MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Sloan School of Management

15.566: *Information Technology as an Integrating Force in Manufacturing*

Spring 1999

Class Times: Half Term 1 (February 2 - March 16, 1999)

MWF 2:30 - 4 E56-270

Instructors:

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Office Hours:

By appointment.

Teaching Assistants:

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Readings:

The course material is available from Graphic Arts (E52-045). It includes all the required readings (articles and cases) to be covered in class, as well as the optional readings which offer supplementary material on the topics discussed.

Grading:

Class participation	**25%**
Home page assignment	**10%**
In-class quiz	**20%**
Case write-up	**15%**
Team project	**30%**

Web Site:

http://web.mit.edu/15.566/

15.566: COURSE OVERVIEW

This course is designed to give you an appreciation for the management issues surrounding the development and use of information technology in organizations. In particular, we will discuss how information technology can play a fundamental role in enabling significant changes in organizations' business processes, work practices, organizational designs, and performance. The course is structured around two main themes:

Technology and the Internet

These sessions examine the key concepts, innovations, and emerging technologies that underlie the sophisticated technological capabilities currently available to companies, including the Internet and some of the business opportunities and challenges presented here.

Technology and the Organization

These sessions examine a number of organizational applications enabled by information technology, as well as addressing some of the issues associated with effectively managing information technology in organizations.

The best way to appreciate the organizational implications of information technology is through extensive and thoughtful discussions in the classroom. We view this course as a cooperative learning experience and expect students to share the insights the have gained from their work experience as well as the readings. Class participation constitutes 25% of the grade. You are encouraged to form study groups to discuss the readings and cases before class. Most of the topics include optional readings for students interested in a more detailed treatment of the issues. This course assumes a minimal familiarity with computer technology and terminology. Students with no prior exposure to computers are encouraged to review the following books put on reserve at Dewey Library:

Laudon, K.C. and Laudon J.P. *Management Information Systems* (5th ed.), NJ: Prentice-Hall, 1998.

Technology Forecast. Menlo Park, CA: Price Waterhouse World Technology Center, 1998.

Grading in this course will be based on class participation (25%), two individual assignments (15% each), an in-class quiz (20%), and a team project (25%). The individual assignments include creating a personal home page, and doing an analysis of a particular business case. The team project requires teams of five students to produce a web site that documents some substantive area associated with business and information technology. The assignments and the team project are to be handed in to the TA before class on all due dates.

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#	DATE	TOPIC	ASSIGNMENTS
1	**W 2/3**	***Welcome to the Revolution*** *Rapidly Changing Business, Organization, and Technology* "The E-Corporation: More than just Web-based, it's building a new industrial order," *Fortune,* Dec 7, 1998, pp. 80-92. "America's Best Technology Users," *Forbes ASAP,* August 24, 1998, pp. 63-86. "How Winners Do It," *Forbes ASAP,* August 24, 1998, pp. 89-92. "Welcome to the Revolution," *Fortune*, Dec. 13, 1993, pp. 66-77. <u>Optional:</u> Malone, T.W. and Rockart, J.F. "Computers, Networks and the Corporation," *Scientific American*, September 1991, pp. 128-136.	Begin thinking about the **team project**
		TECHNOLOGY AND THE INTERNET	
2	**F 2/5**	***Hardware*** Laudon, K.C. and Laudon J.P. "What is a Computer System?" in *Management Information Systems: Organization and Technology,* NJ: Prentice-Hall, 1998, pp. 192-225. Laudon, K.C. and Laudon J.P. "Enterprise Networking" in *Management Information Systems: Organization and Technology*, NJ: Prentice-Hall, 1998, pp. 334-347. Network Computing at Sun Microsystems: A Strategic Deployment. *Harvard Business School Case* #9-198-007. <u>Optional:</u> Malone, M. "Chips Triumphant," *Forbes,* February 26, 1996, pp. 52-82. Coy, P. "Faster, Smaller, Cheaper," *Business Week, Information Revolution 1994 Special Issue,* 1994, pp. 54-57.	
3	**M 2/8**	***Networks*** The Worldwide Web and Internet Technology. *Harvard Business School Technology Note,* June 1998, #9-198-020. Verity, J.W. "The Internet: How it will change the way you do Business,"*Business Week,* November 14, 1994, pp. 80-88. Cisco Systems, Inc. *Harvard Business School Case Study*, #9-398-127. <u>Optional:</u> Mackie-Mason, J.K. and Varian, H. "Economic FAQs about the Internet," *Journal of Economic Perspectives,* Summer 1994.	**Handout:** Home Page Assignment

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3+	**M 2/8**	***Tutorial on the Web*** Two optional sessions in the Trading Room: 4-5:30pm and 6-7:30pm	
4	**W 2/10**	***Software*** "Java is Hot Enough to Burn Bill Gates," *Business Week*, November 10, 1997, pp. 78-79. Gibbs, W.W. "Software's Chronic Crisis," *Scientific American,* September 1994, pp. 86-95. Cafasso, R. "Few IS Projects Come in on Time, on Budget," *Computerworld*, December 12, 1994, p. 20. Alter, S. "Overview of Alternative Approaches for Building Systems," in *Information Systems: A Management Perspective*, Menlo Park, CA: Benjamin/Cummings, 1996, pp. 598-612. *Optional:* Hamilton, M.A. "Java and the Shift to Net-Centric Computing," *IEEE Computer*, August 1996, pp. 31-39.	**Hand in:** Topic and members for team project
5	**F 2/12**	***Database Technologies*** Guest Lecturer: *Professor Stuart Madnick* Teach, E. "Tapping Your Hidden Assets," *CFO: The Magazine for Senior Financial Executives,* May 1996: 47-56. Laudon, K.C. and Laudon J.P. "A Modern Database Environment" in *Management Information Systems: Organization and Technology*, Prentice-Hall, 1998: 271-281. Madnick, S.E. "Database in the Internet Age," *Database Programming & Design,* January 1997: 28-33. *Optional:* Fadlalla, A. "Data Warehousing Technologies," *Enterprise Systems Journal,* October 1996: 18ff. Verity, J.W. "Coaxing Meaning out of Raw Data," *Business Week*, February 3, 1997: 134-137.	
6	**T 2/16**	***Manufacturing Technologies*** [Guest Speaker from Industry]	**Due:** Individual Assignment 1
7	**W 2/17**	***Business Models for the Internet*** Ghosh, S. "Making Business Sense of the Internet," *Harvard Business Review*, March-April, 1998, pp. 126-135, #98205. Bakos, Y. "The Emerging Role of Electronic Marketplaces on the Internet," *Communications of the ACM*, August 1998, pp. 35-42.	

