Curriculum development for IP Teaching

INTRODUCTION

Curriculum development is a standard item on the agenda of university boards and their faculties'. There are several sources of pressure to keep the curriculum developing, many of which are external to the academic group, including

- Need to compete in the market for home and overseas students
- Government expectations
- Emergence of new technologies
- Employers, professional bodies and accrediting institutions
- Industry and the professions

At the same time, the following factors within an institution or academic group also play a significant role in influencing change:

- individuals with strong leadership skills
- financial pressures
- academic fashion, academic attitudes

In the area of intellectual property education, the pressure for curriculum change comes from a similar range of stakeholders, and similar circumstances. But it is important from an early stage in any discussion of curriculum change in the area of intellectual property to be prepared to consider the subject both as a law discipline subject and as an interdisciplinary subject.

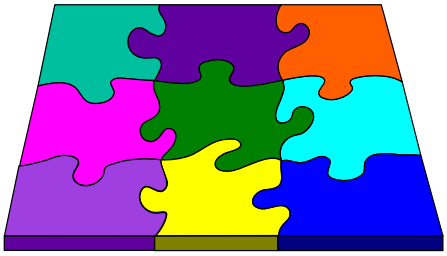
The intellectual property law curriculum in law schools is in a constant state of development, given the continuing development of national and international intellectual property law. Law schools are also looking to design intellectual property programmes that are relevant to business, the creative industries, science and technology. At the same time, faculties of diverse disciplines including business, chemistry, engineering, bioscience, medicine, arts and humanities are themselves beginning to appreciate that intellectual property should feature on their curricula. Some are beginning to develop intellectual property programmes, with or without law school involvement.

CURRICULUM DEVELOPMENT IN THE LAW SCHOOL

Intellectual property studies are offered in undergraduate law degrees usually in the final year. By that time students will have studied contract and other foundation law subjects which form a good underpinning to intellectual property studies. It is unusual for an undergraduate programme to cover all

the different aspects of intellectual property represented in the graphic below.

IPR Portfolio = IPR + Quasi IPR



IPRs: Patents*, Planter Breeders rights, Registered Designs*, Unregistered Design Right, Registered Trade Marks*; Copyrights, moral rights, Performers Rights, Chip Topographies, Geographical indications*, Traditional Knowledge, Indigenous peoples' rights

Quasi IP: Know How, Trade Secrets, Confidential Information, Unregistered trade marks, Reputation, Passing off

CURRICULUM DECISIONS

Most law school intellectual property programmes cover copyrights and patents, then trade marks. Least likely to be included is design law. Copyrights tend to have most time allocated, whereas quasi rights including confidentiality and know-have least. Geographical indications is one new area which law school programmes would be include, if there were more time. All law schools face decisions about what to include or leave out.

Growth of Law School IP syllabus

Substantive national law
Substantive international law
Trade Secrets & Confidentiality
Human Resource issues
Competition Law
Commercial Exploitation – law and practice
Management and Strategy
National and International policy
Ethics
Alternative regimes…… and more

One of the factors that should be influencing curriculum change in this area should be the future range of careers opening to graduates (see Hennessey[i] 2004). It is important that curricula remain responsive to the demands of employers and professional accreditation bodies. At the same time the study of intellectual property law in the law school is an academic study. Space should found to introduce students to criticality as well as developing a

vocational skill. Studying intellectual property law brings one into contact with deep moral, philosophy and ethical issues which raise questions about the nature of property itself. Critical approaches to intellectual property education should include examination of the fact that patents often go unused and are an inappropriate form of protection. The ideas that govern the open source software and GNU public licence and Creative Commons licenses are insufficiently researched at university or understood in the workplace.

The curriculum is delivered via the 'programme', which comprises 'units' or 'modules', each of which must satisfy university, and independent sector criteria[ii]. Programmes and units must identify aims, objectives, and independent learning outcomes, which are delivered via learning and teaching methodologies, including assessments. The combination of independent learning outcomes and assessments is the most powerful in ensuring delivery of the curriculum.

