Course Information

Time & Location:	A1 - 4:30-6:15 Monday & Wednesday, COM 215
	A2 - 10:10-11:55 Monday & Wednesday, EPC 204
Professor:	Christie Bielmeier, PhD
Office hours:	730 Comm Ave RM 207. M & W 1-3 pm (By appointment)
Contact:	E-mail: cmb77@bu.edu
Book (Required):	Ulrich, K., & Eppinger, Steven D. Product Design and Development (Irwin/McGraw-Hill) **Sixth** Edition. ISBN: 0078029066.
HBS Cases (Required):	Purchase cases at https://hbsp.harvard.edu/import/651628
Electronics:	Must have a laptop or tablet for class attendance, quizzes & exams.
Optional Outside Resources:	- Podcast: How I Built This (NPR)
	- Steve Blank. The Four Steps to the Epiphany: Successful Strategies for Startups That Win
	- Eric Ries. The Lean Startup

Course Description

Introduction to the leadership practices required for product and process development for converting ideas into marketable products. The development process is decomposed and its elements are examined critically using case studies and supplemental reading. Topics covered include: the development process, project leadership, project economics, product and process design practices, service innovation, organizing for success, and managing portfolios and the link to business strategy. Examples are drawn from a variety of markets and industries. A step-by-step methodology for new product development is derived.

Course Assessment

- Grading (Total 100%):

Pre-Homework 10%	Exams & Quizzes 15%
Post-Homework 10%	Final Exam 15%
Projects 40%	Class Participation 10%

Homework: Pre-Class and Post-Class

- All homework will be administered via blackboard. No late home work is accepted.
- Homework problems are to be completed by an individual, but study groups are strongly encouraged.
- Student solutions should be original. Plagiarism will not be tolerated.
- Pre-Class Homework.
    - Due Mondays prior to the start of class. You will be allowed 3 attempts to complete the assignment. Questions will be based on week reading from the textbook.
- Post-Class Homework.
    - Due Sunday at 9 pm. You will be allowed 2 attempts to complete the assignment. Questions will be based on in-class discussion, case study reading, and textbook.

Quizzes, Exams & Final Exams

- All exams dates are indicated on the course syllabus and are mandatory.
- No exams will be administered after the exam date. As a courtesy, verifiable extenuating circumstances will be considered.
- Quizzes during class may be collected. These quizzes will be based on activities and topics discussed in class.

Projects

- Group projects will be completed to complement theory and application presented in the course.
- Projects must be completed in groups of 3-4 people and will be assigned by the professor. Projects from individuals will not be accepted. No late projects are accepted.
- All project requirements will be detailed in a project assignment sheet and most follow the layout described within the project assignment sheet.
- All projects must have cited references (IEEE or MLA is strongly encouraged).

Case Analysis Assignments

Cases are articles, research papers, website or magazine articles deemed relevant to the course. The majority of the cases are from the Harvard Business School (HBS), which is a leader in business and is a reputable source for current business practices. The selected cases will assist class discussion of (1) practical application, (2) identify disruptive innovation, (3) exposure to new technologies.

All case studies should be read prior to the week assigned. For in-class discussion, a hard or soft copy of the case and your case notes should be brought to class.

For each assigned case, you will be expected to read, understand, and be ready to discuss material. The majority of these cases will require more than one reading and additional research to provide you with clear understanding of the subject matter. Furthermore, you should identify extraneous or irrelevant information that maybe included. For some cases, I will provide study questions prior to due date.

Suggested Article Assignment Process
- READ 1 (Quick)
    o Complete a quick first reading of the case to get the overall article outline. For scholarly articles (such as HBS), read the abstract and results sections first and then read the rest.
    o Do not try to completely understand the case and its details at this point.
    o Write down key issues of the case.
    o Identify the key problems to be addressed
- READ 2 (Detail)
    o Reread the case in detail.
    o Selectively highlight information in the case that relates to the key issues/ problem that you have identified.
    o Identify the key information needed to resolve/ answer the key problem/ issues.
    o Determine whether this key information is available in the case.
    o Write an outline of the key tools, techniques, and/or frameworks that you would like to use to "solve" the problem(s). MOST IMPORTANT!
- READ 3 (SCAN)
    o Scan the case again and apply the appropriate tools/ frameworks to address the issues and problem(s).
    o For missing information in the case, attempt to (1) indirectly derive it from the case, or (2) make some assumptions.
    o Verify that you have resolved the problem(s) and issues that you identified.
    o Clearly identify the key assumptions.

