Korea Advanced Institute of Science and Technology
Graduate School of Innovation and Technology Management
Course Syllabus, Fall 2018

Course Information

- Course Title: 이노베이션 경영입문: 이론과 실제 **Introduction to Innovation Management: Theory and Practice**
- Course Number: **ITM501**
- Prerequisites: None
- Class Time: Saturday, 16:00 – 19:00
- Location: Building N5, Room 2125
- Course Blog: To be informed in class

Instructor Information

- Name: **Soo Hong Noh**, Ph.D.
- Phone: 042-350-4343
- Office: N5, Room 2118
- E-mail: soohongnoh@kaist.ac.kr
- Office Hours: To be announced in class
- Teaching Assistant: To be informed before the session 1 starts

Course Description and Learning Objectives

On June 19, 2018 CNN Money hastily reported that "General Electric (GE) – the iconic maker of light bulbs and jet engines – gets booted from Dow" in its headline news. Which means for the first time in 110 years GE that once was the most valuable US firm will not be a member of the elite Dow Jones Industrial Average (DJIA) provided by S&P Dow Jones Indices calculated from the 30-company stock performance. In 2015, DJIA added Apple in place of AT&T – another iconic telco giant. We are now witnessing that even world-class companies, with powerful and proven business models, eventually discover limits to growth.

Here are "the Four" – Amazon, Apple, Facebook, and Google – that are fast enough and smart enough to capture huge opportunities first and hold strong. For all they have in common, as NYU Stern marketing professor Scott Galloway put it, the Four Horsemen succeed in occupying distinct roles in our new tech-dominated high-growth world. Through different paths they have come to prominence, two of them, Amazon and Apple have been able to build tomorrow's business while simultaneously sustaining excellence in today's demands. The fallen giants failed to do so. The other two, Facebook and Google dominate categories that did not existed twenty-five years ago. After all, great companies regularly appear seemingly out of nowhere thanks to the accelerating (in the power of exponential growth) forces – technology advance by the impact of Moore's law, market change by globalization on steroids, and damned too fast climate change (hundred-year floods that seem to be happening every ten years) affecting the Mother Nature, all interacting with each other. This is about how the Machine works now, as NYT columnist Thomas L. Friedman grasps and best describes it and the Machine introduces us to the Brave New World. And that's what makes emerging high-growth industries so attractive.

ITM501 Fall 2018 is intended to provide students aiming for a broad range of business careers in which

innovation is critical for their organic growth with an agglomeration of inter-disciplinary theoretical foundation and a set of insightful and practical cases from those organizations capable of continuous process improvement, process revolutions, process and service innovations, and last but most importantly strategic innovations. No, you didn't read that wrong. We chase whole bunch of rabbits with one clear and specific goal to help you become an innovation leader. In other word, for you to embrace "innovativeness" – to overcome mindlessness such as, "We do it this way because it has always been done this way."

There is no shortage of published ideas on how best to manage innovation. So, it's best to divide **ITM501 Fall 2018** into three major modules and the course materials prepared for this course intentionally cuts across as below:

Innovation Type	Continuous process improvement	Process revolution	Product/service innovation	Strategic innovation
Exploring	Theoretical backdrop (T) Case from the field (C) I	(T) & (C) IV	(T) & (C) VII	(T) & (C) X
Executing	(T) & (C) II	(T) & (C) V	(T) & (C) VIII	(T) & (C) XI
Exploiting	(T) & (C) III	(T) & (C) VI	(T) & (C) IX	(T) & (C) XII

- Part I – Exploring the innovation
- Part II – Executing the innovation
- Part III – Exploiting the innovation

Each module introduces you to the core concept and the theories related to business innovation and technology management. (L4)

The major learning objectives of **ITM501 Fall 2018:**

- To introduce to the critical elements of designing and developing innovative technology strategies and these elements include the pivotal roles played by corporate management decisions, (L41)

- Throughout the semester, in aid of the various case discussions, you will recognize the important role of technology in the real-world context of business innovation. (L42)

Expected Learning Outcomes

Specifically, this course will help you learn:

- How experimentation, learning, and prototyping are fundamental to articulate technology-business link providing a clear opportunity for establishing and maintaining competitive advantage.
- How to identify the technology's strategic implications and their corresponding components connecting the broader strategic elements related to technology ownership and intellectual property.

- How to design, test and learn to manage strategically viable technology alternatives and your ultimate choice of a path to pursuit.

- How to design, build, and manage a comprehensive technology strategy to fuel the development and improvement of products and services, processes, and systems in terms of enhancing the viability.

