Course Overview

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: JMHH 345

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

Graduate Fellow: Han Hu

Course Assistants: Juhi Heda, Saurabh Jalan, Stephen Pike, Kathleen Wu, Joy Xu

webCafe: TBA

Course 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 and quizzes (40%), research papers and presentations (45%) and class participation (15%).

Course Materials


Bulk Pack (BP): Assigned articles and cases from Wharton Reprographics

WebCafe (WC): Supplementary assigned articles on WebCafe
Course Syllabus

1. TH 1/15 TECHNOLOGY MANAGEMENT OVERVIEW
   Strategic Management of Technological Innovation (Skim Preface & all chapters) T: all
   This Way to the Future WC: 1
   The Unexpected Science to Come WC: 2
   10 Emerging Technologies WC: 3

2. T 1/20 THE NATURE OF TECHNOLOGICAL INNOVATION
   Introduction T: 1, 2
   Innovation in Industry BP: 1
   Out of the Dusty Labs BP: 2
   Century of the Sciences WC: 4

3. TH 1/22 THE STRATEGIC IMPACT OF TECHNOLOGICAL CHANGE
   Types and Patterns of Innovation T: 3
   Timing of Entry T: 5
   Technological Innovation in the Photographic Industry BP: 3
   Why Good Companies Go Bad WC: 5

4. T 1/27 EMERGING VS. ESTABLISHED TECHNOLOGIES
   Patterns of Industrial Innovation BP: 4
   Timex Corporation (A) and (B) Cases BP: 5

5. TH 1/29 INNOVATION PATTERNS AND TECHNOLOGY FORECASTING
   Technology in Economy BP: 6
   The Dynamics of Technology and Strategy BP: 7
   Managing Through Cycles of Technological Change BP: 8
   Why Technology Forecasts Often Fail WC: 6

6. T 2/3 PERSPECTIVES ON EMERGING TECHNOLOGY AB #1

7. TH 2/5 TECHNOLOGICAL INNOVATION AND STRATEGIC MANAGEMENT
   Defining the Organization's Strategic Direction T: 6
   Technology Leadership Can Pay Off BP: 9
   Technology and Competitive Advantage: The Role of General Management BP: 10
   Managing Technology as a Strategic Asset WC: 7

8. T 2/10 TECHNOLOGY AND COMPETITIVE ADVANTAGE
   Standards Battles and Design Dominance T: 4
   The Browser Wars TBD

9. TH 2/12 WINDOW ON TECHNOLOGICAL INNOVATION
   Guest Resource: 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” WC: 8
   Battelle 2007 Global R&D Report WC: 9
   The Fading Lustre of Clusters WC: 10

10. T 2/17 WHAT DOES A MANAGER NEED TO KNOW ABOUT TECHNOLOGY? BP: 11
    Far East Semiconductor
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<td>India and China Wise Up to Innovation BP: 19</td>
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<td>EMERGING TECHNOLOGIES--PAST, PRESENT, FUTURE</td>
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<td>Managing Technological Change: A Box of Cigars for Brad BP: 17</td>
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<td>WINDOW ON TECHNOLOGICAL INNOVATION</td>
<td>Guest Resource: Terry Fadem, Director, Corporate Alliances University of Pennsylvania School of Medicine Consultant and Senior Fellow, Mack Center for Technological Innovation</td>
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<td>EFFECTING CHANGE—TECHNOLOGY, STRATEGY, ORGANIZATION</td>
<td>Guest Resource: Professor Saikat Chaudhuri (M&amp;T,’ 97 )</td>
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<td><strong>LESSONS FROM INNOVATIVE FIRMS</strong>&lt;br&gt;Masters of Innovation: How 3M Keeps Its New Products Coming&lt;br&gt;GE Sees the Light&lt;br&gt;Built for Innovation&lt;br&gt;Putting the i in HiP&lt;br&gt;3M’s Innovation Crisis&lt;br&gt;The World’s Most Innovative Companies&lt;br&gt;Lessons from Apple&lt;br&gt;Lessons from IBM’s Innovation Factory</td>
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<td><strong>TECHNOLOGICAL INNOVATION AND ENTREPRENEURSHIP</strong>&lt;br&gt;Hermes Systems</td>
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**Bulkpack Readings**

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28. Putting the “I” into HP
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