Attendance & Class Participation
- Attendance is mandatory. If you are late, you are absent.
- Attendance may be taken via blackboard at the beginning of each class. You must have a way to access blackboard while in class. Thus, you may want to download the Blackboard app to your smart phone as well as your laptop.
- Class participation is based on your professional, active and constructive participation in the solution of the example problems in class, responses to general questions and your regular attendance of the class lectures.
- Absences for extenuating circumstances will be considered on a case-by-case basis and email notification prior to the absence is requested.
- You MUST act in a professional manner to all students while in the classroom and for all group projects. Class discussions can be passionate and opinionated, but should never make other students feel poorly. Bullying or belittling will not be tolerated. Attack the idea, not the person. Being able to take and give criticism is a skill and it will be developed in this class.
- BU's academic Conduct Code: http://www.bu.edu/academics/policies/academic-conduct-code

Course Outline and Important Dates

Week	M Date	Topic	Chap.	Case Study In-Class Discussions
1	09/04 W	Intro to Develop. Process	1	Solving All the Wrong Problems
2	09/09	Develop. Process Opportunity ID	2-3	BMW/ Sputtering R&D
3	09/16	Product Plan, Customer Needs, Disruptive Tech.	4-5	Intel/ Marketing Strategy
		Assign Project 1		
4	09/23	Product Specifications	6	Autonomous Driving
		09/23 Exam		Chapters 1-5 (Cases W 1-3)
5	09/30	Project Management	19	Handpresso/ Vertex Pharmaceuticals
6	10/07	Project Economics	18	TruEarth / Great Projects
		Project 1 Due 10/07		
7	10/15 M on T	Robust Design Concept Generation	15, 7	Nike/ Darth Vader / 3D Print
8	10/21	Concept Selection & Testing	8-9	Voice Wars
		10/21 Exam		Chapters 6, 7, 15, 18, 19 (Cases W 4-7)
		Assign Project 2		
9	10/28	Product Architecture, Industrial Design	10-11	Herman Miller/ Dethroning
10	11/04	DfE & DfM, Pricing, Prototype	12-14	Atlantic Computer
11	11/11	Business Plans, Crowdsourcing, Pitches		Writing /Study finance
		Project 2 Due 11/11		
		Assign Project 3		
12	11/18	Intellectual Property	16	Ultimate Entrepreneur/ LinkAmerica
		11/18 Exam		Chapters 8-14 (Cases W 8-11)
13	11/25 M	Design of Services	17	Wireless Charging/ Insourcing Boom
		Thanksgiving		
14	12/02	Open Innovation		Apple vs. Samsung
15	12/09	In Class Presentations/Pitch Off		
		Project 3 Due 12/09		
16	12/16-20	Final Exam TBD		Cumulative

Blackboard has links to all papers besides HBS. All HBS paper should be purchased through the HBS website.

Case Study Names and Links Overview
(This is a general list and is superseded by blackboard).

Week No.	Abbreviated Name	Case Study In-Class Discussions
1	Solving All Wrong Prob	"Solving All the Wrong Problems", New York Times Magazine, 2016.
2	BMW	BMW: The 7-Series Project(A)
	Sputtering	"Sputtering R&D Machine", HBS R0208X-PDF-ENG, 2002.
3	Intel	"The Growth of Intel and the Learning Curve", HBS OIT27, 1999.
	Marketing Strategy	"Marketing Strategy – An Overview", HBS 500005-PDF-ENG, 2003.
4	Autonomous Driving	"Ten Ways Autonomous Driving Could Redefine the Automotive World", McKinsey and Co., 2015.
5	Handpresso	"Handpresso (A)", HBS INS360-PDF-ENG, 2012.
	Vertex Pharma	"Vertex Pharmaceuticals: R&D Portfolio Management (A)", HBS 604101-PDF-ENG, 2006.
6	TruEarth	"TruEarth Healthy Foods: Market Research for a New Product Introduction", HBS 4065-PDF-ENG, 2009.
	What Great Projects	"What Great Projects Have in Common", MIT Sloan Management Review, 2011.
7	Nike	"Case Flash Forward: Nike Inc." 6067-PDF-ENG, 2018
	Darth Vader	"Top Ten Reasons Why Darth Vader was an Amazing Project Manager", https://www.geekwire.com/2011/top-10-reasons-darth-vader-amazing-project-manager/ Posted 2011.
	3D Print	"3D Printing Scales Up", The Economist, 2013.
8	Voice Wars	"Voice War: Hey Google vs. Alexa vs. Siri" HBS 718519-PDF-ENG 2018
9	Herman Miller	"Cradle-to-Cradle Design at Herman Miller: Moving Toward Environmental Sustainability", HBS 607003-PDF-ENG, 2009.
	Dethroning	"Dethroning an Established Platform" MIT Sloan Management Review, 2012.
10	Atlantic Computer	"Atlantic Computer: A Bundle of Pricing Options", HBS 2078-PDF-ENG, 2007.
11	Writing	One of the Most Powerful Tools for Hardware Startups: Writing https://blog.bolt.io/one-of-the-most-powerful-tools-for-hardware-startups-writing-25cd261dbe0b
	Study Finance	http://www.studyfinance.com/lessons/finstmt/
12	Ultimate Entrepreneur	"The Ultimate Entrepreneur: How DEC Passed Up the PC Boom", Computerworld, 1988.
	LinkAmerica	"LinkAmerica: The 18th Time Was the Charm", Fortune, 2014. http://fortune.com/2014/04/10/linkamerica-the-18th-time-was-the-charm/
13	Insourcing Boom	"The Insourcing Boom", Atlantic Monthly, 2012.
	Wireless Charging	"Wireless Charging is Still a Mess, But It Won't be Forever", Wired, 2015.
14	Apple vs. Samsung	"The Great Smartphone War: Apple vs. Samsung", Vanity Fair, 2014.