300314 - IGAT-OAT - Introduction to Technology Asset Management

Coordinating unit: 300 - EETAC - Castelldefels School of Telecommunications and Aerospace Engineering
Teaching unit: 739 - TSC - Department of Signal Theory and Communications
Academic year: 2016
Degree: BACHELOR'S DEGREE IN TELECOMMUNICATIONS SYSTEMS ENGINEERING (Syllabus 2009). (Teaching unit Optional)
BACHELOR'S DEGREE IN AEROSPACE SYSTEMS ENGINEERING (Syllabus 2015). (Teaching unit Optional)
BACHELOR'S DEGREE IN AIRPORT ENGINEERING (Syllabus 2010). (Teaching unit Optional)
BACHELOR'S DEGREE IN AIR NAVIGATION ENGINEERING (Syllabus 2010). (Teaching unit Optional)
BACHELOR'S DEGREE IN NETWORK ENGINEERING (Syllabus 2009). (Teaching unit Optional)
ECTS credits: 3	Teaching languages: English

Teaching staff
Coordinator: Puente Baliarda, Carles

Prior skills
General Knowledge in Engineering and Physics

Requirements
General Knowledge in Engineering and Physics

Teaching methodology
Lectures, Homework and one Project

Learning objectives of the subject
To introduce engineers and scientists into the management of technology assets, research and engineering teams. To understand the basic rules of the international patent system and to learn how to patent claims to secure and monetize the technology value of a corporation. To learn the basic technology and patent licensing models and the related business trade-offs. 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. 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.

Study load

<table>
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<tr>
<th>Study load</th>
<th>Total learning time: 75h</th>
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<tbody>
<tr>
<td>Hours large group:</td>
<td>0h</td>
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<tr>
<td>Hours medium group:</td>
<td>33h</td>
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<tr>
<td>Hours small group:</td>
<td>0h</td>
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<tr>
<td>Guided activities:</td>
<td>0h</td>
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<tr>
<td>Self study:</td>
<td>42h</td>
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| Hours large group:  | 0.00%                    |
| Hours medium group: | 44.00%                   |
| Hours small group:  | 0.00%                    |
| Guided activities:  | 0.00%                    |
| Self study:         | 56.00%                   |
Content

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### Introduction to Technology Asset Management

<table>
<thead>
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<th>Description:</th>
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<table>
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<tr>
<th>Learning time: 2h 24m</th>
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<tbody>
<tr>
<td>Theory classes: 1h</td>
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<tr>
<td>Self study: 1h 24m</td>
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Part-I ? Background, Basic Knowledge and Skills

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 industry (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 ? Introduction to Patent Management


**Related activities:**
Weekly Assignments (2h/week) - At the end of the week (6 out of 10 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 on 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 (20h 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 provisional patent on the invention (including drawings and claims) is proposed. Entire prior-art will be defined by the professor. ?First to file? system is proposed. The winners are those who get to own an intellectual property right on the ?best flying airplane? (to be defined). The winning teams get 4 extra points in the final exam. (Teamwork)

**Specific objectives:**

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 scientists 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.
Content and Sessions

Learning time: 72h 36m
Practical classes: 32h
Self study: 40h 36m
Part-I ? Background, Basic Knowledge and Skills


Session #3.- Organization of a Technology Company. Organization chart. The General Shareholders Meeting, Board of Directors and Executive Committee. Executives, roles, teams and functions in a Technology company. Matrix organization models: departments and business units. Professional roles in a Technology company. Examples. Project oriented management. Project definition. The project as an engineering tool. The project as business organization tool. The project steering committee. The project sponsor, the project leader and the project team.

Session #4.- Project management tools: project definition, action item lists, meeting minutes, project reports. Project information system. Team building, team meetings: kick-off, follow-up and closing meetings. Project planning with Microsoft Project (I). Task definition and hierarchy. Task length and interdependence. Task margin and critical path. Project optimization. Example of Project Definition.


Session #11.- Introduction to Patent Engineering (III): Introduction to Claim drafting - Independent claims in the
EPO and in the US. Structure of a claim: preamble, limiting features and the two-part form. Basic and special types of claims (Markush, means plus function, product by process,..). Limiting words: ?comprising?, ?including? vs. ?consisting of?. Support according to EPO an

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**Qualification System**

? 40% Patent Drafting & Innovation (paper airplane project)
  o Winners (teams with exclusion rights) get 4 extra bonus points in final exam.
  o Best airplane builders get 2 extra bonus points in final exam.
  o Delivering all assignments and projects and obtaining at least 4/10 points in the final exam is a condition for the bonus to accrue.

? 30% Weekly Assignments
? 30% Final Exam

**Bibliography**

**Others resources:**

1. D. Mock, ?The Qualcomm Equation?, AMACOM, New York, 2005