

**Course Description**

This course examines the technical and managerial challenges presented by emerging and evolving technologies. Particular consideration is given to the forces affecting the nature and rate of technological innovation and the managerial options available to both established and entrepreneurial organizations.

Time: Tuesday/Thursday 1:30-3:00 p.m.

Place: TBA

Instructor: Dr. William F. Hamilton  
Landau Professor of Management and Technology  
Director, Fisher Program in Management and Technology  
[hamilton@wharton.upenn.edu](mailto:hamilton@wharton.upenn.edu); 215-898-4145

Course Assistants:

webCafe:

**General Course Organization and Requirements**

The course will be taught in seminar fashion with substantial class discussion. Thorough preparation and active class participation and attendance are essential. Assigned and supplementary readings will be augmented by cases and occasional guest lectures. Students will prepare a variety of written assignments, including case analyses and two research papers dealing with selected technologies, firms and industries. Research topics will be selected by students with instructor approval. The final course grade will be based on written assignments (40%), research papers and presentations (45%) and class attendance, participation and quizzes (15%).

**Course Materials**

Text: Strategic Management of Technological Innovation, Second Edition, Melissa A. Schilling, McGraw-Hill Irwin, © 2006.

Bulk Pack (BP): Required readings and cases, Wharton Reprographics

Course Syllabus

1.	TH 1/17	<b>TECHNOLOGY MANAGEMENT OVERVIEW</b> <u>Strategic Management of Technological Innovation</u> (Skim Preface, all chapters) This Way to the Future The Unexpected Science to Come 10 Emerging Technologies	<b><u>PTA</u></b> Text Webcafe Webcafe Webcafe
2.	T 1/22	<b>THE NATURE OF TECHNOLOGICAL INNOVATION</b> Introduction Innovation in Industry Century of the Sciences	T: 1,2 BP: 1 BP: 2
3.	TH 1/24	<b>THE STRATEGIC IMPACT OF TECHNOLOGICAL CHANGE</b> Types and Patterns of Innovation Timing of Entry Technological Innovation in the Photographic Industry	T: 3 T: 5 BP: 3
4.	T 1/29	<b>EMERGING VS. ESTABLISHED TECHNOLOGIES</b> Patterns of Industrial Innovation Timex Corporation (A) and (B) Cases	BP: 4 <b><u>BP: 5</u></b>
5.	TH 1/31	<b>INNOVATION PATTERNS AND TECHNOLOGY FORECASTING</b> Technology in Economy Why Technology Forecasts Often Fail The Dynamics of Technology and Strategy Managing Through Cycles of Technological Change	<b><u>RP #1 Proposal</u></b> BP: 6 BP: 7 BP: 8 BP: 9
6.	T 2/5	<b>PERSPECTIVES ON EMERGING TECHNOLOGY</b>	<b><u>AB #1</u></b>
7.	TH 2/7	<b>TECHNOLOGICAL INNOVATION AND STRATEGIC MANAGEMENT</b> Defining the Organization's Strategic Direction Managing Technology as a Strategic Asset Technology and Competitive Advantage: The Role of General Management Technology Leadership Can Pay Off	T: 6 BP: 10 BP: 11 BP: 12
8.	T 2/12	<b>WINDOW ON TECHNOLOGICAL INNOVATION</b> <u>Guest Resource:</u> Dr. Graham Mitchell, formerly U.S. Assistant Secretary of Commerce for Technology Policy, U.S. Department of Commerce Office of Technology Policy report "Global Context of the U.S. Technology Policy" Battelle 2007 Global R&D Report	Webcafe Webcafe
9.	TH 2/14	<b>TECHNOLOGY AND COMPETITIVE ADVANTAGE</b> Standards Battles and Design Dominance The DVD Battle – Blue-Ray vs. HD-DVD	T: 4 BP: 13
10.	T 2/19	<b>WHAT DOES A MANAGER NEED TO KNOW ABOUT TECHNOLOGY?</b>	<b><u>BP:14</u></b>
11.	TH 2/21	<b>TECHNOLOGY AND STRATEGY</b> Strategies for Global R&D Technology Map of the World Toyota and Sony: R&D Alone Is Not Enough	BP: 15 BP: 16 BP: 17

