

System Design and Management

MIT [System Design and Management \(SDM\)](#) is a program that combines cutting-edge courses from the MIT School of Engineering and the MIT Sloan School of Management, enriching the experience with innovative distance learning, flexible matriculation options, and an interdisciplinary perspective.

AY2017 marked the third year of implementing SDM's new curriculum and integrated academic core. The continuous improvement and refinement of the academic program was once again led by Professor Olivier de Weck supported by a team of SDM faculty members: Bryan Moser, Bruce Cameron, Steven Eppinger, Warren Seering, and Joan Rubin. As in the prior academic year, SDM master's students took their core classes with students in SDM's certificate program, which enabled students to share systems approaches and provided sponsoring companies with multiple pathways for developing systems thinking capabilities within their organizations.

This was also the third year in which SDM's incoming master's cohort matriculated in August along with the majority of MIT's on-campus students. This change from a January start date continues to afford SDM fellows more opportunities to engage in the wide spectrum of MIT activities that begin in the fall and pursue internships on a conventional cycle.

SDM's Integrated Design and Management (IDM) track admitted its second class in fall 2016. The track is led by Matthew Kressy (see [Integrated Design and Management](#)" below).

Communications, Marketing, and Corporate Sponsorship

SDM's marketing and admissions teams continued to focus on reaching out and educating potential students and companies about SDM. SDM continued to use a combination of in-person information evenings—which target local technical professionals, including MIT alumni and others interested in the program—and virtual information sessions. SDM held two virtual sessions, enabling prospective students around the world to attend [live webcasts](#) or [view the recorded sessions](#) on demand.

The program also continued the [MIT SDM Systems Thinking Webinar Series](#), which has attracted several thousand registrants and on-demand viewers since its inception in November 2010. Interest in this series continues within the SDM student and alumni communities, throughout MIT, and across industry. SDM also hosted more than 200 attendees for its annual systems thinking conference and related events in October. The conference was incorporated into the HUBweek Innovation series. Many prospective applicants and sponsoring companies learned about SDM and IDM through the conference, information sessions, and webinars.

Distance Learning

SDM continues to make significant upgrades to its distance-learning delivery capabilities, with WebEx as the standard delivery mechanism. The program has focused on offering the yearlong SDM core at a distance.

SDM core faculty received a 2017 MIT Teaching with Digital Technology Award. For details, see the "Faculty Awards" section below.

Master of Engineering Management Programs Consortium

The Master of Engineering Management Programs Consortium (MEMPC) continues to provide benefits to SDM through sharing of best practices in admissions, program content and administration, and alumni support. In addition to MIT, consortium members now include Cornell, Dartmouth, Duke, Johns Hopkins, Northwestern, Purdue, Tufts, and the University of Southern California. Regional alumni groups are active in Boston, Chicago, New York City, and Washington, DC. More than 160 SDM alumni have become members of the MEMPC alumni group.

Student Statistics

Fifty-nine master's degree students entered the SDM program in August 2016. The majority of these students (60%) attend the program full-time on campus. The remainder are split evenly between distance students and local commuters. The distance and commuter students remain employed while pursuing the SDM degree. In addition to students from corporate backgrounds, there were eight students from the various US military branches (air force, army, coast guard, and navy).

System Design and Management Student Statistics, AY2008–2017

Year	2008	2009	2010	2011	2012	2013	Jan. 2014	Sep. 2014	2015	2016
Applications	108	141	117	190	256	222	111	248	296	175
Self-funded admitted students	44	57	50	51	39	41	52	33	60	59
Company-sponsored admitted students	16	27	22	24	23	21	17	16	11	13
Total admitted students	60	84	72	75	62	62	69	49	71	72
Enrolled current round	50	63	52	63	56	57	41	43	59	57
Deferred acceptance to future year	4	3	8	6	5	1	19	4	4	4
Prior year deferral enrolled	2	1	2	8	6	5	1	19	4	2
Total enrolled	52	64	54	71	62	62	42	62	63	59
Research assistants	4	0	14	12	12	6	7	10	6	15
Distance students	16	19	10	11	11	15	4	16	8	4

Notes: Start timing changed in 2014 from January to September. Two cohorts were admitted in 2014 (one in January, another in September) Students admitted for January 2014 were given option to start either January or September. Nineteen deferred their start date to September 2014. "Deferred Acceptance" and "Prior Year Deferral" are not always equal. There have been students that do not choose to enroll after deferral.

