

System Design and Management

System Design and Management combines cutting-edge courses from the MIT School of Engineering and Sloan School of Management, enriching the program experience with innovative distance learning, flexible matriculation options, and an interdisciplinary perspective.

AY2016 marked the second year of implementing SDM's new curriculum and integrated core. Its continuous improvement and refinement was once again led by Professor Olivier de Weck and included a team consisting of several SDM faculty: Bryan Moser, Bruce Cameron, Steven Eppinger, Warren Seering, Joan Rubin, and Patrick Hale. As in the prior academic year, SDM master's students enrolled in the new core along with students in the SDM certificate program, which enabled a sharing of systems approaches between students and provided sponsoring companies multiple pathways to develop systems thinking capability in their organizations.

AY2016 also marked the second year in which the incoming master's cohort matriculated in August with the majority of on-campus MIT students. This change from a January to an August start date affords SDM fellows more opportunities to become engaged in the wide spectrum of MIT activities that begin in the fall.

SDM's new track, Integrated Design and Management (IDM), admitted its inaugural class in the fall 2015 semester. The track is led by Matthew Kressy.

Program Communications, Marketing, and Corporate Sponsorship

SDM's marketing activities, along with its admissions team, continue to be focused on reaching out to potential students and companies and to educate them about the SDM program. We continued to use our highly successful series of live information evenings for local technical professionals, including MIT alumni, and also offered two live virtual information sessions, enabling large numbers of prospective students from around the world to attend. These virtual sessions are available on-demand at our website. Additionally, the program continued to host the MIT SDM Systems Thinking Webinar Series, which has had several thousand registrants and on-demand viewers since its inception in November 2010. Interest in this series continues to grow and the largest webinar from the past year had over 600 participants. SDM also hosted nearly 300 attendees at its annual systems thinking conference in October 2015. This year's conference was part of the HUBweek Innovation Series, and was co-sponsored with IDM. Many prospective applicants and sponsoring companies learned about SDM and IDM through the conference, information sessions, and webinars.

Distance Learning

Significant upgrades continue to be made to SDM's distance delivery capabilities. WebEx is now the standard delivery mechanism, and we have focused the distance offering upon the year-long SDM Core.

Master of Engineering Management Program Consortium

The Master of Engineering Management Programs Consortium (MEMPC) provides benefits through sharing of best practices in admissions, program content and administration, and alumni support. The consortium currently includes Northwestern University, Dartmouth College, Duke University, Cornell University, the University of Southern California, and Stanford University. Regional alumni groups are active in Boston, New York City, Chicago, and Washington, DC. Over 160 alumni have become members of the MEMPC alumni group.

Student Statistics

61 master's degree students entered the SDM program in August 2015. Of these, 61% (37 students) were pursuing the degree full time on campus, 11% (7 students) attending at a distance, and the remaining 28% (17 students) were local commuters. The distance and commuter students remained employed while pursuing the SDM degree. In addition to students from corporate backgrounds, there were students from four of the five military branches (United States Air Force, US Coast Guard, US Army, and US Navy)

System Design and Management Student Statistics AY2008–AY2015

Year	2008	2009	2010	2011	2012	2013	1/2014	8/2014	2015
Applications	108	141	117	190	256	222	111	248	296
Company admits	16	27	22	24	23	21	17	16	8
Self-sponsored admits	44	57	50	51	39	41	24	46	55
Total admits enrolled	60	84	72	75	62	62	73	82	69
current round	53	63	52	53	56	46	41	61	63
Total enrolled*		64	54	71	62	62	42	62	63
Research assistants	4	0	14	12	12	6	7	10	6
Distance education	16	19	10	11	11	15	4	16	8

*Includes six second-majors.

Industry Partners and MIT Graduate Certificate in Systems and Product Development

The MIT Graduate Certificate Program in Systems and Product Development is now in its 16th year, with a total of 373 students completing the program to date. Company sponsors have included John Deere, Lawrence Livermore National Laboratory, Cummins, Boeing, United Technologies Corporation, Draper Laboratory, Instrumentation Laboratory, and Biomerieux, among others. John Deere has sponsored almost 200 students through either the master's or the certificate program. Enrollment for AY2016 totaled 31 students sponsored by six companies.

Student Awards

Nissia Sabri (SDM '15) received the MIT SDM Student Award for Leadership, Innovation, and Systems Thinking. Finalists included SDM '15s Tochukwu (Tox) Akobi, Susan Conover, and Na Wei.

Staff

Joan Rubin is serving as the interim executive director of SDM while Pat Hale is on leave. Naomi Gutierrez was named career development and alumni associate, and Amanda Rosas joined SDM as a logistics and administrative specialist.

