incoming students got a chance to battle each other in computer-simulated attacks on a public urban network at our Freshman Pre-Orientation Programs (FPOP). CEE Professor Saurabh Amin used an online tool—steeped in data, strategic thinking and mathematical algorithms—to introduce students to Systems Engineering concepts. A burgeoning CEE field, Systems Engineering leverages new sensing, actuation and communications technologies to better manage and control large-scale infrastructure networks. Whether posing as a hacker or defender, students played to win—and learned a lot about a range of infrastructure challenges facing our world today.