- How to design, build, and manage a robust and coherent technology-business link toward the business impact at a maximum.

This course will also help you equip with:

- Strategic and integrative thinking capabilities enabling you to fully understand why and how to develop a viable technology strategy.
- Skills to align and integrate customers and new technologies into product development process.
- Creative and innovative thinking capabilities enabling you to seek and pursuit the opportunities beyond the resources you currently control.
- Overall tools and methodologies to tell you what to do and what not to do to achieve and maintain competitive advantage through the alignment of technology and business.
- How to design, build, and manage a comprehensive technology strategy to fuel the development and improvement of products and services, processes, and systems in terms of enhancing the viability.
- How to design, build, and manage a robust and coherent technology-business link toward the business impact at a maximum.

Course Materials[1]

Part I – Exploring the innovation

- Schrage, Michael. *The Innovator's Hypothesis – How Cheap Experiments Are Worth More Than Good Ideas*. The MIT Press, 2016.
- Westerman, George, Bonner, Didier, and McAfee, Andrew. *Leading Digital – Turning Technology into Business Transformation*. Harvard Business Review Press, 2014.
- Ellenberg, Jordan. *How Not To Be Wrong: The Power Of Mathematical Thinking.* Penguin Books, 2014.
- Johnson, Steven. Where Good Ideas Come From – The Natural History of Innovation. Riverhead Books, 2010.
- Seelig, Tina. *InsightOut – Get Ideas Out Of Your Head And Into The World*. Harper One, 2015.
- Thiel, Peter. *Zero to One: Notes on Startups, or How to Build the Future.* Crown Business, 2014.
- Tidd, Joe, Bessant, John, and Pavitt, Keith. *Managing Innovation – Integrating Technological, Market and Organizational Change.* John Wiley & Sons, Ltd., 2015.

- Schilling, Melissa A. Strategical Management of Technological Innovation (Fifth Edition). McGraw-Hill Education, 2017.
- Byers, Thomas H., Dorf, Richard C., and Nelson, Andrew J. Technology Ventures – From Idea to Enterprise. McGraw-Hill Education, 2015.

Part II – Executing the innovation

- Govindarajan, Vijay, and Trimble, Chris. *The Other Side of Innovation: Solving The Execution Challenge*. Harvard Business School Press, 2010.
- Blank, Steve, and Dorf, Bob. *Startup Owner's Manual: The Step-by-Step Guide for Building a Great Company.* K&S Ranch Inc., 2012.
- Ries, Eric. *The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses.* Crown Business, 2011.
- Govindarajan, Vijay, and Trimble, Chris. *Ten Rules for Strategic Innovators – From Idea to Execution.* Harvard Business School Press, 2005.
- Johnson, Steven. The Innovator's Cookbook – Essentials for Inventing What Is Next. Riverhead Books, 2011.
- Kahneman, Daniel. *Thinking, Fast and Slow*. Farrar, Straus and Giroux, 2011.
- Kimbell, Lucy. *The Service Innovation Handbook – Action-oriented Creative Thinking Toolkit for Service Organizations (Templates, Cases, Capabilities)*, BIS Publishers, 2014.

Part I – Exploiting the innovation

- Christensen, Clayton M., Hall, Ridgway Harken, Dillon, Karen, and Duncan, David S. *Competing Against Luck – The Story of Innovation and Customer Choice.* HarperCollins Publishers, 2016.
- Sutton, Robert I., and Rao, Huggy. *Scaling Up Excellence: Getting to More Without Settling for Less*. Crown Business, 2014.
- von Hippel, Eric. *Free Innovation.* The MIT Press, 2017.
- Docherty, Michael. *Collective Disruption: How Corporations and Startups Can Co-create Transformative New Businesses.* Polarity Press, 2015.
- Christensen, Clayton M., Allworth, James and Dillon, Karen. *How Will Measure Your Life?* HarperCollins Publishers, 2012.
- Chipchase, Jan, and Steinhardt, Simon. Hidden in Plain Sight – How to Create Extraordinary Products for Tomorrow's Customers. Harper Business, 2013.
- Osterwalder, Alex, and Pigneur, Yves. *Value Proposition Design: How to Create Products and Services Customers Want.* Wiley, 2014.
- Weinberg, Gabriel, and Mares, Justin. *TRACTION: How Any Startup Can Achieve Explosive*

Customer Growth (19 Traction Channels). Penguin Press, 2015.

