Teaching Intellectual Property and Patents in an Engineering Physics Master

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Manager of the Course

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My background

- Teaching: Artificial Intelligence, Algorithms, ...
- No previous knowledge on IP.
- Member of the Curriculum Committee for the Engineering in Electronics Degree.
Motivation: Spanish patent applications

Total number of patent applications

Number of patent applications per million

lunes, 20 junio 2011
Motivation: EPA plan

- PanEuropean Project: patent teaching kit.
- Lecturing with the patent teaching kit: Alcalá, November 2009
Introducing the IP knowledge in Electronic Engineering BS: testing the teaching-kit

Design of a specific course for the Engineering Physics Master.
Engineering Physics Master

- 60 ECTS 25h/ECTS
- research-oriented Master
- multidisciplinar Master
- academic, scientific and professional activities
Structure of the Master Program

- Module I: Nuclear and Radiological Engineering
- Module II: Control Engineering and advanced instrumentation.
- Module III: Electronic and Information Technologies.
- Module IV: Applicable Physics
Supplementary Modules

• Module V: Complementary Training
  • Additional Mathematics
  • General Training in Research Methods
  • Theoretic, practice and business application of research results

• Module VI: Master Project
Engineering Physics
Master: main goals

• ...

• “Encouraging Entrepreneurship through a high sensitivity to the relationship among knowledge, technology and intellectual property and patents. Accompanying and orienting any vocation to the University units aimed to promote Spin-off companies and youth entrepreneurs.”
Module V: core goal and competencies

• ....

• Introduction to research, innovation and intellectual property.

• Promotion of entrepreneurship, technology transfer process, from intellectual property to spin-off companies.
Student Profile

- **Bachelor of Engineering:** Electronics, Aeronautical, Computer, Communications, Materials, ... BEng

- **Bachelor of Science:** Physics, Mathematics, ... MSc
Students’ and Staff’ attitudes

- **Students**: low knowledge, low entrepreneurial motivation, some preventions.

- **Researchers and University staff**: low interest but, maybe, increasing.

- **Companies, technological centers and authorities**: increasing interest.
Intellectual Property and Patents: goals

- Introduce knowledge about IP.
- Introducing discussion to question prejudices.
- Introduce the patent system as a source of scientific knowledge.
- Promote entrepreneurship and University Spin-off companies.
Intellectual Property and Patents: methodology

- 3 ECTS = 30 hours at University, 45 hours at home.
- Lecture: up to 60%, 18 hours.
- Seminars: 3 hours. Discussion sessions.
- Practical: 5 hours. Case of study
# Teaching organization

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<td><strong>30</strong></td>
<td><strong>45</strong></td>
<td><strong>75</strong></td>
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Lunes, 20 junio 2011
Intellectual Property and Patents: program 1

- **Introduction:** basic concepts; ethics and intellectual property.

- **Industrial Property:** patents, trade marks, registered designs and trade secrets. Examples and discussion exercises.

- **Intellectual Property:** Copyright, Licensing, Open Source, etc.
Intellectual Property and Patents: program 2

- The intellectual and the industrial property in the knowledge economy: protection of knowledge and competitiveness, United States and Europe, Counterfeit and Emerging Economies.

- The patent system: regulations, how to write a patent, litigation, cases of study.
The patent system as a source of scientific and technological knowledge: scientific information in patents, databases, how to conduct a patent search. Exercises.


Invited lecturers: local IP consultant, UPV/ EHU Spin off experience, ...
Discussion seminars

• Software patents and open source licenses.
• Medicament patents.
• Counterfeit.
• Copyright: music, films, literature, science, ...
• Protecting small or big companies.
• University and copyright.
• University and patents.
Practical

- Famous litigations.
- Successful companies.
- Famous University Spin-off.
- New business models.
- Controversial practices.