Innovation Management

1. Course Description

Firm's competitive advantage in today's increased complexity and fast-changing markets requires greater investment on innovation. It is common understanding worldwide that innovative technologies to succeed have to overcome linear conventional practices of trial-and-error and long and costly development cycles.
Evolutionary and multi-actor approaches to innovation management are required. They concern multiple aspects of firms from their internal organization to interactions with external actors within the technology system; from knowledge, design, manufacturing and operations to the use of the provided technology. Further challenges lie in addressing the increase in complexity of innovation processes, financial viability of research, protection of technology property rights, assessment of impacts and customer acceptance. Due to the globalization of today's markets, particular attention is also given to the cases found in emerging regions in the world as from Latin-America and China.

2. Course Objectives and Requirements

1. **Course Objectives**： The objective of this course is to capacitate students to become global innovation managers by providing to them inside views on the innovation process extracted from case studies in particular from the emerging regions in the world (Latin-America and China). This way after covering the relevant concepts of innovation management we look at the formulation and implementation of case study firms innovation process to then indentify their distinguishing elements in relation to the firms from both emerging and developing regions in the world. It is covered firms' strategic management and envisaged future direction; their approaches to innovation; collaborative research and innovation networks; protection of innovation; management of new product development process and team; and the way they market innovation.

2. **Requirements**： All students should be familiar about basic concepts of management and entrepreneurship to be directed in the class towards innovation activities; Students should also bring to class their country cases and experiences.

3. Course Arrangement

Course title	Innovation Management Spring, 2014
Institution	Tongji University, Shanghai, 200092, P.R. China
Requirement	All students should be familiar about the basic concepts of innovation management and bring their country cases and experiences to class.
Contents, Topics, Activities, Working Meetings (in English)	
Session 1	INTRODUCTION - The importance of innovation - The impact of innovation - The importance of strategy setting for innovation Activity in class: groups of students presenting their countries innovation capabilities
Session 2	DYNAMICS OF INNOVATION Sources of innovation: - Inside look - Sources of innovation - Collaborative networks Activity in class: Study case discussion
Session 3	Types of and patterns of innovation - Types of innovation - Technology S-curves - Technology cycles - Technology transitions Activity in class: Study case discussion
Session 4	Standards and design dominance - Dominant designs vs disruptive innovations - Multiple dimensions of value - Dominant technology vs consumer welfare benefits Activity in class: Study case discussion
Session 5	Timing of entry - First mover advantages and disadvantages - Factors influencing optimal timing for entry Activity: Study case discussion Essay1 for submission: group of students report
Session 6	FORMULATING TECHNOLOGICAL INNOVATION STRATEGY Defining the organization strategic direction - Assessing the firm's position - Identify core competencies and capabilities

	– Strategic intent Activity in class: Students simulation and discussion (students will have a role play)
Session 7	"Fishing" innovation projects – Budgeting – Quantitative and Qualitative methods for project selection – Combing both Activity in class: Students simulation and discussion (students will have a role play)
Session 8	Collaboration strategies – Reason for going solo – Advantages of collaboration – Types of agreements – Choosing the model of collaboration Activity in class: Students simulation and discussion
Session 9	Protecting innovation – Patents trade marks, copy rights – Trade secrets Activity in class: Students simulation and discussion (students will have a role play: each one will be a different player in innovation supply chain which will have to build a network with others and form a collaborative project, covering type of collaborative agreement, draft the project technically, administratively and financially, protect resulting IPR) Essay2 for submission: groups of students reporting what they did in the class
Session 10	IMPLEMENTING THE TECHNOLOGICAL STRATEGY Organizational aspects of innovation – Size and structural elements of firms – Managing innovation across borders – Relation between mother-house and subsidiaries Activity in class: Study case discussion
Session 11	Managing new product development process – Objectives for the new product development – Sequential vs parallel project development – Project champions – Involving customers and suppliers in the development process – Tools for improving new product development process – Tools for measuring new product development performance Activity in class: Study case discussion
Session 12	Managing new product development teams – Constructing them – Structuring them – Managing them Crafting deployment strategy

	– Launch timing – Licensing and compatibility – Pricing – Distribution – Marketing Activity in class: Study case discussion Final essay case analysis for submission: individual work
Session 13	**Presentation of the final case analysis**
Session 14	**Exam**

5. Teaching Methods

Lectures、Discussions、strong focus on Case Analysis on emerging regions of the world, etc.

6. Learning Outcomes Expected

Category	Learning Outcomes
Master of Knowledge	1. Master the basic knowledge on innovation management 2. Get familiar with technological strategy setting 3. Information collecting ability
Intellectual abilities learned	1. Have the ability to think critically and independently 2. Have the ability to be engaged in team cooperation. 3. Have the capacity to understand functional roles in a innovation project 4. Have the capacity to pull out their acquired relevant knowledge for each specific case
Practical skills learned	1. Understand international environments and explore unknown markets 2. Strategy definition 3. Implementation of a strategy 4. Functional role play 5. Argumentation
Personal competences and characters Cultivated	1. Find the teammates' advantages and learn to work together and help each other 2. Try to collect the first hand data and think the issues independently 3. Present the thinking and logical analysis clearly 4. Present valid arguments supported by collected data

7. Performance Evaluation: Means & Ratio

Evaluation Means	Ratio (%)	Link with learning outcomes expected
Team and individual assignments	20	Team presentation: materials understanding, useful and key information picking up and the oral presentation ability.
Attendance and Engagement	10	Check the attendance and the class content understanding. Also, the critical thinking and logical analysis is very important.
Exam	70	Emphasis on the case study. Including the analysis structure, writing and logical analysis ability.

8. Textbook， References, Reading Materials

1) Textbook

Schilling, M. A., (2010) Strategic Management of Technological Innovation (3rd ed.), McGraw Hill International Edition.

2) Other materials

Grant, Robert M. (2010) Contemporary strategy analysis (7th ed.), Published by John Wiley & Sons Ltd. ISBN: 978-0-470-74710-0

Marcus, A. A., (2011) Management Strategy: Achieving sustained competitive advantage (2nd ed.), McGraw Hill Irwin.

Moretto. S., Pastrana Palma, A., Moniz, A.B (forthcoming) Constructive Technology Assessment in Railways: The case of the High-speed Train Industry, in J. Pombo, (Editor), International Journal of Railways Technology, Civil-Comp Press, Stirlingshire, UK, 2013.

10. Assignment Requirements

Essay1: group of students report covering the dynamic of innovation
Essay 2: groups of students reporting what they did in the class on formulating technological innovation strategy
Final essay case analysis: individual work integrating the relevant information on what they have learned in the analysis of a selected case.

Requirements

1) The information collected should be public available.
2) The analysis should base on the skills learned from courses.
3) Show the data sources.
4) Each group should prepare a WORD (or PDF) and a PPT file for the final case analysis, the whole case will be presented at the last class.

The criteria of assignment evaluation (100 points)

1)	Whether the case material collection is sufficient and valid	20 points
2)	Whether the case analysis is logical	25 points
3)	Whether the insights is linked with work practice closely or not	25 points
4)	The case presentation	30 points

Appendices: