

## ESM611: Technology Strategy

<b>Course Title</b>	Technology Strategy
<b>Course Code</b>	ESM611
<b>Credit Hours</b>	3
<b>Pre-requisites (if any)</b>	ESM 507 or ESM 518
<b>Co-requisites (is any)</b>	A course in “Managing Technological Innovation and Entrepreneurship” is recommended
<b>Name of Faculty</b>	Dr Toufic Mezher
<b>E-mail of Faculty</b>	tmezher@masdar.ac.ae
<b>Office hours of Faculty</b>	TBA
<b>Brief Course Description</b>	Outlines tools for formulating and evaluating technology strategy, including an introduction to the economics of technical change, models of technological evolution, and models of organizational dynamics and innovation. Topics covered include: making money from innovation; competition between technologies and the selection of standards; optimal licensing policies; joint ventures; organization of R&D; and theories of diffusion and adoption. Taught using a combination of readings and case studies.
Course Objectives (Course Learning Outcomes)	<p>On completion of this course, students will be able to:</p> <ul style="list-style-type: none"> <li>• Demonstrate deep understanding of a series of strategic frameworks for managing high-technology businesses.</li> <li>• Develop and apply conceptual models which clarify the interactions between competition, patterns of technological and market change, and the structure and development of organizational capabilities.</li> </ul>
<b>Week</b>	<b>Course Topics and Contents</b>
<b>1</b>	Introduction: Defining “Technology Strategy” eInk: Financing Growth
<b>2</b>	Apple, 2006 Industry Life Cycles and Evolution of Markets
<b>3</b>	Novartis Pharma: The Business Unit Model Intel Labs (A) Photolithography Strategy in Crisis
<b>4</b>	Organization of Innovation: Structure, Processes, and Incentives Case: Abgenix and the Xeno Mouse
<b>5</b>	Appropriability: Uniqueness and Complementary Assets Case: Ember Corporation: Developing the Next Ubiquitous Network Standard
<b>6</b>	Open Standards, Increasing Returns, and Proprietary Control Red Hat and the Linux Revolution
<b>7</b>	Google Inc. Ecosystems, Platforms, and the Evolution of Value Chains
<b>8</b>	Mid semester break
<b>9</b>	Nokia 2003; Apple iPhone; Google Phone Competing up and down the Value Chain
<b>10</b>	We've got Rhythm! Medtronic Corporation's Cardiac Pacemaker Organizational Dynamics: Overload, Time-Pacing, Simple Rules, and Probing
<b>11</b>	Case: Alza/Ciba (1) Case: Alza/Ciba (2)

12	Kodak & the Digital Revolution (A)
13	Selected Student Presentations
14	Selected Student Presentations
15	Conclusions and Reflections
16	Final Examination

<b>Relationship of course objectives to IDDP Program outcomes</b>	
<b>Program Outcome</b>	Demonstrate appropriate depth and breadth of knowledge that is at the frontier of their disciplines
<b>Program Outcome</b>	Use skills of interdisciplinary scholarship and research to integrate multiple perspectives
<b>Program Outcome</b>	Understand and value diverse approaches to solving critical problems in research and to creating new knowledge judged by international standards
<b>Program Outcome</b>	Work effectively in a multidisciplinary collaborative environment using highly developed cognitive and creative expert skills and intellectual independence.
<b>Program Outcome</b>	Communicate effectively, in written and oral forms, their research results and/or critique highly complex and diverse matters to diverse audiences.

<b>Out-of-class assignments</b>	3 papers Assignments								
<b>Course Grading</b>	<table> <tr> <td>Class attendance and participation</td> <td>10%</td> </tr> <tr> <td>Three papers</td> <td>60%</td> </tr> <tr> <td>Class Presentation</td> <td>5%</td> </tr> <tr> <td>Final Exam</td> <td>25%</td> </tr> </table>	Class attendance and participation	10%	Three papers	60%	Class Presentation	5%	Final Exam	25%
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<b>Teaching and learning methodologies</b>	The course utilizes lectures, case analyses, simulations and independent reading.								
<b>Main course texts</b>	Students will be required to get the course packet which included all the course reading materials.								
<b>Recommended readings</b>	<p>The S curve &amp; the determinants of industry evolution</p> <p>Tools for exploring new markets: The nature of the innovator's dilemma</p> <p>Capturing value: Uniqueness &amp; complementary assets</p> <p>Core concepts in network externalities</p> <p>Why responding to discontinuous technological change is so difficult and what to do about it</p>								
<b>Instructional materials and resources</b>	Slides, Board notes, student interaction, and guest lectures. In Addition, we will be using Stellar (course management system) to post course materials online. The site contains the syllabus, assignments, reading list, helpful hints, and other useful information. You can also use the site to find partners for group assignments, or to pose questions to the class as a whole.								