Assessments can be designed to allow law school students to expand and test their knowledge at the same time. Two innovative assessments used at Bournemouth University provide evidence that the student has achieved the following independent learning objectives set for the course:
(i)
(ii)

'Advice Letter'
Intellectual Property Practice students write one assignment as an IP Adviser to a student 'client' from design engineering. The IPP students must advise the design engineers on the intellectual property potential of their final year projects. The assignment tests the IP students' ability to identify appropriate advice and apply it. Whilst the text of the advice letter must be intelligible to the design engineer, the IP student is expected to submit a full appendix of the legal authority on which her advice has been based. The exercise has benefits for both groups of students in enhancing graduate employability skills. The IP lawyers get clinical experience of drafting advice. The design engineers receive intellectual property information they would not otherwise have had as well as receiving clinical experience of presenting their ideas in dialogue with a professional adviser. This assignment helps reduce plagiarism because the advice has to be tailored to the client's needs.

'IP Issues'
Because the syllabus is crowded there is little time to focus on the policy issues affecting different intellectual property regimes. The intellectual property students are asked to select an 'intellectual property issue' to research as a small group during the course of the programme, and to write up their research as an examination question in the summer exam. Issues students have chosen include patenting pharmaceuticals for use in combating disease in developing countries; patenting gene therapies; protecting television programme formats; protecting and exploiting traditional knowledge. Before the exams, the student groups make informal presentations to the class on their research. It provides an opportunity for the students to be

updated on a set of leading edge intellectual property topics, and to have something interesting to say on their subject at interview!

In the UK the Joint Education Board of the Chartered Institute of Patent Agents and the Institute of Trade Mark Attorneys has begun to give exemption from the foundation stage of their professional examinations for students completing an approved intellectual property unit as part of an undergraduate law degree[iii].

LAW SCHOOL COLLABORATION INFLUENCING CURRICULUM DEVELOPMENT

One of the newest channels for curriculum development is the increasing example of interdisciplinary collaborative teaching and research that takes place between law schools and other faculties. This was the subject of a paper delivered to WIPO Seminar on Intellectual Property Education and Research in Geneva in June/July 2005[iv]. As mentioned therein, there are challenges and difficulties facing academics wishing to engage in interdisciplinary work, nevertheless there is a growing body of evidence that, in respect of intellectual property in particular, it is a fertile ground.

The Institute of Automotive Studies at Oxford University's Begbroke Science Park provides a focal point for the University's research and development in partnership with industry. One case study is the SPRINTcar (Short Production Run Innovative Technology Car) which 'will deliver collaborative intellectual property and new opportunities for UK business'. Management and marketing process, design and embodiment processes, and intellectual property issues and commercialisation processes are expected to form MBA and PhD projects

CURRICULUM DEVELOPMENT BEYOND THE LAW SCHOOL

Intellectual property is one of the areas being explored by academics beyond the law school, aware that their students would benefit from an awareness of intellectual property concepts, combined with a basic competence in recognising, protecting, exploiting and enforcing intellectual property rights. In addition, professional bodies, governmental and international institutions have recognised the importance of developing intellectual property learning opportunities in the work place, as part of lifelong learning and continuous professional development.

Addressing the Royal Society of Arts in London (2003) the internationally renowned intellectual property academic James Boyle said:
'We need to bring together the programmers and the web publishers, design artists and the film makers and the people who are computer scientists and entrepreneurs and say 'intellectual property is affecting you and you ought to be thinking about how its affecting you'. This is something in which we have to educate people.'

Non-law academics have not always been enthusiastic about introducing intellectual property to the curriculum. Asked in 2003 whether they would teach intellectual property concepts to their students, engineering academics responded on a personal level

- I shouldn't have to teach this
- I don't know how to teach this
- If we had decent students in the first place I wouldn't need to teach this.

Objectively, they were reluctant because

- The syllabus is too crowded
- Intellectual property is not an explicit benchmark or accreditation requirement[v]

Additional reasons for their lack of enthusiasm included:

- It is no one person's responsibility
- It would be seen as 'soft' rather than 'hard' engineering
- Awareness is not there yet
- It is a subject that ought to be taught by experts
- There are more important things engineers need to think about, e.g. safety[vi]

Their students on the other hand have responded positively to intellectual property as something relevant to their future careers. One Japanese engineering undergraduate commented after an introductory intellectual property session, 'Intellectual property is like food for engineers. They should have a little every day'. However, research undertaken at MIT(2004) revealed that science students did not put value on patenting[vii].

