New Jersey Institute of Technology
School of Applied Engineering & Technology
ENGR 350-Intellectual Property for Engineers

COURSE NUMBER	ENGR 350
COURSE NAME	Intellectual Property for Engineers
COURSE STRUCTURE	2-2-3 (lecture hr/wk - lab hr/wk – course credits)
COURSE COORDINATOR/ INSTRUCTOR	Dr. S. Lieber/ Mr. A. Canonaco
COURSE DESCRIPTION	Intellectual Property drives the realization of designs and the development of engineering businesses. This course covers the fundamental of intellectual property inclusive of patents, copyrights, trade-secrets, and trademarks. Students will learn how to apply this background directly to design work, communication of ideas, and how they are integrated in business.
PREREQUISITE(S)	FED 101 or MET 103;
COREQUISITE(S)	None
REQUIRED, ELECTIVE OR SELECTED ELECTIVE	Elective
REQUIRED MATERIALS	Instructor Provided Resources; Access Engineering
COMPUTER USAGE	Software: MS Office; CAD Package.
COURSE OUTCOMES(CO)	By the end of the course students should be able to: 1. Understand fundamental principles of Intellectual Property protection inclusive of patents, copyrights, trade-secrets, and trademarks. 2. Understand patent utility, nomenclature, and structure. 3. Apply knowledge of patents to a design/process. 4. Apply knowledge of intellectual property towards the innovation and realization of a design/process. 5. Understand relationship between intellectual property and industrial communications (written/oral) with emphasis on confidentiality. 6. Apply knowledge of intellectual property towards selection of best protection technique for business. 7. Develop skills to work in a team based environment.
CLASS TOPICS	Copyrights, Trademarks, Trade-Secrets, Fundamentals of Patents, Intellectual Property Agreements, Parts of a Patent, Types of Patent, Patent Process, intellectual Property Searching, Intellectual Property Communication, Design/Manufacture for Intellectual Property

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IP Project:

Project 1:

1. Create a Company
    a. What Product Will You Produce
    b. What is Your Brand
2. Design a Trademark
    a. Determine Categories
3. Search for Availability of Graphic and Text
4. Find Three Competitors

Project 2:

1. Preliminary Design of Product
2. Find Three Patents Similar to Product
3. Determine IP strategy.
4. Update Design of Product
5. Create Prototype (Extra Credit)

Students will produce a written report per instructor template and a 10 minute presentation.

STUDENT OUTCOMES

The Course Learning Outcomes support the achievement of the following Student Outcomes and EAC of ABET Criterion 3 requirements:

Student Outcome (2) - an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
Related CO – 1, 2, 3, 4, 6

Student Outcome (3) - an ability to communicate effectively with a range of audiences.
Related CO – 2,5

Student Outcome (4) - an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
Related CO – 1, 3, 4, 6

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Student outcome (6) - an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
Related CO – 3,4, 6

Student outcome (7) - an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.
Related CO – 3, 4, 6

GRADING POLICY

Note: Grading Policy may be modified by Instructor for each Section in the Course)

Homework	10 %
Project 1	15 %
Project 2	25 %
Two Quizzes	20 %
Final Exam	30 %

Note: There are two quizzes during the semester. There will be no makeup quizzes.

ACADEMIC INTEGRITY

NJIT has a zero-tolerance policy regarding cheating of any kind and student behavior that is disruptive to a learning environment. Any incidents will be immediately reported to the Dean of Students. In the cases the Honor Code violations are detected, the punishments range from a minimum of failure in the course plus disciplinary probation up to expulsion from NJIT with notations on students' permanent record. Avoid situations where honorable behavior could be misinterpreted. For more information on the honor code, go to http://www.njit.edu/academics/honorcode.php

STUDENT BEHAVIOR

- No eating or drinking is allowed at the lectures, recitations, workshops, and laboratories.
- Cellular phones must be turned off during the class hours – if you are expecting an emergency call, leave it on vibrate.
- No headphones can be worn in class, unless allowed by the professor.

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- Unless the professor allows the use during lecture, laptops should be closed during lecture.
- During laboratory, if you are finished earlier, you must show the professor your work before you leave class
- Class time should be participative. You should try to be part of a discussion

MODIFICATION TO COURSE	The Course Outline may be modified at the discretion of the instructor or in the event of extenuating circumstances. Students will be notified in class of any changes to the Course outline.
PREPARED BY	Mr. Alessandro Canonaco
COURSE COORDINATED BY	Dr. S. Lieber

CLASS HOURS

Tuesday	6:00 PM - 10:05 PM	GITC 2315C

OFFICE HOURS

By appointment.