Industry Partners and the MIT Graduate Certificate in Systems and Product Development

The MIT Graduate Certificate Program in Systems and Product Development is now in its 18th year, with a total of 453 students having completed the program to date. Company sponsors have included John Deere, Lawrence Livermore National Laboratory, Cummins, Boeing, United Technologies Corporation, Draper Laboratory, Instrumentation Laboratory, and bioMérieux, among others. John Deere has sponsored over 160 students in either the master's or certificate program. Enrollment for the certificate program in AY2017 included 49 students sponsored by seven companies.

Student Awards

Kate Cantu, SDM '16, received the MIT SDM Student Award for Leadership, Innovation, and Systems Thinking. The other finalists were Leo Barlach SDM '16 and Vikas Enti SDM '16.

Several SDM and IDM students were part of an interdisciplinary team of MIT graduate students representing five departments across the Institute that won first place in the graduate division of NASA's Revolutionary Aerospace Systems Concepts–Academic Linkage Design Competition Forum. The team included George Lordos of SDM and Meghan Maupin and John Stillman, both of IDM.

Faculty Awards

SDM core faculty members Bryan Moser, Olivier de Weck, Edward Crawley, and Bruce Cameron were honored with a 2017 MIT Teaching with Digital Technology Award.

Staff Changes

Pat Hale retired as SDM's executive director, a role he had held since AY2005. Everyone in the program is grateful for his service and the significant contributions he made to SDM.

SDM Industry co-director Joan Rubin served as SDM executive director (interim) while Hale was on leave. Upon Hale's retirement, Rubin was appointed SDM executive director and senior lecturer.

Amal Elalam, who formerly worked in SDM finance, is now working in SDM admissions.

Integrated Design and Management

Students in SDM's Integrated Design and Management track study the human-centered design process in a way that will support them as they strive to become the next generation of innovation luminaries. IDM combines a state-of-the-art studio environment with in-depth instruction in engineering and human-centered design. Lectures by successful thought leaders, entrepreneurs, and management professors round out the world-class curriculum.

The track draws students with backgrounds in engineering, business, and design—the elemental components for achieving financially sustainable, feasible, and desirable solutions and products. More than just teaching fundamentals, IDM deliberately

selects participants for their desire to have a meaningful impact on the world. In fact, the mission of the IDM program is to develop extraordinary leaders who will bring creativity, vision, and integrity to business and society.

Fall 2015 marked the arrival of IDM's inaugural cohort. That AY2016 cohort consisted of 18 students: nine men and nine women, with backgrounds in design (6), engineering (6), and business (6). In AY2017, the cohort increased to 21 students—10 men and 11 women, with backgrounds in design (7), engineering (7), and business (7). The program has admitted 24 students for AY2018.

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

Events

IDM hosted its annual sales gala on December 8, 2016. During this event, student teams sold products that they had designed, built, and manufactured to a minimum quantity of 50 units. All teams successfully sold out and profited. More than 100 people from MIT and industry attended.

In the spring term, IDM students and industry partners presented more than 20 potential product opportunities, from which seven working projects were selected and the final products were presented at an event on May 17, 2017.

In June 2017, IDM graduated its first class! Fifteen of the original 18 students crossed the stage at MIT's commencement. The other three students are continuing their studies at MIT.

Outreach

IDM has been active in establishing community partnerships, building industry relationships, and engaging companies through an annual events. In AY2017, program outreach specifically included

- Establishing community partnerships with Innovators for Purpose, the Appalachian Mountain Club, and Atlantis Charter School;
- Building industry relationships with Flextronics, Dragon Innovation, The Avenue Concept, Avatech, Youth Cities, Rhoost, Ministry of Supply, Onshape, The Solo Project, Swisscom, Local Motors, Ericsson, NASA, and Altitude, among others; and
- Engaging companies through a design trek to Ralph Lauren, OXO, and Accenture in New York City.

Consortium

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

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

IDI programs achieve this by:

- Teaching students a human-centered design process for framing problems and generating creative, innovative solutions to social and business problems;
- Helping define what is desirable as technological advances make more things possible, while employing new technologies to create compelling user experiences; and
- Exploring and defining what is healthy and fulfilling for the earth and society.

As leaders of integrated design innovation academic programs, 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, AY2015–2016

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

Student Awards

Masa Nagata IDM '15, received a Fulbright Scholarship (2015–2017).

Honey Bajaj IDM '15, received a Tata Fellowship (2016–2017).

Honey Bajaj IDM '15, received a Legatum Fellowship (2016–2017).

Staff

Matthew Kressy, founding director

Andy MacInnis, technical instructor, Materials and Methods

Maya Olsha, business development director (appointed in 2017)

Melissa Parrillo, program administrator

Lesley Perera, admissions specialist

IDM is seeking an academic director.

Joan Rubin

Executive Director, System Design and Management

Matthew Kressy

Director, Integrated Design and Management