Intellectual property education is unlikely to succeed if it is externally imposed on a faculty. Rather work needs to be done to enable non-law faculties to open up their curricula to intellectual property, and support its delivery to their students.

'Intellectual property education has a particularly important role to play by supporting engineers in the creation of product or process development opportunities that have a unique and defensible IP. This is the fundamental basis upon which further entrepreneurial activity can be based. However there is no well established pedagogy for educating engineers and scientists about intellectual property'.[viii]

In preparation for a workshop held in London in October 2005, a small group of UK and Australian engineering faculty professors were surveyed about the extent of intellectual property teaching in their faculties. Their comments included[ix]

- IP is integrated into activities covered by the Knowledge Transfer Centre, it doesn't feature in the curriculum, it isn't assessed.
- Guest speakers provide some guest lectures on some courses

- IP is embedded in taught units and is assessed as part of an overall project where students have to write a business plan and address the issue of IP
- Touched upon in several subjects, taught by an engineer, sometimes with an IP academic from the Law faculty
- It is present but not well developed in 4th year Management. We want to develop a stronger IP presence
- It is taught by an engineer as a separate part of discrete final year business management unit

At the workshop[x] a mixed group of intellectual property academics, engineering academics, with others from business, the UK Patent Office, and National Council for Graduate Entrepreneurship met to explore ways in which to progress the inclusion of intellectual property in the engineering curriculum. The workshop participants agreed that their findings would be broadly relevant to other non-law science and technology disciplines, as well as to other innovative and creative industries. Key questions discussed were:

- Who best to teach intellectual property to engineers?
- What does a graduating engineer need in their 'IP toolbox'?
- What should be the intellectual property learning outcomes for engineers?

Who best to teach intellectual property?

- University Lawyer,
- Technology Transfer Office staff,
- Adjunct professor – patent attorney, or
- patent attorney as visiting lecturer.
- Intellectual property law academic
- Knowledge Transfer staff
- Engineering academic – especially with some experience of patenting
- Local business person

They used one or more of the following resources or delivery styles

- Lectures
- Course Notes and hand outs
- Government texts
- Case studies
- UK Patent Office and other web based resources
- Games
- Lecturers materials

Graduate 'Intellectual Property Tool Box'

The workshop group felt the following should be included in every graduate's basic 'IP Toolbox'

- Broad, rather than deep, understanding of intellectual property
- Awareness of implications surrounding disclosure and confidentiality
- Linkages between IP, innovation and business development

- Awareness of cultural differences between university research and business development
- How not to be taken advantage of in IP matters
- Who to ask for advice
- Where to find and How to use patent information

At a more sophisticated level, students should be able to understand
- What goes into a patent application and why
- Time scale and costs of patent protection
- Implications of steps to be taken, or avoided, in the patent process
- Relevance of patents
- IP is more than just patents – Trade marks, copyright, design rights
- Intellectual property ownership
- Non disclosure agreements
- National and International intellectual property issues
- Offensive and Defensive patent strategies
- IP Valuation
- IP commercialisation and exploitation
- Open source licensing and other 'alternative' regimes

Learning Outcomes

It was stressed that patents, in particular, should not be taught uncritically. Students need to appreciate that applying for a patent is not always the most appropriate course of action. Teaching should involve use of role models and case studies. Learning outcomes focussed on a mixture of attitude, competence and knowledge captured in this matrix[xi]