12.	T	2/26	<b>MANAGING TECHNOLOGICAL INNOVATION</b> EMI and the CT Scanner (B) Case, Background Note-The EMI CAT Scanner	BP: 19
13.	TH	2/28	<b>EMERGING TECHNOLOGIES--PAST, PRESENT, FUTURE</b>	<b><u>RP #1</u></b>
14.	T	3/4	<b>MANAGING TECHNOLOGICAL INNOVATION</b> Choosing Innovation Projects Managing the New Product Development Process Managing Technological Change: A Box of Cigars for Brad Managing Real Options	<b><u>RP #2 Proposal</u></b> T: 7 T: 11 BP: 20 BP: 21
15.	TH	3/6	<b>STRATEGIC CHOICES IN R&amp;D</b> Silicon Valley Specialists Case	<b><u>BP:22</u></b>
<hr/> <b>SPRING BREAK 3/10/08 - 3/14/08</b> <hr/>				
16.	T	3/18	<b>EFFECTING CHANGE—TECHNOLOGY, STRATEGY, ORGANIZATION</b> <u>Guest Resource:</u> Dr. Saikat Chaudhuri (M&T, '97 ), Asst. Professor of Management Cisco Early if Not Elegant (A) Capturing the Real Value in High-Tech Acquisitions The Influence of Organizational Acquisition Experience	Handout Webcafe Webcafe
17.	TH	3/20	<b>MANAGING EMERGING TECHNOLOGY</b> Collaboration Strategies FMC Corporation Case B; skim Case A for background	T: 8 <b><u>BP: 25</u></b>
18.	T	3/25	<b>WINDOW ON TECHNOLOGICAL INNOVATION</b> <u>Guest Resource:</u> Terry Fadem, Director, Corporate Alliances University of Pennsylvania School of Medicine Consultant and Senior Fellow, Mack Center for Technological Innovation	
19.	TH	3/27	<b>TECHNOLOGICAL ENTREPRENEURSHIP</b> Entrepreneurship Business Plans for New Ventures Making Sense of Corporate Venture Capital Technological Innovation: Entrepreneurship and Strategy	BP: 26 BP: 27 BP: 28 BP: 29
20.	T	4/1	<b>PERSPECTIVES ON STRATEGIC TECHNOLOGY MANAGEMENT</b>	<b><u>AB #2</u></b>
21.	TH	4/3	<b>INNOVATION NETWORKS/WINDOW ON TECHNOLOGICAL INNOVATION</b> <u>Guest Resource:</u> Dr. Thomas Kavassalis, Vice President for Technology Strategy and Alliances, Xerox Corporation The Era of Open Innovation	BP: 18
22.	T	4/8	<b>LESSONS FROM INNOVATIVE FIRMS</b> Masters of Innovation: How 3M Keeps Its New Products Coming Building an Innovation Factory How to Kill Creativity GE Sees the Light	BP: 30 BP: 31 BP: 32 BP: 33

23.	TH	4/10	<b>TECHNOLOGICAL INNOVATION AND ENTREPRENEURSHIP</b> Hermes Systems	<b><u>BP: 34</u></b>
24.	T	4/15	<b>WINDOW ON TECHNOLOGICAL INNOVATION</b> <u>Guest Resource:</u> Ken Glass (M&T, '82)	
25.	TH	4/17	<b>ORGANIZATIONAL ISSUES AND OPTIONS</b> Organizing for Innovation Building a Better Skunkworks When is Virtual Virtuous?	T:10 BP: 35 BP: 36P
26.	T	4/22	<b>COURSE WRAP-UP: KEY ISSUES &amp; OPTIONS IN TECHNOLOGY MANAGEMENT</b>	<b><u>C&amp;P</u></b>
27.	TH	4/24	<b>FINAL TEAM PRESENTATIONS*</b>	
28.	T	4/29	<b>FINAL TEAM PRESENTATIONS*</b>  * Alternative presentation schedules: (with no class on Tuesday)	
	MO	5/5	<b>Team Research Papers due by 5:00pm</b>	<b><u>RP #2</u></b>

