Innovation, Entrepreneurship and Engagement with Industry in RI and CF

Coordinators

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Content

We will base the course in theoretical aspects, show cases and exchange/practical sessions, since course attendees will come from very different backgrounds of Research Infrastructures (RI) and Core Facilities (CF). Teaching will take place as a mix of traditional lectures where subjects and tools are introduced and then combined with show cases, exercises and teamwork assignments where students get to demonstrate their understanding of the subject. Entrepreneurial journeys (every day of the course ends with an invited entrepreneur who talk about her/his experience and reflects on the topic of the day. The course will be divided in two Chapters:

1. _Innovation and Entrepreneurship_: as such, addressing questions like "what is an invention" and the interplay between research and entrepreneurship when creating an innovation that might have impact on the users, RI or CF and the society. Specifically, it will give hands-on experience with patent and literature databases, knowledge regarding how an invention is defined and with how patents are written and composed and how an innovation can be communicated effectively to stakeholders. A set of critical skills needed to properly analyse and assess innovative projects, as well as the theoretical basis upon which the participants can build their further development as innovation leaders. Importance to have testimonials from RI, CF and industry.

2. _Engagement with Industry_: relationship with industry: what is it that the industry and the facility are looking for when establishing a working relationship (service vs collaboration/method development). How can we better align our interests for a successful relationship? Funding opportunities for projects that involve both academia and industry. Importance to have testimonial from industry.

Number of credits

3 higher education credits; **Duration:** Online course. 24 hours (including frontal lectures and active learning activities)

Target Audience

To qualify for admission to the course, the student must be registered as a PhD student in the Third Cycle of the University or they are Managers and operators of CF and RI.

Learning Model

Lectures, showcases, testimonials, group works and a final assignment.

Required reading

Handouts of the lectures and selected articles will be distributed during the course. Assignments for practical/hands-on components of the course.

Assessment

The examination of the course will be a written report from each student, and an individual oral examination. In addition, to pass the course the student must attend a minimum of 80% of the lectures.

Grading scale

The grades are Pass or Fail.

Course evaluation

There will be a written evaluation of the different parts of the course. The results of the evaluation will be communicated to the students and will function as a guide for the development of the course.

PROGRAMME STRUCTURE

Learning outcomes and objectives

Chapter 1 – Innovation and Entrepreneurship

(Online, 2 half days): Aspects that Will be covered: Intellectual property strategies, innovation strategies, patents, and general concepts and frameworks around entrepreneurship. Addressing questions like "what is an invention" and the interplay between research and entrepreneurship when creating an innovation that might have an impact on society.

KNOWLEDGE AND UNDERSTANDING

After completing the course, the student is expected to be able to

- *Have* an understanding of innovation and entrepreneurship.
- *Describe* processes and tools for stimulating innovation and value creation (what is innovation, prerequisites for utilization and value creation of research results, design thinking),
- *Describe* trends and new markets (business intelligence, global challenges and market analysis),
- *Describe* the art of transferring the potential value of an invention into a working business based on recent real examples and of your own project work.
- *Describe* the role of RI and CF as "innovation hubs" (demo sites + knowledge sites + …)
- *Assess* their own relationship with entrepreneurial thinking and action, which is understood as an idea and opportunity-creation process rather than purely and business activity.
- *Describe* and understand the interplay and connected challenges between invention and entrepreneurship, that is, how to transform an invention into a useful product for society.
- *Identifying* and understanding user and customer needs
- *Analyze* the content of patents and compare it with the content of related scientific articles, and vice versa, identify how inventions presented in scientific articles are translated into patents.

SKILLS AND ABILITIES

After completing the course, the student is expected to be able to

- *Explain* what it takes to commit oneself and take on a role as an innovator.
- *Describe* how to protect your ideas" (intellectual property, patent strategy, licensing, contracts, patent search),
- *Describe* how to present your ideas, as well as give and receive feedback ("Elevator pitch". The last day of the course is organized as a "value creation forum")

- *Describe* how to communicate an invention to different stakeholders in society and write a popular science text
- *Set up* the basics in patent writing and the requirement for getting a patent accepted.

Chapter 2 – Engagement with Industry

(Online 3 half days), to enable them to become a full partner of RI or CF whether it is as a user, a supplier, or a co-creator

KNOWLEDGE AND UNDERSTANDING

After completing the course, the student is expected to be able to

- *Describe* the importance of the industry engagement for public stakeholders and the main barriers to industry/RI engagement
- *Describe* different industry stakeholders based on characteristics such as sector, main activity, company size or service needs to define a tailored engagement strategy
- *Describe* modes and channels of engagement with industry
- *Describe* the key actors in the strategic partnerships (intermediaries and innovation hubs)
- *Explain* how to segment industries to define a proper engagement strategy:
  - o Size of the company
  - o Sector of application/activity
  - o Tailoring the service-offer
- *Explain* Co-creation and collaborative ways of working
  - o Collaboration vs service mode: how to define
  - o The exploitation of public funding to support industry/RI-CF collaborations
- *Understand* the actors of the reference value chain
- *Describe* different ways and approaches of how to engage with industry and establish RI/CF - industry relations
- *Describe* the importance of the offer of continuous update (offer life cycle analysis)
- *Explain* main drivers, motivation, constraints and cultural differences in organizations and how they influence collaboration
- *Identify* strategic partnerships (intermediaries and innovation hubs)
- *Describe* and understand how to leverage public funding to support industry/RI-CF collaborations

SKILLS AND ABILITIES

After completing the course, the student is expected to be able to

- *Explain* how to present scientific matters in a way sure to interest private sector interlocutors
- *Describe* potential actions for an industry engagement strategy
- *Describe* the diversity of needs and potentials when approaching the private sector
- *Distinguish* between activities to be carried out by a RI/CF and others that can be supported, for e.g. RI/CF members to further explore
- *Develop* a tailored service-offer
- *Explain* how to negotiate boundaries in industry / academia

Table of Contents: Online course

MODULE	CONTENTS
INNOVATION	• How do we define innovation (from CF and RI perspective)? • External versus Internal Innovation • Intellectual property and patents • Innovation potential or Core Facilities as methodology/technology transfer • Case studies/ Testimonial/ Exercises
ENTREPRENEURSHIP	• Decision Making • Stimulate and sustain innovation • How to promote knowledge exchange and technology transfer and create value, • how to define the innovation responsibilities and fostering effective horizontal coordination mechanism • Case studies/ Testimonial/ Exercises
ENGAGEMENT with INDUSTRY	• The role of RI and CF in the overall contribution to Innovation • The role of RIs and CF as "innovation hubs" ("demo-sites", "test sites", "application scouts") • The different ways for RIs and CF to engage with industry • The importance of the industry engagement for public stakeholders • How to segment industries to define a proper engagement strategy • Main barriers to industry/RI-CF engagement • The strategic role of the interaction with industry for the socio-economic impact of a RI and CF • Case studies/ Testimonial/ Exercises
Group exercises	• Hands-on exercises (student showcase) • Presenting the exam