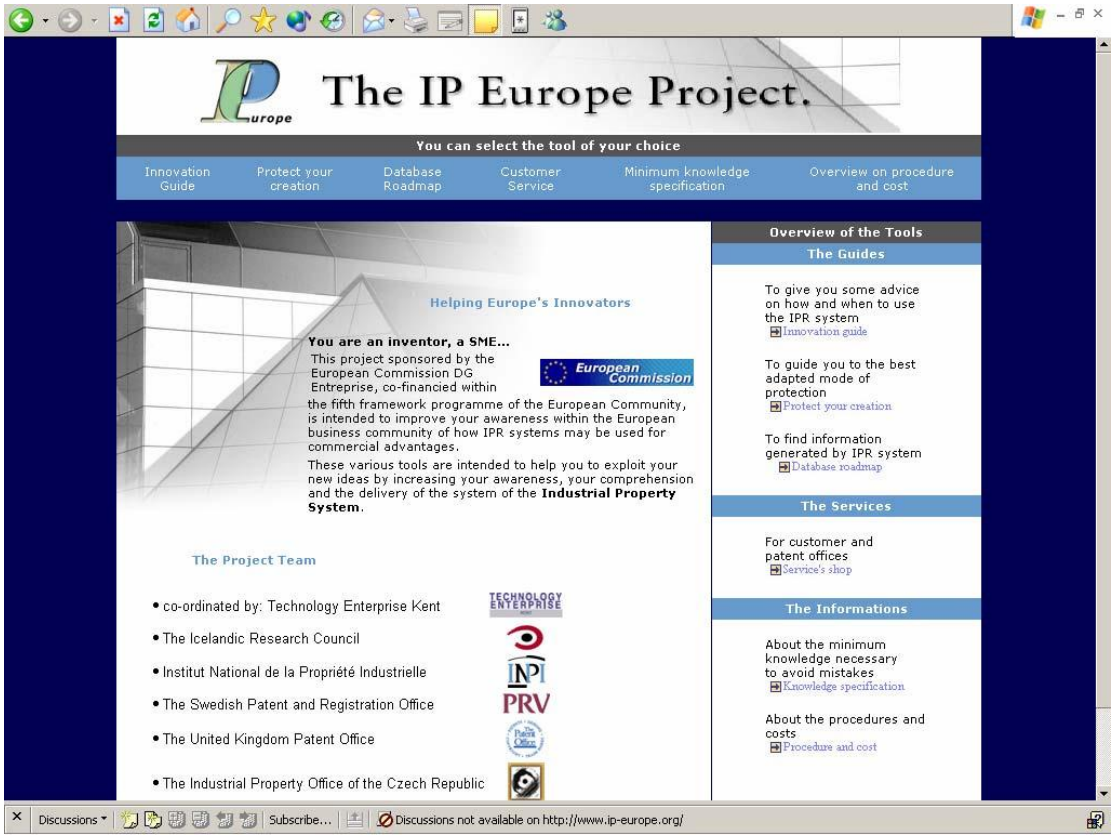
Attitude	*Ability to: appreciate the ethical view; recognise that intellectual property is integral to an engineer's work, that awareness of intellectual property rights is everyone's responsibility*
Competence	*Ability to: implement initial steps to protect; know who to consult for further advice, and when; identify the context in which intellectual property rights are being used or created*
Knowledge	*Ability to: understand the legal frameworks governing intellectual property rights and their commercial exploitation; fulfil responsibility of managing an intellectual property portfolio; appreciate the human resource issues and recognise the benefits of learning from history*

CONTINUING PROFESSIONAL DEVELOPMENT AND LIFELONG LEARNING

Once at work, the student is more likely to be drawn more towards 'vocational' or 'pragmatic' training outcomes, rather than 'academic' consideration of the subject. Nevertheless, the range of intellectual property education topics in the work context can be wide. Interests will include the practical aspects of

recognition, protection, exploitation and enforcement of rights; human resource issues; strategic issues; national and international issues. There have been responses from industry to the needs of people already in work wanting to understand more about intellectual property. Phillips in China and Gillette UK plc in UK [design of an intranet based resource] are two examples.

Other responses have been the creation, by private and public sector institutions, of 'free at the point of consumption' learning resources. The WIPO Academy for example has a comprehensive web based provision that is suitable for use by the casual enquirer as well as for the serious student. The European Patent Academy is a new development of the European Patent Office, with goals of '*supporting and developing innovation in Europe by promoting and participating in training projects designed for industry and patent system users in the areas of creation, strategy, evaluation and management*'[xii]. The European Commission, through framework funding initiatives, has supported a number of initiatives. Some of these are free to use, for example the IP Europe Project[xiii], is aimed at inventors and small and medium sized enterprises.



