Coordinating unit: 230 - ETSETB - Barcelona School of Telecommunications Engineering
Teaching unit: 739 - TSC - Department of Signal Theory and Communications
Academic year: 2017
Degree: MASTER'S DEGREE IN ELECTRONIC ENGINEERING (Syllabus 2013). (Teaching unit Optional)
MASTER'S DEGREE IN INFORMATION AND COMMUNICATION TECHNOLOGIES (Syllabus 2009). (Teaching unit Optional)
MASTER'S DEGREE IN NETWORK ENGINEERING (Syllabus 2009). (Teaching unit Optional)
DEGREE IN ELECTRONIC ENGINEERING (Syllabus 1992). (Teaching unit Optional)
DEGREE IN TELECOMMUNICATIONS ENGINEERING (Syllabus 1992). (Teaching unit Optional)
MASTER'S DEGREE IN TELECOMMUNICATIONS ENGINEERING (Syllabus 2013). (Teaching unit Optional)
ECTS credits: 5  Teaching languages: English

Teaching staff
Coordinator: Carles Puente Baliarda
Others: Puente Baliarda, Carles

Teaching methodology
See 'Regulations for carrying out activities'.

Learning objectives of the subject

Course Objectives:
1.- To train engineers and scientists in the management of technology assets, research and engineering teams.
2.- To understand the rules of the international patent system and to learn how to develop a patent portfolio and a patenting strategy to secure and monetize the technology value of a corporation.
3.- To learn the basic technology and patent licensing models and the related business trade-offs.
4.- To develop the basic skills to plan and manage a technology and product roadmap, understanding the role of a technology department in a small or large corporation and its fit and interaction with other departments and government bodies within the organization.
5.- To review several strategies on how to introduce an innovation into the market, from the traditional product development cycle to a pure intellectual property licensing model.

Pedagogic targets:
1.- To make engineers and scientists conscious on the potential value of a technology asset beyond its use in a traditional product development program.
2.- To provide engineers and scientists with some basic tools and insights in the art of technology management.
3.- To get engineers and scientists confident and familiar in managing patent information.
4.- To get engineers and scientists understand the purpose of patenting and to provide them an insight on how to make an effective use of patents in a business context.

5.- To get engineers and scientist familiar in the reading and wording of patent documents and interpreting its basic scope of protection.

6.- To help engineers and scientists in protecting through patents broad technology concepts rather than narrow product lines.

7.- To provide engineers and scientists with the tools to budget and monitor a patent portfolio and help in making a strategic plan for a patent asset development.

8.- To provide engineers and scientists with the basic concepts on technology and patent licensing.

9.- To provide engineers and scientists with a perspective on how to set up a technology and IP group inside a company whether a start-up or a large corporation.

10.- To train engineers and scientists in the reading of technical documents (patents) in different fields where the student is not necessarily an expert.

Who should attend:

This course is directed to train engineers and scientist aiming to develop a technology management career in a high-tech company, whether a start-up or a large corporation.

Course Description:

Background: Technology and talent are the main assets for a technology based company; however, a disruptive technology alone does not guarantee a business success. Properly managing such two key assets, a proprietary technology and the talented team behind it, becomes a key success factor when addressing a highly competitive market environment. This course aims to provide the basic tools and skills to future technology managers to develop a mid and long-term technology development and innovation strategy which is aligned with the business goals of a corporation.

<table>
<thead>
<tr>
<th>Study load</th>
<th>Hours large group:</th>
<th>Self study:</th>
</tr>
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<tbody>
<tr>
<td><strong>Total learning time:</strong> 125h</td>
<td>39h</td>
<td>86h</td>
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<tr>
<td></td>
<td><strong>31.20%</strong></td>
<td><strong>68.80%</strong></td>
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Content

Part I - Background, Basic Knowledge and Skills

Degree competences to which the content contributes:

Description:
Technology Based Companies and a Knowledge Based Economy - What is a technology based company? The technology and the team as key assets of the corporation. Structure and organization of a technology based company. Examples of technology companies in the telecommunications/electronics space (Qualcomm, ARM, Intel, Thomson, Rambus, Tessera, InterDigital, IBM, Immersion, WiLAN). Overview of Intellectual Property (IP) protection. The patent system worldwide: why patenting?

Project Oriented Management - The project as a business and engineering management tool. The project steering committee. The project leader and the project team. Project management tools: project definition, project planning, budget and resources planning and tracking, tracking tools (action item list, meeting minutes, reporting), closing meetings. Project planning examples with Microsoft Project.


Part II - Technology and Patent Strategies and Organization

Degree competences to which the content contributes:

Description:


The Knowledge Management System (KMS) - The KMS as a productivity tool for technology based companies. The KMS as knowledge storage tool: internal projects and reports. The KMS as prior-art and state of the art surveillance tool. The KMS as a patent docketing and document management tool. The ‘duty of candor’ in the US and the Information Disclosure Statement procedure in front of the USPTO. Examples of software tools for implementing a KMS. Information and document workflows and quality system related procedures.

Part III - Technology and Patent Based Business Models
### Degree competences to which the content contributes:

**Description:**


### Qualification system

30% Patent Drafting & Innovation (paper airplane project)
Winners (teams with exclusion rights) get 4 extra bonus points in final exam.
Best airplane builders get 2 extra bonus points in final exam.
Delivering all assignments and projects and obtaining at least 4/10 points in the final exam is a condition for the bonus to accrue.

20% Weekly Assignments.
20% Final Exam.
15% Patent Business/ Patent Portfolio Management project.
15% Project Planning project.
230639 - TAM - Technology Asset Management

Regulations for carrying out activities

Weekly Assignments (3h/week) - At the end of the week (7-8 out of 13 weeks), students will have to work on an assignment for the following week. Completing and delivering the exercises will be mandatory. Completion of work will be checked, and a few randomly selected assignments will be graded each week. Weekly assignments will be based on:

- Read and comment 'the patent of the week'.
- Read selected material from reference books and papers.
- Quest on the content of the week sessions and material.
- Exercises based on the week sessions.

Course Project #1 (15h in 2 weeks) - Project Planning - Students will organize in teams of 2-3 people to prepare a detailed project plan and related project management tools. A project leader will be elected within each group and the team will organize to find information about the target product design, manufacturing and marketing. (Teamwork)

Course Project #2 (30h in 4 weeks) - Patent Drafting & Innovation: The paper airplane competition - Every student is invited to prepare a paper airplane in class and compete for the longest flight-time airplane. Then students are arranged in teams of two/three, and a time period for improving the plane and 'filing' a patent on the invention is proposed. Entire prior-art will be defined by the professor. 'First to file' system is proposed. The winner is who owns an exclusion right on the longest flight-time airplane. The winning team gets 4 extra points in the final exam. (Teamwork)

Course Project #3 (15h in 2 weeks) - Teams will have a choice between a "Patent Portfolio Management" project and a project related to a topic around the "Patent Business":

- "Patent Portfolio Management" - Students will collect the dates of a set of PCT patent applications filed by a tech company in the previous year and will prepare a 20 year budget. Cost analysis and comparison based on several national filing strategies will be carried out. (Teamwork)

- "Patent Business" - Students will research on a selected topic around the patent and licensing business and will prepare a report and a presentation. (Teamwork)
Bibliography

Basic:


Others resources:

Hyperlink

USPTO

EPO