8	**F 2/19**	***Pricing on the Internet*** Schlender, B. "Building Your Own Music CD," *Fortune*, March 30, 1998, p. 158. Cortese, A. "E-Commerce: Good-bye to Fixed Pricing?" *Businessweek*, April 23, 1998, pp. 71-80. *Optional:* Varian, H. "Versioning Information Goods" http://www.sims.berkeley.edu/~hal/Papers/version.pdf	
9	**M 2/22**	***Security and Encryption*** Behar, R. "Who's Reading Your Email?" *Fortune,* February 3, 1997, pp 57-70. Van Dam, C. "Encryption & Authentication" http://ecommerce.mit.edu/cryptosummary *Optional:* Stark, T. "Encryption for a Small Planet," *Byte,* March 1997, pp.111-114. Ferrell, K. "Net Crime: Don't Be A Victim" http://www.cnet.com/Content/Features/Dlife/Crime/index.html	
10	**W 2/24**	***In-Class Quiz***	

		TECHNOLOGY AND THE ORGANIZATION	
11	**F 2/26**	***Process Management*** Davenport, T.H. "Putting the Enterprise into the Enterprise System," *Harvard Business Review,* August 1998, pp. 121-131. Garvin, D.A. "The Processes of Organization and Management," *Sloan Management Review,* Summer 1998, pp. 33-50. Malone, T. W. et al. "Tools for Inventing Organizations: Toward a Handbook of Organizational Processes," *Management Science,* in press.	**Handout:** Case Analysis Assignment
12	**M 3/1**	***Supply Chain Management*** "The Supply Chain: Leapfrogging a Few Links," *Business Week,* June 22, 1998, 140-142. Guest speaker: Bill Helming, PRTM	
13	**W 3/3**	***Knowledge Management*** Brown, J.S. and Duguid, P. "Organizing Knowledge," *California Management Review*, 40, 3, Spring 1998, pp. 90-111. Davenport, T.H., De Long, D.W. and Beers, M.C. "Successful Knowledge Management Projects," *Sloan Management Review,* Winter 1998, pp. 43-57. Fahey, L. and Prusak, L. "The Eleven Deadliest Sins of Knowledge Management," *California Management Review*, 40, 3, Spring 1998, pp. 265-276.	
14	**F 3/5**	***Working Virtually*** Benson-Armer, R. and Tsun-yan, H. "Teamwork across Time and Space," *The McKinsey Quarterly,* 4, 1997, pp. 19-27. Townsend, A., DeMarie, S.M. and Hendrickson, A. "Virtual Teams: Technology and the Workplace of the Future," *Academy of Management Executive,* 12, 3, 1998, pp.17-29. Maruca, R.F. "How do you Manage an Off-Site Team - Case Study," *Harvard Business Review,* July-August 1998, pp. 22-35, #98405. *Optional:* Handy, C. "Trust and the Virtual Organization," *Harvard Business Review,*, May-June 1995, pp. 2-8, #95304.	

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15	**M 3/8**	***New Organizational Forms*** Malone, T. W. and Rockart, J. F. "Computers, Networks and the Corporation," *Scientific American*, September 1991, pp. 128-136. (review from Class #1) Malone, T. W. & Laubacher, R. J. "The Dawn of the E-lance Economy," *Harvard Business Review,* September-October 1998, 76, 5, pp. 144-152. Malone, T. W. "Is 'Empowerment' Just a Fad? Control, Decision-Making, and Information Technology," *Sloan Management Review*, 38, 2, Winter 1997, pp. 23-35.	**Due:** Case Analysis Assignment
16	**W 3/10**	***Technology Implementation*** Dow Corning, MIT CISR Case Study, 1998. Guests: *Dr. Jeanne Ross* (Center for Information Systems Research) *Charlie Lacefield* and *Harry Ludgate* (Dow Corning)	
17	**F 3/12**	***Technology Assessment*** Brynjolfsson, E. and Hitt, L.. "Breaking Boundaries," *Informationweek,* September 22, 1997, p. 55. Davenport, T. "The Case of the Soft Software Proposal," *Harvard Business Review*, May 1989, pp. 12-24 #89302. *Optional:* Brynjolfsson, E. and Hitt, L.. "Beyond the Productivity Paradox," *Communications of the ACM,* August 1998, pp 49-57.	
18	**M 3/15**	***Technology Change*** Orlikowski, W.J. "Learning from Notes," *Information Society,* 9, 1993, pp. 237-250. Orlikowski, W.J. and Hofman, J.D. "An Improvisational Model of Change Management: The Case of Groupware Technologies" *Sloan Management Review,* 38, 2, Winter 1997, pp. 11-21. Roth, G.L. "Paper Documents: Implications of Changing Media for Business Process Redesign," MIT Sloan School Case Study, 1998.	**Due:** Team Project