Boston University
College of Engineering

Course Number: **ME 502**, usually taught each fall

Course Title: **Intellectual Assets: Creation, Protection, and Commercialization**

Professor: Dan Cole

Course Description/Catalog Data:

This course provides students with the knowledge and tools necessary to create, protect, and commercialize engineering and scientific intellectual assets. Students will first make use of creativity tools to attack posed engineering problems, then turn to means for protecting their solutions. Rapid growing areas that are effecting nearly all businesses (e.g., software and the internet) will be covered. Extensive patent searches and analysis will be carried out to develop skills for quickly ascertaining the protected technical content of patents, and for recognizing what intellectual property (IP) should be and can be protected. Legal aspects for protecting creative ideas will be studied at a level appropriate for engineers to interact easily and smoothly during their technical careers with IP lawyers. Finally, various business models for the commercialization of intellectual assets will be analyzed. Extensive class exercises and projects will explore in depth in all three of these important areas of IP, with emphasis on key contributions during engineering and scientific research and development activities.

Prerequisite Course(s): Number(s) and Title(s):

Senior or graduate standing.

Courses for which this course is a Prerequisite: Number(s) and Title(s): At present, none.
Hours per week: Lecture - 4. Semester Credits – 4.

Textbooks and articles:

(1) "The Art of Innovation: Lessons in Creativity from IDEO, America's Leading Design Firm," by Tom Kelley, Jonathan Littman, Tom Peters, and Tom Peters, published by Doubleday Business, 2001, ISBN 978-0385499842.

(2) "Intellectual Property: Patents, Trademarks, and Copyright (Nutshell Series)," by Arthur R. Miller, Michael H. Davis, and Micheal H. Davis, published by Thomson/West, 2007, ISBN: 978-0-314-15875-8.

(3) Material from Harvard Business School on business case histories. The following should be available in a single case study booklet from the BU Barnes and Noble store, although sometimes you need to ask specifically for it (may not be with the books). Also, sometimes these are not available right at the start of class, which is okay since we do not start this case

study material until later in the semester. Finally, you can always pay for them online and download them directly in *.pdf format, at least most of them, at http://harvardbusinessonline.hbsp.harvard.edu.

(i) Case CMR074, "Managing Intellectual Capital: Licensing and Cross-Licensing in Semiconductors and Electronics," by Peter C. Grindley, and David J. Teece, 1997, 35 pp.
(ii) Case 376266, "Polaroid-Kodak," by Norman A. Berg and Glenn W. Merry, 1984, 18 pp.
(iii) Case 388041, "CVD, Inc. vs. A.S. Markham Corp. (A), by Michael J. Roberts and Ennis J. Walton, 1998, 26 pp.
(iv) Case 808118-PDF-ENG, "The Travails of Rubber: Goodyear or Badyear?", by Tom Nicholas, 2008, 17pp.
(v) Case R0611C-PDF-ENG, "Innovation: The Classic Traps," by Rosabeth Moss Kanter, 2006, 14 pp.
(vi) Case SMR265-PDF-ENG, "Breakthroughs and the 'Long Tail' of Innovation," by Lee Fleming, 2007, 8pp.
(vii) Case KEL104, "Technical Note: Innovation and Invention—A patent guide for inventors and managers," by James G. Conley, David Orozco, 2007, 37 pp.
(viii) Article I will distribute, namely, "In the Air: You says big ideas are rare?", by Malcolm Gladwell, from the New Yorker, 2008, 12pp.

Each year I modify the selection of both textbook and articles chosen. Here are some other articles I have considered and/or used in previous years. They will not be covered this year, but in case you are curious, please see below.

Case 9-806-105, "Google, Inc.," by Kerry Herman & Thomas Eisenmann, 2006, 33 pp.
Case 608080, "AT&T v. Microsoft (A): IP Litigation Strategy,"by Willy Shih, 2008, 20 pp.
Case 807124, "Technology Transfer at U.S. Universities," by Richard G. Hamermesh, Josh Lerner, David Kiron, 2007, 29 pp.
Case 12089-PDF-ENG, "Secrets of Successful Innovation (HBR Article Collection)," by Kevin P. Coyne, Patricia Gorman Clifford, Renee Dye, Teresa M. Amabile, Dorothy Leonard, Susaan Straus, Ed Catmull, 2008, 51pp.