Another which will be password protected is the DIPS platform "Distance learning approach applied to enhance introduction of Intellectual Property rights in management strategies of enterprises". The resource has been designed by 12 European partners, and is divided into three modules:

- Intellectual Property Rights
- Intellectual Property Rights as a source of information

- Valuation and Exploitation.

It will be suitable for use by individual managers and companies in the work place, as well as by universities, technical and research institutes as part of accredited programmes.



The UK Intellectual Property Awareness Network has begun compiling a database of resources available online, free to use, to offer as a resource, initially through the websites of the Higher Education Academy subject centres of law and engineering. Producing such a database to reflect the needs of a particular industry in a particular country could be a useful exercise for

INTELLECTUAL PROPERTY AWARENESS NETWORK – IPAN

EDUCATION SECTOR GROUP – ON-LINE EDUCATIONAL SITES

Owner		Coverage			Jurisdiction				Target Audience					Style						Ease
Name	**URL**	**Law**	**Management**	**Valuation**	**UK**	**EU**	**USA**	**International**	**Pupils**	**Students**	**Researchers**	**Practitioners**	**Industry(s)**	**Text Based**	**Graphics Based**	**Ease of Print**	**Authoritative**			**1 Difficult 10 Easy**
Nottingham Trent University	1.	♦	♦		♦			♦		♦				♦		♦	♦			7
UK Patent Office	2.																			
IP-Europe Project Team	3.																			
European Patent Office	4.																			
Australian National Training Authority	5.		♦					♦		♦	♦	♦		♦		♦				3
University of Wisconsin – Extension	6.																			
Australian Government IP Office	7.																			
US Department of State	8.																			
Phillips Ormonde & Fitzpatrick	9.	♦	♦	♦	♦	♦	♦	♦		♦	♦	♦		♦						5

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Phillips Ormonde & Fitzpatrick	10.																			
Australian Government Department of Foreign Affairs and Trade	11.																			
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UK Patent Office	14.																			
World Intellectual Property Office	15.		♦					♦		♦	♦			♦	♦	♦	♦			5
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UK Patent Office	17.	♦	♦		♦			♦		♦	♦		♦	♦						7
Canadian Patent Office	18.		♦					♦	♦	♦				♦	♦	♦				7
US Patent and Trademark Office	19.						♦		♦					♦	♦	♦				10
WIPO and *indecopi*	20.								♦						♦	♦				10
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CIPA	22.																			
ITMA	23.																			
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APPENDIX ONE

Example of an online resource adaptable for different levels of classroom use. The Patent Office website [POwww!] was used with undergraduate product design students and software design students. Neither group had more than an hour or two of contact time to spend on intellectual property. Their tutor had little or no understanding of intellectual property.

Feedback comments from the tutors included:

- I had very little knowledge of IPR
- Students responded well to the interactive demo
- The visit to the Patent Office website was useful as they tried to get an idea of how to answer the questions
- They liked the web site organisation and I noticed they found the information easily

Feedback comments from the students included:

- I would advise my employer to research into the IPR on the internet and look at the patent web site www.patent.gov.uk
- I would advise going to the patent web site and taking part in an exercise like we have done, because many companies will be surprised with what is protect and what is not
- By the way, this was very useful. Thank you!



Getting an IPR perspective

1. locate the Patent Office website

- 'click here for help choosing'
- work your way through the introduction

2. click each of the buttons: Trade Mark, Copyright, Designs, Patents. In each of those, click on 'what is a Trade Mark', 'What is a Copyright', 'What is Design', 'What is Patent'.

……..

3. In 3 – 5 bullet points, identify the maximum number of intellectual property rights that could apply to your innovative work
- AND
4. What would you advise your employer to do next with regard to securing the rights in the work you are doing?

Quiz questions www.patent.gov.uk.

