NANYANG TECHNOLOGICAL UNIVERSITY SINGAPORE

# COURSE CONTENT

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| **Academic Year** | 2024/2025 | **Semester** | 1 |
| **Course Coordinator** | IPOS (external) | | |
| **Course Code** | CH4341[1] | | |
| **Course Title** | Fundamentals of Intellectual Property in Chemical Engineering | | |
| **Pre-requisites** | None | | |
| **No of AUs** | 3 | | |
| **Contact Hours** | Lectures: 26 hours<br>Tutorials: 13 hours<br><br>Total 39 hours | | |
| **Proposal Date** | 25 April 2019 | | |

## Course Aims

This course provides you with a working understanding on significant intellectual property (IP) protection regimes in Singapore, covering copyright, patents, registered design, trade marks and trade secrets and the relevant legislation and legal principles.

The central aim of the course is providing students with the ability to identify, differentiate and apply various aspects of these IP regimes in connection with a business's intellectual asset outputs.

Particular emphasis will be placed on the legal issues in relation to creation, protection, and exploitation of these intellectual assets. Within this context, the course explores how analysing IP rights protection laws and their considerations can guide a business's IP strategies, and how a business is able to use such IP considerations to assess the viability of potential courses of action and their plausible business implications. The business may be operating within the chemical industry.

A note on the legal cases that are highlighted in the study units: these cases are for illustrative purposes in relation to the legal principles discussed; in general students are NOT expected to be able to recall them or use them in presenting arguments for assessment purposes.

## Intended Learning Outcomes (ILO)

By the end of this course, you should be able to:

1) Differentiate the range of IP regimes and their related legislation and regulations
2) Describe the qualifying criteria for IP protection/grant of IP rights, and duration of protection under the various IP regimes
3) Examine IP assets and determine the most appropriate IP protection regime(s) or strategy for effectiveness
4) Evaluate and determine issues relating to ownership and control of IP rights
5) Analyse and identify potential infringing behaviour/activities, and possible defences

[1] Parallel with 'BG4341 Fundamentals of Intellectual Property in Biomedical Engineering'. BG4341 and CH4341 will share common lectures which will cover the basics of intellectual property, including copyright, patents, trademarks etc that are common to BIE and CBE students. However, separate tutorials that cover more programme-specific examples will be conducted, e.g. BG4341 will cover copyright and patents for biomedical devices while CH4341 will cover copyright, partial patents and the involvement of know-how for process technologies.

against allegations of infringement
6) Recommend appropriate remedies for instances of proven infringement
7) Analyse how the protection afforded by each IP protection regime or strategy can steer a business's IP strategies and objectives
8) Assess potential business applications of various IP rights/assets
9) Assess different considerations for the making of IP contracts and transactions

**Course Content**

1) Introduction to IP and Societal Justifications for IP Protection (2 hours)
2) Understanding the Singapore IP Ecosystem (2 hours)
3) Copyright Law: Practical Application and Business Considerations including those for chemical industry (4 hours)
4) Confidential Information: Practical Application and Business Considerations including those for chemical industry (2 hours)
5) Patent Law: Practical Application and Business Considerations including those for chemical industry (4 hours)
6) Registered Design Law: Practical Application and Business Considerations including those for chemical industry (4 hours)
7) Trade Mark Law: Practical Application and Business Considerations including those for chemical industry (4 hours)
8) Infringement, Defences and Remedies of IP Rights (2 hours)
9) Commercial Transactions of IP Rights: Licensing and Assignments (2 hours)

**Assessment (includes both continuous and summative assessment)**

| **Component** | **Course LO Tested** | **Related Programme LO or Graduate Attributes** | **Weighting** | **Team/ Individual** | **Assessment rubrics** |
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| 1) Final Examination (Duration: 2 hours; closed book; Answer booklet is required.) | ILO 1 - 9 | EAB SLO f | 60% | Individual | N.A. |
| 2) CA 1: Common Test (Duration: 1 hour; closed book; Answer booklet is required.) | ILO 1 - 5 | EAB SLO f | 20% | Individual | N.A. |
| 3) CA 2: Group Assignment (written response and presentation) | ILO 1 - 3, 7 - 9 | EAB SLO f and i | 20% | Team | Appendix 1 |
| Total | | | 100% | | |

**Formative feedback**

Feedback will be given on a constant basis, in the following contexts:

