system design and management

MIT System Design & Management Program
Virtual Information Session

Joan Rubin, Industry Co-Director, SDM Program
February 2014
SDM Mission

To educate future technical leaders in architecting, engineering, and designing complex products and systems, preparing them for careers as the technically grounded senior managers of their enterprises.

To set the standards for delivering career-compatible professional education using MIT’s most advanced information and communication technologies.

“This is a program for those who want to lead engineering, not leave engineering.”

– Prof. Tom Magnanti, SDM Founding Co-Director
**SDM – What is It?**

- SDM is the System Design and Management Program
- Professional masters degree program jointly offered by the School of Engineering and the Sloan School of Management
- Partnership between MIT and industry to:
  - Educate future engineering leaders
  - Focus on career-compatible education
- MIT’s first degree granting distance education program
SDM Program Overview

- Single degree - S.M. Engineering & Management
  - 130-150 MIT course credit units + 24 thesis units
  - 11 required courses, 3-4 electives, masters thesis
- August program start, with options for duration
  - 24 month (distance and commuter students)
  - 12 month (on-campus students)
  - 1 semester residency requirement (for MIT S.M. degree)
  - IAP immersion and 1-week “business trips” build cohorts
- Theses typically link sponsored projects with faculty research
SDM Curriculum

- Unified core including integrated presentation of topics in:
  - System Architecture
  - Systems Engineering
  - System & Project Management

- Financial & Managerial Accounting
- Technology Strategy
- The Human Side of Technology
- User-centered Innovation

SDM core

management foundation

Leadership

- Probability & Statistics
- Real Options for Product and System Design
- Operations & Supply Chain Management

engineering foundation

focus areas

- Thesis Seminar & Thesis
- Product & System Design
- Electives – equal number of engineering and management courses

MITsdm
system design and management
Leadership, Innovation, Systems Thinking
**SDM Student Demographics**

- **Program Option**
  - Distance
  - Commuter
  - Full Time

- **Sponsorship**
  - Sponsored
  - Partially Sponsored
  - Self Supporting

- **Previous Major**
  - Engineering
  - Science
  - IT/Computer Science
  - Other

- **Highest Previous Degree**
  - Bachelors
  - MS or MBA
  - PhD or MD

- 3-28 years work experience (average 10)
- 40-50% international 2005-2014
SDM 2013 Entering Class

- 56 + 5 ‘2nd major’ matriculating (43 Male – 13 Female)
- Sponsorship:
  - 23 Company sponsored (not counting Navy students)
  - 33 Self sponsored or partially-sponsored
- On/Off Campus:
  - 28 24-month students – 14 are “distance” – 14 are “commuter”
  - 28 13-16 month full-time, on-campus students
- Citizens of:
  - Canada, Chile, China, India, Japan, Malaysia, Mexico, Singapore, Spain, Thailand, United Kingdom, United States, Venezuela
- Average Work Experience: 9-1/2 years
Distance Education

- Courses delivered in live, interactive video class sessions
- Students typically take two courses per semester (while off-campus)
- Classes supported by MIT Stellar web-based course management system

Over 20 courses offered via distance option
Dual Masters’

MIT-SUTD Dual Masters’ Program

• 13 months at MIT completing the SDM degree, followed by 12 months at SUTD completing a second master’s by way of research

• Generous scholarship includes tuition, monthly living stipend and health insurance at both institutions, as well as round trip airfare

• Applicants must apply separately to both institutions and be accepted at both.

MIT contact:
Jesse DeLaughter
Student and Academic Administrator
Phone: 617-324-8223
Email: jessed@mit.edu
Dual Masters’ MIT SDM-SUTD

Karthikeyan Rajasekharan ‘13

MIT SDM
• Thesis - Software product management in software as a service: The role of customer usage data in feature portfolio optimisation.
• Worked with leading location-based ad player in designing framework to understand customer behavior in mobile environment.
• Conducted a mini case study with Ask.com for understanding Agile methodology applications in SaaS environments.
• Developed a commercialization strategy for Scene and Object Recognition technologies.

SUTD
• Conducted research on the intersection of data science and management decision making.
• Applied machine learning and big data techniques to mine online customer community interaction data for customer preferences and decision making.
• Implemented sentiment analysis, link analysis in bi-partite graphs, topic mining to improve the Product Management decision making process.

NOW
Began work in April 2013 as Technical Architect for Google’s Cloud Platform in Singapore.
Industry Engagement
Industry Involvement in SDM

- Industry engagement is a driving force behind the System Design and Management Program

- SDM affiliation helps companies address the ever-increasing need for systems thinking across organizations concerned with new strategic approaches to innovation in:
  - technology
  - product development
  - supply chain
  - global operations

- Benefits from affiliation with SDM include:
  - Sponsoring employees
  - Sponsoring internships and thesis research
  - Hiring SDM Fellows
Ongoing Connections to Industry

- Guest lecturers at SDM events
  + Educates students on new industries and opportunities
  + Allows companies to solicit feedback on real day-to-day challenges
- Sponsorship of class projects, internships and thesis research
- Participate in annual Systems Thinking conference
  + Industry leaders and MIT faculty share best practices
- Judge product design and development projects
  + Learn and share “tool box” of approaches to systems design
- Host plant tours
- Sponsorship of students to enhance systems thinking capabilities within an organization
  + Masters of Science program
  + Certificate program
SDM Collaborator Companies

2009 - 2013

Government Participants 2008-2013
Alumni: Industry Breakdown
Impact …

Hans D Schumacher, SDM 00
Senior Vice President,
Business Technology Group
Bank of America

Freddie Douglas, SDM 00
Manager, Office of Safety
& Mission Assurance, NASA

Mona Masghati Vernon, SDM 09
Senior Director, Technology Strategy
Thomson Reuters

Lisa Cratty, SDM 01
Director, R&D
Becton, Dickinson

Varun Parmar, SDM 04
Senior Manager, Corporate Strategy
Adobe Systems

Rehan Asad, SDM 07
Associate Director, Corporate Strategy
AT&T

MITsdm
system design and management

Leadership, Innovation, Systems Thinking
Impact ...

Doug Hague, SDM 99
Reporting & Analytics Executive,
Bank of America Corporate Banking

Leandre Adifon, Cert 01
VP Engineering
Ingersoll Rand

Bob Smith, SDM97
VP Engineering & Technology,
Chief Technology Officer
Honeywell Aerospace

Trinidad Grange-Kyner, SDM 08
Senior Consultant
Deloitte Consulting LLP

Bruce Hoopes, SDM 98
VP Engineering
UTC Fire & Security

Agus Sudjianto, SDM 99
Director, Analytics & Modeling
Lloyd’s Banking Group

Leandre Adifon, Cert 01
VP Engineering
Ingersoll Rand
system design and management

SDM Fellows
Questions?

SDM.mit.edu
SDM@mit.edu