- Moore, Geoffrey A. *Crossing the Chasm: Marketing and Selling Disruptive Products to Mainstream Customers.* Harper Business, 2013.
- Christensen, Clayton M. *The Innovator's Dilemma - How Can Great Firms Fail?*. Harvard Business School Press, 1997.
- Friedman, Thomas L. *Thank You for Being Late: An Optimist's Guide to Thriving in the Age of Accelerations*. Farrar, Straus and Giroux, 2016.
- Kelly, Kevin. *The Inevitable: 12 Technological Forces That Will Shape Our Future.* Penguin Books, 2016.
- Isenberg, Daniel. *Worthless, Impossible and Stupid: How Contrarian Entrepreneurs Create and Capture Extraordinary Value.* Harvard Business Review Press, 2013.
- Allen, Kathleen R. *Launching New Ventures: An Entrepreneurial Approach, Seventh Edition.* CENGAGE Learning, 2016. (ISBN 978-1305102507)

[1] Most of the lectures will be based on the lecture notes (PowerPoint® files).

Reading Lists

- Christensen, Clayton M., Raynor, Michael E., and McDonald, Rory. "What Is Disruptive Innovation?", Harvard Business Review – The December 2015 Issue.
- Christensen, Clayton M. and Bower, Joseph L. "Disrupting Technologies: Catching the Wave", Harvard Business Review – The January–February 1995 Issue.
- Marshall, W. Van Alstyne, Parker, Geoffrey G., and Choudary, Sangeet P. "Pipelines, Platforms and the New Rules of Strategy", Harvard Business Review – The April 2016 Issue.
- Eisenman, T., Ries, E., and S. Dillard. "Hypothesis-Driven Entrepreneurship: The Lean Start-Up", HBS Note 9-812-095.
- Eisenman, T., Blank, Steven G., Cespedes, Frank V. "Customer Discovery and Validation for Entrepreneurs", HBS Note 9-812-097.
- Heilemann, John. "Reinventing the Wheel – Dean Kamen's Machine (Segway): Will Cities Allow It to Share the Sidewalk with Pedestrian?", Time Inc., Dec. 02, 2001.
- Boudreau, Kevin J. "Notes on Developing a Strategy & Designing Your Company", Working Paper 16-131. Harvard Business School, 2018.
- Types of Innovation, Blake Masters: Peter Thiel's CS183: Startup – Class 1 Notes Essay , kbs+ Ventures, 2012.
- Competition is for losers – If you want to create and capture lasting value, look to build a monopoly, Peter Thiel, The Wall Street Journal, 2014.
- Gans, J., S. Stern, and J. Wu. "Foundations of Entrepreneurial Strategy". MIT, SSRN Working

Paper #2844843, 2016.

- McGrath, Rita, and MacMillan, Ian. MarketBusting: Strategies for Exceptional Business Growth. Harvard Business Review, 2005.
- Sull, David. The simple rules of disciplined innovation, Sull, David, McKinsey Quarterly, May 2015.
- Isenberg, Daniel. Focus entrepreneurship policy on scale-up, not start-up, Harvard Business Review, November 2012.
- Blank, Steve. Why the lean start-up changes everything. Harvard Business Review, May 2013.
-

(Further readings will be informed in class in advance and they will be mainly excerpts from the books listed in Course Materials.)

Grading Policy

- **(40%)** Term project and presentation to class.
  Your Team's Assessment of Your Contribution to the Team Effort
  You will be asked to use the team member evaluation form (attached at the end of the syllabus) to rate the contribution of each of the team members by assigning a percentage effort score to that member. These scores will be used to calculate the weight that will be applied to the individual's teamwork. Allocate each member except yourself up to 100 points. So, if you think all members contributed equally, each would get 100 points from you. If a team member did not contribute as much as others, that low contributor team member should get less than 100 points. So someone who you think only put in half the effort of others would get 50 points. More details of term project and presentation will be announced in class.
- **(25%)** FINAL Exam
- **(20%)** Mid-Term Exam
- **(15%)** Class Participation (attendance and office-hour visits) & Reflections

Administrations:

- The current version of the **ITM501 Fall 2018** syllabus, assignments, readings and most importantly the lecture notes will be available through the KAIST KLMS.
- Please feel free to make office hour appointments with your instructor as frequent and many as possible.
- Please read the following and make sure to comply with the Academic Honor Code of BTM (School of Business and Technology Management).

