ENG ME 502 Intellectual Assets: Creation, Protection, and Commercialization

2008-2009 Catalog Data:

ENG ME 502 Intellectual Assets: Creation, Protection, and Commercialization

Prereq: senior or graduate standing in an engineering or science discipline, or consent of instructor. 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. Rapidly growing areas that are affecting nearly all businesses (e.g., software and the Internet) as well as "high-tech" areas including microelectronics, communications, and bioenegineering will be emphasized. 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. Various business models for the commercialization of intellectual assets will be analyzed. Extensive class exercises and projects will explore in depth all three of these important areas of IP, with emphasis on key contributions during engineering and scientific research and development activities. (Formerly ENG MN 505.) 4 cr.

Class/Lab Schedule: 4 lecture hours per week

Status in the Curriculum: Elective

Textbook(s) and/or Other Required Material: "The Art of Innovation: Lessons in Creativity from IDEO, America's Leading Design Firm," by Tom Kelley, Jonathan Littman, Tom Peters, and Tom Peters, Doubleday Business, 2001.

"Intellectual Property: Patents, Trademarks, and Copyright (Nutshell Series)," by Arthur R. Miller, Michael H. Davis, published by West Wadsworth, 3rd edition, October 2000. Material from Harvard Business School on business case histories, typically 4-6 case studies.

Coordinator: Daniel Cole, Associate Professor, Mechanical Engineering

Prerequisites:

Students should have a mature understanding of science and technology in order to be able to adequately address the many issues of IP as applied to technology and science. The prerequisite for the course is to be a graduate student in science or engineering, or a senior in an engineering or science undergraduate program.

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.

Course Learning Outcomes:

As an outcome of completing this course, students will:

- Learn well accepted and proven methods for creativity enhancement methods in attacking i technical problems.
- Develop an understanding for what scientific and technical advancements and ii. improvements can be protected.
- Learn how to research IP from the enormous database at the USPTO. iii.
- Study some of the key innovative and technological advancements that have been made in iv. high technology companies, and understand the relationship of these advances to business and economic success, as well as society impacts.
- Become adapt at learning how to use IP to its best advantage for business purposes. V.
- Become knowledgeable about key case studies of IP issues in areas like microelectronics, vi. software, electronics, photography, biotechnology, communications, etc.
- Design a potentially patentable product on a team; write a mock patent and business plan, vii. and present the project to a mock board of investors (class peers and professor).
- Become aware of the relationship of government's role in IP protection, the tradeoffs of viii. too much versus too little, and the relationship of speeding up technological growth, reducing duplication of effort, and providing economical stimulus.
- Create and develop an idea log for improvements and potentially patentable ideas. ix.

Program:	Α	В	С	D	Е	F	G	Н	Ι	J	Κ	L	Μ	Ν
Course:	i,v,		i,v,	i,vii	i-iv,	ii,iv,	i,vii,	iii-	i,iii,	iii,vi,	i,iii,			iv,vi
	vii,		vii,		vii,ix	vii,	ix	vii	iv,vi,	viii,ix	ix			
	ix		ix			viii			ix					
Emphasis:	3	1	4	4	3	5	4	4	5	4	2	1	1	2

(3)

Course Learning Outcomes mapped to Program Outcomes:

Topics (time spent in weeks):

- Creative process of patent generation 1.
- Legal aspects of patent protection, trade secrets, etc. (4.5)2.
- Commercialization of intellectual property. 3. (4.5)(3)
- 4. Practice patent write-up and research

Contribution of Course to Meeting the Professional Component: Engineering topics: 100%

Status of Continuous Improvement Review of this Course:

Prepared by: Associate Professor Daniel Cole Date: May 23, 2009