1. In respect of student responses to hypothetical problem questions attempted during tutorial
2. Review session post CA 1 (common test)
3. In respect of student presentation deliverables for CA 2 (component of group assignment); feedback will be given post-presentation
4. Review session ahead of final written examination, as a class and on an individual basis (voluntary)

**Learning and Teaching approach**

| **Approach** | **How does this approach support students in achieving the learning outcomes?** |
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| Lecture | You will be presented with overviews and key takeaways in the lecture presentations, using standard presentation formats enhanced with online resources to illustrate explanations. |
| Tutorial | You will be presented with hypothetical fact patterns that you will work through in a guided manner (modified essay question). You will be required to formulate the responses in a group, and present the same to the whole class, and receive feedback as to the accuracy of responses. |
| Group assignment | Groups will be given one assignment brief containing 2 main deliverables: a) presentation as a group; b) a written report/memorandum |

**Reading and References**

Pre readings:

1. IPOS website
   http://www.ipos.gov.sg

2. Copyright Infopack (IPOS)
   https://www.ipos.gov.sg/resources/copyright

3. Trade Mark Infopack (IPOS)
   https://www.ipos.gov.sg/resources/trade-mark

4. Classification of Goods and Services
   https://www.ipos.gov.sg/resources/trade-mark

- IPA-authored Learner's Guide containing key content (required)

**Course Policies and Student Responsibilities**

As a student of the course, you are required to abide by both the University Code of Conduct and the Student Code of Conduct. The Codes provide information on the responsibilities of all NTU students, as well as examples of misconduct and details about how students can report suspected misconduct. The university also has the Student Mental Health Policy. The Policy states the University's commitment to providing a supportive environment for the holistic development of students, including the improvement of your mental health and wellbeing. These policies and codes concerning students can be found in the following link.
http://www.ntu.edu.sg/SAO/Pages/Policies-concerning-students.aspx

**Academic Integrity**

Good academic work depends on honesty and ethical behaviour. The quality of your work as a student relies on adhering to the principles of academic integrity and to the NTU Honour Code, a set of values shared by the whole university community. Truth, Trust and Justice are at the core of NTU's shared values.

As a student, it is important that you recognize your responsibilities in understanding and applying the principles of academic integrity in all the work you do at NTU. Not knowing what is involved in maintaining academic integrity does not excuse academic dishonesty. You need to actively equip yourself with strategies to avoid all forms of academic dishonesty, including plagiarism, academic fraud, collusion and cheating. If you are uncertain of the definitions of any of these terms, you should go to the academic integrity website for more information. Consult your instructor(s) if you need any clarification about the requirements of academic integrity in the course.

*Note: This is a standard recommended text for academic integrity in the course. If you wish to amend, please make sure that it is in accordance with the official policy by visiting the link provided above.*

**Course Instructors**

| Instructor | Office Location | Phone | Email |
|---|---|---|---|
| TBC | IP Academy<br>51 Bras Basah Road 01-01 (189554) | 6221 8622 | gradstudies@ipacademy.com.sg |

**Planned Weekly Schedule**

| Week | Topic | Course LO | Readings/ Activities |
|---|---|---|---|
| 1 | Introduction to IP and IP Law | ILO 1, 2 | Prescribed Learner's Guide reading; lecture |
| 2 | Confidential information (including ideas, trade secrets, and knowhow) | ILO 1, 2, 3, 4, 9 | Prescribed Learner's Guide reading; lecture; tutorial involving case study analysis |
| 3 | Patent Law Basics | ILO 1, 2, 3, 4, 5 | Prescribed Learner's Guide reading; lecture; tutorial involving case study analysis |
| 4 | Registered Design Law & Layout Circuit Design Protection Basics | ILO 1, 2, 3, 4, 5 | Prescribed Learner's Guide reading; lecture; tutorial involving case study analysis |
| 5 | Copyright Law (1) | ILO 1, 2, 3, 4 | Prescribed Learner's Guide reading; lecture; tutorial involving case study analysis |
| 6 | Trade Mark Law (1) | ILO 1, 2, 3, 4 | Prescribed Learner's Guide reading; lecture; tutorial involving case study analysis |
| 7 | CA1 (Common test, individual) | ILO 1, 2, 3, 4 | Carried out in lecture session |
| 8 | Copyright Law (2): Business Strategy | ILO 3, 4, 6, 7, 8, 9 | Prescribed Learner's Guide reading; lecture; tutorial involving case study analysis; announce CA2 (Group assignment) |
| 9 | Trade Mark Law (2): Business Strategy | ILO 3, 4, 6, 7, 8, 9 | Prescribed Learner's Guide reading; lecture; tutorial involving case study analysis |