Integrated Design and Management

Integrated Design and Management (IDM) students learn the human-centered design process in a way that will support them as they strive to become the next generation of innovation leaders. IDM combines a state-of-the-art studio environment and in-depth instruction in engineering and human-centered design with lectures by successful thought leaders, entrepreneurs, and management professors to create a world-class curriculum.

Students come to the program with backgrounds in engineering, business, and design. More than simply teaching the fundamentals, IDM deliberately selects participants that demonstrate a deep passion and desire to have a meaningful impact on the world. The mission of the IDM program is to enable the development of extraordinary leaders who will bring creativity, vision, and integrity to business and society.

Fall 2015 marked the arrival of IDM's inaugural cohort, consisting of 18 students (nine male and nine female) with backgrounds in design (6), engineering (6), and business (6). The 2016 incoming cohort has increased to 21 students—10 male and 11 female, with seven from each discipline.

IDM students participate in a core curriculum known as the Integrated Design Lab, located in MIT's International Design Center. The studio-style course consisting of lectures, workshops, seminars, and team work meets twice weekly for five hours per day. Its blended learning approach emphasizes the importance of mind and hand and heart. Requirements for graduation also include engineering and management foundation courses, electives, and a final project with complementary thesis.

Events

On October 8, 2015, IDM hosted a launch party with roughly 100 guests from the MIT community and industry. The program also held a sales gala on December 10. Student teams sold products (minimum quantity of 50) that they had designed, built, and manufactured. All teams successfully sold out and made a profit.

In the spring semester, IDM students with their industry partners presented more than 20 market opportunities. Of these, five working projects were selected—three sponsored and two student-driven. Sponsors included Sonos, Camper Shoes, and Disney Research. Two of the three sponsors decided to move forward with the work generated by the IDM teams.

Outreach

IDM has been active in outreach by establishing community partnerships, building industry relationships, and engaging companies through a design trek.

- **Community partnerships:** IDM explored possibilities for collaboration with NuVu Studio, invited youth from Innovators for Purpose to participate in the summer orientation program, and volunteered to run a workshop at the MIT Museum Girls Day.
- **Industry relationships:** IDM built relationships with iRobot, Autodesk, Underarmor, GE, Flextronics, IBM, Local Motors, Sagamore Ventures, Prophet, Ericsson, McKinsey, Pixability, Jana, MC10, Ford, MITRE, Dragon Innovation, Altitude, Bose, Frog Design, Fitbit, Solo, Google, and others.
- **Design Trek:** IDM engaged companies by visiting Smart Design, OXO, and Fjord Design in New York City.

Integrated Design Innovation Consortium

Along with co-founding members from Northwestern University, University of Pennsylvania, and Carnegie Mellon University, IDM has been instrumental in creating the Integrated Design Innovation (IDI) Consortium. Harvard University, Hong Kong Polytechnic University, Northumbria University, and many others have shown strong interest in the consortium.

IDI is a collaboration of graduate programs that integrates design, engineering, and business. Our programs provide students with tools to make the world a better place, and our graduates understand their responsibility to approach complex problems with empathy, integrity, and optimism.

IDI programs do this by:

- Teaching students a human-centered design process from which to frame questions and generate creative, innovative solutions to social and business problems
- Helping define what is desirable as technological advances make more things possible, while assembling new technologies into compelling user experiences
- Exploring and defining what is healthy and fulfilling for society and our planet

As academic program leaders of integrated design innovation, we are uniting to share best practices and raise awareness of integrated design among prospective students, peer programs, project partners, and potential employers.

Integrated Design and Management Student Statistics, AY2014–AY2016

Year	2015	2016
Applications	41	102
Company admits	0	0
Self-sponsored admits	18	25
Total admits enrolled	19	25
Current round	18	21
Total enrolled*	18	21
Research assistants	0	0
Distance education	0	0

Awards

Masa Nagata (IDM '15) was the recipient of a Fulbright Scholarship. Honey Bajaj (IDM '15) was the recipient of a 2015–2016 Tata Fellowship.

Staff

Matthew Kressy is director and co-founder of the Integrated Design and Management track. Melissa Parrillo is the program administrator and Andrew MacInnis is the technical instructor in materials and methods for IDM.

Steven Eppinger

Co-director

General Motors Leaders for Global Operations Professor of Management Science

Professor of Engineering Systems

Warren Seering

Co-director

Weber-Shaughness Professor of Mechanical Engineering

Professor of Engineering Systems

Joan Rubin,

Executive Director (interim)

SDM Program Industry Co-director

Matthew Kressy

Director, IDM Track