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GRADING LEGEND

GRADE	NUMERIC RANGE
A	90 to 100
B+	85 to 89
B	80 to 84
C+	75 to 79
C	70 to 74
D	60 to 69
F	0 to 59

GENERATIVE AI

Student use of artificial intelligence (AI) is permitted in this course for certain assignments and activities. It is not permitted to be used in the assignments noted by the instructor, as doing so would undermine student learning and achievement of course learning outcomes. Additionally, if and when students use AI in this course, the AI must be cited as is shown within the NJIT Library AI citation page for AI. If you have any questions or concerns about AI technology use in this class, please reach out to your instructor prior to submitting any assignments.

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COURSE OUTLINE

Week	Date	Topic	Assignments

1	9/2	Lecture:
		• Introduction to Intellectual Property
		  ○ IP Related Careers
		  ○ Degree Tracks
		  ○ Review Syllabus
		  ○ Types of protection
		  ○ Inventor Benefits
		  ○ Goals
		Laboratory:
		• CAD Setup and Intro
			Review Canvas Page and Instructor provided Materials
			
			OnShape Tutorial

2	9/9	Lecture: • Introduction to Trademarks/Servicemarks • Introduction to Copyrights • Use of AI with Trademarks and Copyrights Laboratory: • USPTO Website ○ Trademark searching • US Copyright Website • Case Study • Project 1 Introduction • AI Trademark Lab	Review Instructor provided Materials Project-1: Executive Summary Draft

3	9/16	Lecture:
		• Introduction to Patents
		  ○ Concept and History
		  ○ What is a Patent
		  ○ Types of Patents
		  ○ Parts of a Patent
		  ○ Harmonized with Regional Differences
		  ○ Inventorship
		  ○ Process
		  ○ Use of AI in Patent
			Review Instructor provided Materials
			
			Project-1: Due Diligence Draft and IP Development Trademark Draft

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		Laboratory: • USPTO Website Patent Searching • Case Study • Design a Trademark • Review Project 1 Assignment	
4	9/23	Lecture: • Quiz #1 Laboratory: • Design Patent Design Around • AI Patent Lab • Review Project 1 Assignment	Review Instructor provided Materials Project-1: Trademark Analysis Draft

5	9/30	Lecture:
		• Fundamentals of Trade Secrets
		  ○ Purpose of Trade Secrets
		  ○ Reasonable Efforts to Maintain Secrecy
		  ○ Economic Value
		  ○ Risks
		• Key Differences between Patents and Trade Secrets
		Laboratory:
		• Case Study
		• Review Project 1 Assignment
			Review Instructor provided Materials
			
			Project-1 Finalize Report and Presentation

6	10/7	Lecture: • Guest Lecturer Laboratory: • Project-1 Presentation • Project 2 Assigned	Review Instructor provided Materials Project-2: Brainstorm

7	10/14	Lecture:
		• Intellectual Property Searching:
		  ○ Landscape
		  ○ Right to Use
		  ○ Patentability
		Laboratory:
		• Case Study
		• Review Project 2 Assignment
			Review Instructor provided Materials
			
			Project-2: Preliminary Design of Product Draft

8	10/21	Lecture: • Guest Lecturer	Review Instructor provided Materials

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		Laboratory: • Utility Patent Design Around • Review Project 2 Assignment	Project-2: Patent Searching Draft

9	10/28	Lecture:
		• Intellectual Property Communication
		  o Defensive Communication
		  o Attorney Client Privilege
		Laboratory:
		• Case Study
		• Review Project 2 Assignment
			Review Instructor provided Materials
			
			Project-2: Update Patent Searching Draft

10	11/4	Lecture: • Fundamentals of Public Disclosure • IP Risk Laboratory: • Case study • Review Project 2 Assignment	Review Instructor provided Materials Project-2 Analyze Draft

11	11/11	Lecture:
		• Concept Evaluation Process
		  o Invention Disclosure
		  o Flowchart of Decisions
		Laboratory:
		• Review Project 2 Assignment
			Review Instructor provided Materials
			
			Project-2 IP Strategy Draft

12	11/18	Lecture: • Quiz 2 Laboratory: • Review Project 2 Assignment	Project 2 – Update Product Design Draft
11/25 NO CLASS Follows Thursday Schedule			

13	12/2	Lecture:
		• Intellectual Property Agreements
		  o Non-Confidential Discussion
		  o Purpose of Non-Disclosure Agreement
		  o Licensing Agreement – out and in
		  o Development Agreements
		  o IP Provisions in Agreements
			Project 2 Finalize Report and Presentation

		Laboratory: • Review Project 2 Assignment	
14	12/9	Lecture: • Semester Review Laboratory: • Submit Project 2 • Project Presentation	Study for Final Exam
15	TBD	Final Exam	