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| 10 | Copyright & Trade Marks: Infringement, Defences & Enforcement Strategies | ILO 5, 6 | Prescribed Learner's Guide reading; lecture; tutorial involving case study analysis |
| 11 | Dealing in IP Rights (Licensing) | ILO 4, 7, 8, 9 | Workshop (during lecture session), tutorial involving case study analysis |
| 12 | CA 2(Group assignment) | ILO 2, 3, 4, 7, 8 | Presentations and defence (carried out in lecture session) |
| 13 | Examination review | ILO 1 – 9 | Lecture (summary of main topics), tutorial consults on individual basis |
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**Appendix 1: Assessment Criteria Continuous Assessment 2**

| Marks | Criteria |
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| > 84%<br><br>Excellent | **The answer/solution is *correct* and (where required) the supporting discussion is clear and logical.**<br>• You consider the context of the problem situation fully and recognise the ambit of it.<br>• Any required definitions of terms are provided correctly.<br>• You choose and utilise the correct theories and/or strategies required to resolve the problem.<br>• Where required, you argue the solution to the problem in detail and deduce possible and relevant implications in connection with your proposed solution. |
| 75% to 84%<br><br>Very Competent | **The answer/solution is *largely* correct, but the discussion is not complete, clear and/or logical in a small part, possibly due to a misconception.**<br><br>• You do not consider the context of the problem situation fully or recognise the ambit of it completely<br>• Any required definitions of terms are not provided as correctly as they should be<br>• There is evidence that you have a misconception as to the correct theories and/or strategies.<br>• You do not consider a relevant concept needed to solve the problem correctly, or have considered an irrelevant concept.<br>• The procedure/strategy you have utilized is not clear or logically structured. It is unclear how you derived the solution.<br>• You have not fully argued the resolution to the problem in detail and have not deduced |
| 60% to 74%<br><br>Competent | **The answer/solution is *mostly* correct, but it is evident that you have several misconceptions and did not understand some parts in the structure of the problem.**<br><br>• Several concepts in the problem have not been addressed or have been wrongly considered.<br>• There is evidence that you have several misconceptions. You fail to consider several constraints of the problem situation.<br>• The theory/strategy you utilized is confused/incorrect/weak, or the theory/strategy was not developed far enough to reach a proper solution.<br>• You have considered several irrelevant variables, instead of focusing on the correct ones. |
| 40% to 59% | **The answer/solution is partially correct while being largely incomplete and/or containing multiple substantive errors**. |

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| Developing | • You selected a relevant procedure/strategy in attempting a resolution to the problem, however it is heavily inappropriate in the context of the question.<br>• You consider too few variables of the problem situation<br>• You have not fully considered the context of the problem situation.<br>• You understand some concepts relevant to the problem task, but too few to properly address the issues in the problem.<br>• You have a significant number of misconceptions in terms of the problem situation. |
| < 40%<br><br>Unsatisfactory | **Response is characterized by one or more of the following:**<br>• Your response only repeats information in the problem task.<br>• An incorrect solution/response is given and no other contextual information is shown.<br>• The solution/response and supporting information/arguments are completely irrelevant to the problem task.<br>• There is no attempt at providing a resolution to the problem. |

Please note that your individual score may vary based on feedback or observation of your contribution to the team via peer review if necessary.

**Appendix 2: The EAB (Engineering Accreditation Board) Accreditation SLOs (Student Learning Outcomes)**

a) **Engineering knowledge:** Apply the knowledge of mathematics, natural science, engineering fundamentals, and an engineering specialisation to the solution of complex engineering problems
b) **Problem Analysis:** Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
c) **Design/development of Solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
d) **Investigation:** Conduct investigations of complex problems using research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
e) **Modern Tool Usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations
f) **The engineer and Society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
g) **Environment and Sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for the sustainable development.
h) **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
i) **Individual and Team Work:** Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings.
j) **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
k) **Project Management and Finance:** Demonstrate knowledge and understanding of the engineering and management principles and economic decision-making, and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
l) **Life-long Learning:** Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change