

Engineering Tripos Part IIB, 4E1: Innovation & Strategic Management of Intellectual Property, 2017-18

Leader

[Dr Frank Tietze](#) [1]

Lecturer

Dr Frank Tietze

Guest lecturers

Timing and Structure

Michaelmas term (Wednesday 15:00-17:00). 100% coursework

Prerequisites

This module does not cover the basics of IP rights, such as patents, trademarks, copyrights, etc. Students attending this module are expected to be familiar with the basic understanding of what the different IP rights are, the key concepts and limitations. It is thus highly recommended to study the pre-course reading material, which will be provided on Moodle in due time.

Aims

The aims of the course are to:

- the relevance of intellectual property (IP) in today's technology and business context.
- how to manage and enforce IP strategically for technology related business problems.
- the portfolio approach to IP, challenges in IP transactions and open innovation.
- how to use patent data and analytics to support business related decision making.
- how to organize for effective IP management.

Objectives

As specific objectives, by the end of the course students should be able to:

- appreciate the interdisciplinary nature of IP management.
- understand and apply relevant concepts, frameworks, tools and theories introduced during the module.
- interact with professionals (managers, R&D engineers, lawyers) in IP related business conversations.
- understand the opportunities strategic IP management can create to develop and maintain competitive advantage.

Content

Please note: This is a new module and the syllabus might get updated

closer to the start of term. For instance, relevant readings will be added. Please watch out for changes, even though these will not change the nature and key elements of the module.

The course builds on the state of the art in strategic IP management thinking for maximizing value appropriation value from technological innovations. Given the interdisciplinary nature of IP this course brings together thinking from engineering, management, law and economics.

1. Innovation and the need for strategic IP management (11 October)

This session will introduce the module structure, the assessment exercise and set the scene by explaining why strategic IP management has become increasingly relevant for many industries over the last decades.

- Digital economy, multi-technology products and the complexity challenge
- The rise of open / cumulative innovation and open source and the need for collaboration
- IP fragmentation, assembly problem and hold-up
- Patent races and patent wars
- Incentives to innovate, motives to patent, and the patenting paradox
- Path dependency, trajectories and technology transition (to sustainability), dynamic capabilities
- Intellectual assets, intellectual capital and intellectual property

2. Protection and IP enforcement (18 October)

While it is expected that students have read the pre-course reading material, this session particularly builds on the IP basics to cover some of the legal and IP system issues, e.g. by introducing some legal frameworks.

- Appropriability regimes
- Patenting propensity across industrial sectors
- Patenting procedures and renewals
- Ownership and reassignments
- Counterfeits, patent quality, infringement and litigation
- IP treats and risk management

3. Mastering markets for technology (25 October)

This session introduces students to the relevant concepts around technology markets in the context of open innovation, the different actors on the supply and demand side as well as intermediaries and relevant managerial issues regarding licensing.

- Supply and demand sides for technology transactions
- Market intermediaries: brokers, patent pools, aggregators, non-producing entities and patent trolls
- Licensing models, contracts and negotiations and cross licensing
- IP valuation approaches and royalty rates
- Standard essential patents and FRAND

4.Strategies for appropriating value from technological innovation (1 November)

The session introduces how IP management can help to maximize value appropriation from R&D investments to gain and maintain competitive advantage.

- Strategic alignment of IP and business / corporate strategy (roadmapping)
- IP management for maximizing value creation and capture
- Offensive and defensive strategies
- Formal and informal appropriability strategies (lead time)
- Strategic disclosure and publishing
- Accelerating technology diffusion (patent pledges)
- Maximizing value appropriation for service innovations
- IP strategies for competing, complementary and platform technologies

5.Open innovation and IP portfolio management (8 November)

This session focuses on the dynamic nature of IP portfolios, different types of assets, strategies to update and exploit portfolio assets and its associated challenges.

- The IP portfolio: patents, design rights, brands, trade secrets, copyrights and data
- Strategically building and maintaining IP portfolios
- IP acquisition and exploitation / commercialization (inbound and outbound open innovation)
- Getting crowdsourcing right from an IP perspective
- Commercializing open source software and data
- IP management in R&D collaborations (open innovation paradox)
- Lifecycle management and 'evergreening'

6.Analytics supporting strategic IP and innovation management (15 November)

The session introduces students to IP analytics and how it can help with strategic IP management in particularly,

but also with decision making in innovation processes and technology development.

- Technology foresight, technology and business intelligence
- Disruptive technologies and weak signals
- Databases, search strategies and patent mining
- Tools, indicators and analytical techniques
- Network analysis, SAO and natural language processing

7.Enabling effective IP management (22 November)

To enable strategic IP management organizations need to have operational processes, structures and routines in place, such as IP due diligence processes for acquisitions. Organizational change towards effective IP management often also faces cultural barriers, which will be discussed in this session together with ways to use IP for financing and IP based business models.

- From closed to open innovation cultures (NIH syndrome)
- IP for enabling collaboration
- IP based business models
- IP challenges in mergers and acquisitions (due diligence, disassembly problem)
- Organizational principles and processes (Incentive systems, invention disclosure)
- A note on IP financing models (securities, collaterals)
- International accounting rules

1.Strategic IP management and innovation – the full picture (29 November)

This session will bring together the content of all lecture in a guest lecture and wrap-up session.

Further notes

Additional readings and resources for this module will be available from Moodle. Details will be given at the start of the module.

Coursework

Coursework assignment 100%.

Student will have to apply their knowledge gained in this module by developing an IP strategy for a company. An IP analysis of the company's own portfolio, those of relevant current and future competitors is a key element of the assignment. During the module the students will be introduced to a patent analytics software, which they will be able to use for the coursework. The coursework will comprise an individual 3,000 word report (+/- 10%) with max. 5 figures or tables, excluding references and appendices.

Coursework	Format	Due date & marks
To develop an IP strategy for a company, which includes an analysis of the company's IP portfolio and relevant actors in the IP ecosystem, drawing upon the knowledge from the different sessions in the module using Cipher, a patent analytics software. Further details available on the module's Moodle page.	Individual report, anonymously marked	Friday, 12 Ja

Booklists

To be completed!

Recommended readings:

- Phelps, M. and D. Kline (2009). Burning the Ships: Intellectual Property and the Transformation of Microsoft, Wiley Hoboken.
- O'Connell, D. (2011). Harvesting External Innovation, Gower Publishing.
- Chesbrough, H. W. (2006). Open Innovation: The New Imperative for Creating and Profiting from Technology, Harvard Business Press.
- Teece, D. J. (2000). Managing Intellectual Capital: Organizational, Strategic, and Policy Dimensions, OUP Oxford.
- Granstrand, O. (1999). The Economics and Management of Intellectual Property: Towards Intellectual Capitalism. Cheltenham, UK and Northampton, MA, USA, Edward Elgar Publishing.

Examination Guidelines

Please refer to [Form & conduct of the examinations](#) [2].

Last modified: 31/10/2017 13:15

Source URL (modified on 31-10-17): <https://teaching17-18.eng.cam.ac.uk/content/engineering-tripos-part-iib-4e1-innovation-strategic-management-intellectual-property-2017>

Links

[1] <mailto:ft263@cam.ac.uk>

[2] <https://teaching17-18.eng.cam.ac.uk/content/form-conduct-examinations>