A textbook that we used to use up until 2006, that you might find interesting (the stories are getting a bit old, but there is still much of value here) is: "Rembrandts in the Attic: Unlocking the Hidden Value of Patents," by Kevin G. Rivette and David Kline, published by Harvard Business School Press, 1999, ISBN 0875848990.

Many other books on how to invent, how to write a patent, how to be more creative, etc., exist. I'll mention a number of these as we go through the course.

Goals:

Many technology companies are finding that newly hired engineers and scientists lack the ability to recognize and capitalize on their contributions during regular development and research activities. Patent creation is becoming an increasingly important commodity, particularly for companies involved in rapidly expanding technology areas. The goal of this course is to train

students to be more valuable as employees when they work in industry, and/or if they become entrepreneurs.

This course covers legal aspects of intellectual property, including all aspects of a patent write-up (e.g., abstract, body, and claims), trademarks, and trade secrets. Key historical patents will be studied, as well as current ones of particular interest, including patents involving the internet, software, biotechnology, microelectronics, and communications. Students will gain valuable experience by performing patent and infringement searches. They will become adept at reading and analyzing the relevant parts of patents, and at interacting easily with IP lawyers to ensure that key engineering and scientific developments are protected. Finally, this course will cover how intellectual property can be made extremely useful, economically, to a company, by properly leveraging these ideas.

We will most likely have several guest lecturers during the semester, including a high level lawyer, plus at least one or more prolific inventor.

Grading:

Midterm	25%
Final	25%
Class project / presentation on mock patent and business case	25%
"Other"	25%

The "other" category consists of quizzes and an "idea log" that must be developed extensively throughout the semester.

All information about the course, lecture presentations, etc., will be posted on blackboard course info at http://blackboard.bu.edu (I'll send out and post the full url as soon as I know it).

Email will regularly be sent to you via you bu email account, so either please check that account regularly, or have it automatically forwarded to your work or other main email account.

If you miss class, you are responsible for getting notes from someone else as to what happened in class. In nearly all cases, except in the case of a power outage or equipment failure (rarely happens) the classes are recorded and are available about ½ hour or so after class ends. The url for accessing these videos will be sent to you soon. We will probably be using the free version of "real-player" to view them, but I will let you know more about that later.

Contacts information:

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Office Hours: W, Th 11:30 am-1:30 pm

Topics **Weeks**

1. **Creative process of patent generation** 3
   This work will involve attacking posed engineering problems and coming up with creative technical means for solving these problems. Technical work will be documented with the intent of putting the content into mock patent write-ups for protecting generated intellectual property. Posed problems will involve a variety of some of the key growing industries that encroach into nearly all areas of business, including the internet, software, computers, semiconductors, and communication.

2. **Legal aspects of patent protection, trade secrets, etc.** 4.5
   The level here is not that for patent lawyers, but is at the level that is felt to be essential for engineers and scientists to best bridge the technical/legal gap that typically exists between engineers and IP lawyers.

3. **Commercialization of intellectual property.** 4.5
   This work will cover a number of relatively recent case study examples in several of the faster growing and rapidly changing industries, including the areas of software, the internet, microelectronics, communications, and bioengineering. Various business models for the exploitation of intellectual assets will be analyzed. Class exercises will include constructing a business model that maximizes the return on a given intellectual asset.

4. **Practice patent write-up and research** 3
   In the second half of the class, mixed in with the material on commercialization of intellectual property, will be time spent on in-depth mock write-ups of patents & analyzing past & present key patents. Extensive patent searches will be carried out, making considerable use of available information on the internet. Students will gain the ability to quickly assess the heart of a patent, what is protected, what is not, and how this information can be best leveraged in their technical work. The aim here will be to enable students to move beyond the "legal" language barrier to be able to use patent information quickly and easily, and to be able to readily and effectively recognize and document the important aspects of their technical work. The final week will consist of presentations of the mock patent, plus a business case to the other students of the feasibility of using this patent for business purposes. The class will serve as a group of "pretend" potential investors, who will input their evaluation of the presentations to the instructor, who will then make the final grade assignments for these projects.