Academic Honor Code of BTM (School of Business and Technology Management)

Academic integrity and honesty are critical values of KAIST community. It is essential to the academic integrity of this community that students do their own work and properly acknowledge the ideas, sources, and assistance upon which that work is based. As a member of KAIST BTM community, all students including those who take BTM courses are expected to adhere to the principles of truth, integrity, and respect. Failure to comply with the Honor Code may result in disciplinary action including failure of the course.

Academic dishonesty includes but is not limited to the following:

- **Cheating**: Copying from another's examination paper, solutions, assignments, or allowing another to copy from one's own.
- **Plagiarism**: Using another person's original work without giving appropriate credit to or acknowledging the authors or sources
- **Self-plagiarism**: Submitting one piece of work in more than one course without the explicit permission of the instructors involved.
- **Misrepresentation of authorship**: Submitting work as one's own which has been prepared by or purchased from another.
- **Unpermitted collaboration or aid**: Giving or receiving unpermitted aid on exams or assignments.

Any member of the BTM community who believes that violation of academic dishonesty has occurred should bring the matter to the attention of the department chair. The department chair will assign members of Academic Review Committee (학사심의회) to conduct a thorough investigation and, if necessary, request a due process to university.

Tentative[2] Course Schedule:

Week	Date	Topic	Reading & Assignment
1	Sep 01	ITM501 Fall 2018 – **Course Introduction**	Go find and read thoroughly our newly updated ITM501 Fall 2018 Syllabus on the KLMS.
2	Sep 08	**MOI (Memorandum of Intention) & Team Formation** – four students whose talents, skills and knowledge are preferably complementary. If students are not in project teams by the project team formation deadline they will be assigned to a team. Student project teams should sit together in the class since we shall be doing some in-class workshops on the team projects.	Be prepared for an individual 5"~7" speech regarding: i) a little bit about yourself; ii) what makes you tick for ITM501 Fall 2018.
3	Sep 15	Andreas "Andy" Bechtolsheim: **The Process of Innovation**" - Stanford Engineering Hero Lecture (https://www.youtube.com/watch?v=08frKEAtav4)	Watch youtube video stream (1:10:39).

4	Sep 22	Lecture – (Part I) Exploring the Innovation – Theoretical backdrop (T-I), (T-II) Case from the field (C-I), (C-II)	Read the Lecture notes uploaded on the KLMS in advance.
5	Sep 29	Lecture – (Part I) Exploring the Innovation – Theoretical backdrop (T-III) Case from the field (C-III)	Read the Lecture notes uploaded on the KLMS in advance.
6	Oct 06	Lecture – (Part II) Executing the Innovation – Theoretical backdrop (T-IV), (T-V) Case from the field (C-IV), (C-V)	Read the Lecture notes uploaded on the KLMS in advance.
7	Oct 13	Lecture – (Part II) Executing the Innovation – Theoretical backdrop (T-VI), (T-VII) Case from the field (C-VI), (C-VII)	Read the Lecture notes uploaded on the KLMS in advance.
8	Oct 20	**Midterm Exam**	
9	Oct 27	Prof. Clayton M. Christensen on **Disruptive Innovation** at the Säid Business School, University of Oxford (https://www.youtube.com/watch?v=rpkoCZ4vBSI)	Watch youtube video stream (59:14)
10	Nov 03	Lecture – (Part II) Executing the Innovation – Theoretical backdrop (T-VIII), (T-IX) Case from the field (C-VIII), (C-IX)	Read the Lecture notes uploaded on the KLMS in advance.
11	Nov 10	Lecture – (Part II) Executing the Innovation – Theoretical backdrop (T-X), (T-XI) Case from the field (C-X), (C-XI)	Read the Lecture notes uploaded on the KLMS in advance.
12	Nov 17	Lecture – (Part III) Exploiting the Innovation – Theoretical backdrop (T-XII) Case from the field (C-XII)	Read the Lecture notes uploaded on the KLMS in advance.
13	Nov 24	Lecture – ITM501 Fall 2018 in Summary & Wrap-up Discussions	Read the Lecture notes uploaded on the KLMS in advance.
14	Dec 01	**Team Project Presentation to Class**	

15 Dec 08 **Final Exam**

---

[2]This schedule is subject to change in order to accommodate the pace of class discussions and guest speakers' schedule. This syllabus serves as a game plan subject to change, it is not a contract.

TEAM MEMBER EVALUATION FORM

EMAIL THIS SHEET with the Pitch Deck before the LAST DAY of CLASS

Your Name & Student Id. ( )

Your Team's Call Sign:

Your Team's Idea in a Compelling Phrase:

(DO NOT RATE YOURSELF)

Team Member's Name	% of Contribution Effort (0~100%)