- 1. Is my trade mark protected if I register my company name with Companies House?
- 2. How much does it cost to apply for a trade mark?
- 3. How do I register my trade mark in another country?
- 4. How long does a trade mark last?
- 5. What's the difference between using TM and (R) on a product?
- 6. What is OHIM?
- 7. What does copyright protect?
- 8. What does copyright NOT protect?
- 9. How long does copyright last?
- 10. Can copyright be registered in the UK?
- 11. Who is the first owner of copyright?
- 12. Is material on the internet subject to copyright?
- 13. What is 'individual character' in Registered Designs?

- All the answers are available on patent office web site

- 14. How long do you have to test the market before applying for Design Registration?
- 15. What does design registration protect?
- 16. What does design registration NOT protect?
- 17. What does (unregistered) design right protect?
- 18. What does (unregistered) design right NOT protect?
- 19. What is a patent?
- 20. What is the significance of 'prior art'
- 21. What 3 positive criteria must an invention fulfil to be patentable?
- 22. Name TWO categories of innovation that cannot be patented?
- 23. How much does it cost to file an application for a patent?
- 24. How can I make money from a granted patent, registered design, trade mark or copyright?
- 25. How long does a patent last?

- Get the students to devise their own quiz

Responses to 'POwww!'

- Tutors
- I had very little knowledge of IPR
- They responded well to the interactive demo.
- The visit to the Patent Office website was useful as they tried to get an idea of how to answer the questions.
- They liked the web site organisation and I noticed that they found the information easily.

- Students:
- I would advise my placement employer to research into the IPR on the internet and maybe look at the patent web site www.patent.gov.uk <http://www.patent.gov.uk>
- I would advise the company to research into all the Intellectual Property Rights by going onto the Patent web site and also take part in the exercise we have just done, because many companies will be surprised with what is protected and what is not.
- By the way, this was very useful! Thank you!

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[i] Hennessey W, INTELLECTUAL PROPERTY PROGRAM OF THE FRANKLIN PIERCE LAW CENTRE: PAST DEVELOPMENTS, CURRENT SITUATION AND FUTURE TASKS, WITH PARTICULAR EMPHASIS ON ITS EDUCATION METHODOLOGY TO DEVELOP HUMAN RESOURCES MEETING SOCIAL NEEDS. ICS Seminar, February 2004 p

[ii] In UK the Quality Assurance Agency

[iii] Intellectual Property Practice unit, Level H, LLB(hons) degree, Bournemouth University, 2005

[iv] See http://www.wipo.int/academy/en/meetings/iped_sym_05/papers/pdf/soetendorp_paper.pdf

[v] See UK Engineering Council accreditation requirements, 2003

[vi] Soetendorp R, INTELLECTUAL PROPERTY RIGHTS AWARENESS – A BUSINESS ENTERPRISE SKILL FOR ENGINEERING EDUCATION, 2002 Australasian Association for Engineering Education 13th Annual Conference, Canberra

[vii]

[viii] Maclaughlan R G et al, ENGINEERING ENTERPRISE THROUGH IP EDUCATION: WHAT IS NEEDED? Proceedings of the 2005 ASEE/AaeE 4th Global Colloquium on Engineering Education, © Australasian Association for Engineering Education

[ix] Soetendorp R, COLLABORATION IN INTELLECTUAL PROPERTY EDUCATION AND RESEARC,, WIPO Seminar Geneva 30 June – 1st July 2005 http://www.wipo.int/academy/en/meetings/iped_sym_05/papers/pdf/soetendorp_paper.pdf

[x] Part of a research project sponsored by the UK Higher Education Academy Law Subject Centre and Engineering Subject Centre to investigate a pedagogy for including intellectual property in the engineering syllabus see http://www.engsc.ac.uk/an/mini_projects/index.asp#ip and http://www.ukcle.ac.uk/research/projects/soetendorp.html

[xi] Modelled on the UK Health & Safety Executive Board of Moderators Guideline (appendix C) core curriculum framework see http://www.learning-hse.com/hse/infor_frameset.phtml

[xii] See http://academy.epo.org/tass/index.en.php

[xiii] see http://www.ip-europe.org