

Teaching guide

IDENTIFICATION DETAILS

Degree:	Diploma in Entrepreneurship, Innovation and Technology Transfer (UFV Awarded title associated with Biomedical Engineering)
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Field of Knowledge:	Science
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Faculty/School:	Experimental Science
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Course:	INNOVATION PROJECT MANAGEMENT
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Type:	Compulsory Internal
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ECTS credits:	4
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Year:	3
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Code:	24313
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Teaching period:	Fifth semester
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Teaching type:	Classroom-based
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Language:	English
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Total number of student study hours:	100
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Teaching staff	E-mail
Laura María Aguilar Esparza	

SUBJECT DESCRIPTION

Transferring innovative scientific research into a profitable business idea that can create a company that brings value to society is a highly desirable skill that pharma industry and innovative hubs, along with Universities, are demanding. In this course we will dive into the key variables and needed skills that can play a role in this process applied to the field of Cell Replacement Therapies.

This course will use the Problem-based learning (PBL) methodology as well as the Team Based Learning (TBL). PBL is a student-centered approach in which students learn about a subject by working in groups to solve an open-ended problem. This problem is what drives the motivation and the learning. TBL is an approach that allows for the application of learned knowledge while enhancing problem-solving skills within a group context through multiple self-assessments and revisions.

This is a hands-on program with direct mentorship to the student and where student team work will lead to 1) know challenges that the Health Care sector faces and 2) develop skills needed when approaching challenges that startups face in the path of entrepreneurship, including the regulatory and ethical aspects for creating a startup in the bio sector. Student teams will also reflect on the different parts that a pitch deck requires and what investors and/or partners are willing to risk.

Innovation Project Management is a job requiring knowledge, skills, tools and practice that are essential in companies, in research and in the society for the development of new products that can lead to profitable business concepts. In this course we will learn and practice the key concepts, variables, tools and needed skills that can play a role in this process. We will work in teams on projects selected by the students that are innovative, relevant, interesting and fun within the Biomedical Engineering field.

This is a hands-on program with direct mentorship to the student and where student team work will lead to the understanding, definition, plan development and presentation of an innovative project, including the key stages, activities, deliverables and business case to present to the stakeholders

GOAL

1. Understanding of the key concepts, methodology, challenges and process in project management.
2. Definition of some innovative projects in Biomedical Engineering to focus on.
3. Identification of the specific requirements, key deliverables and activities to support the project plan.
4. Implementation of the methodology, use of tools, time management and resource allocation. Working in teams, ensure efficient communication, strengthen leadership skills and promote motivation.
5. Prepare and present a brief presentation to the project stakeholders.

The specific objectives are:

- Gain knowledge on project management concepts, tools, methods and key deliverables.
- Define innovation as related to a specific project in biomedical engineering.
- Define the objectives, scope and key deliverables in a selected project.
- Practice the methodology and manage the tools for an effective project development.
- Ensure suitable time management with milestones to complete the project effectively.
- Strengthen leadership and motivation skills within the team.
- Develop a suitable business case.
- Make an effective presentation of the project to the stakeholders.

PRIOR KNOWLEDGE

- Basic biomedical and engineering knowledge.
- A high proficiency level in English.
- Use of Microsoft Office applications (Word, Excel, PPT) or similar.

COURSE SYLLABUS

1. Introduction to Project Management
2. Innovation in Biomedical Engineering
3. Project definition, objectives and scope
4. Key factors Develop a strategic work plan based on specific requirements
5. Define the deliverables and activities to support the plan
6. Methodology and tools
7. Time management
8. Resource allocation
9. Cost estimation and procurement
10. Risk management

- 11. Communication
- 12. Team work- Roles and leadership, motivation
- 13. Stakeholders definition and management, ensure support, rapport and approval
- 14. Value and return on investment: Business case
- 15. Quality control: Key performance indicators

EDUCATION ACTIVITIES

A demonstrated effective way to learn is from practice and experience and by solving problems. Therefore, during the practical sessions that follow lectures, students are expected to find and learn detailed information that is needed in each step of the project process. The concepts and tools will be practiced in groups and should be applied to your project. Students should also try to talk to Industry representatives to verify their selected approach in the specific projects as a valid business idea in Biomedical engineering. The student is expected to learn as an active team member and also in an autonomous way. Therefore, we remind the student that this course involves an autonomous work during which at home the student will be in charge of reviewing, finding and reading relevant materials that can complement the class work and material provided by the teacher, this including videos or tutorials that the student can find of interest for the subject. This autonomous work is also expected to be developed by the teams as a group, which will be essential for participating in the discussions and sharing the knowledge in class.

DISTRIBUTION OF WORK TIME

CLASSROOM-BASED ACTIVITY	INDEPENDENT STUDY/OUT-OF-CLASSROOM ACTIVITY
40 hours	60 hours

SKILLS

Project Management definition and scope

Strategic planning

Use of methodology and tools

Time management

Team work

Effective communication

Generate value and innovation, including actual technological advancements

Problem-solving

Risk management

Entrepreneurial mind-set based on fact-finding and presentation skills

LEARNING RESULTS

Define a relevant and innovative project within biomedical engineering

Understand the key factors involved in project management

Work with the tools and methods in project management

Motivate and support team members in the development and project completion

Prepare and present a project to stakeholders

-The student learns soft skills and leadership for the start-up.

-The student manages to develop effective pitching communication skills.

LEARNING APPRAISAL SYSTEM

ORDINARY CALL

1.- Class attendance & participation (**10%**). Individual evaluation based upon student's presence and collaborative team behavior. Minimum grade to pass is 5.

2.- Theory test exam with multiple answers (**40%**). Minimum grade to pass is 5.

3.- A final presentation in front of the jury to present the "elevator pitch" of their business idea and project (**50%**). Minimum grade to pass is 5.

EXTRAORDINARY CALL

1.- Class attendance & participation (**10%**). Students will keep their presence mark of the semester. However, those students who have not obtain the minimum of 5 out of 10, will have a complementary task to realize.

2.- Theory test exam with multiple answers (**40%**). Minimum grade to pass is 5.

3.- If a student is not present in the final exam presenting the project with his/her group, this student will have to record and lift in the virtual class an oral video presentation of 3 to 5 minutes of his group project (**50%**). Minimum grade to pass is 5.

Las conductas de plagio, así como el uso de medios ilegítimos en las pruebas de evaluación, serán sancionados conforme a los establecido en la Normativa de Evaluación y la Normativa de Convivencia de la universidad.

BIBLIOGRAPHY AND OTHER RESOURCES

Basic

Alexander Osterwalder Business Model Generation 2010
Business Model Generation: A Handbook for Visionaries, Game Changers and Challengers (Alexander Osterwalder, Yves Pigneur, 2010)

Che J. Connon Bioprocessing for Cell-Based Therapies Bioprocessing for Cell-Based Therapies

Leo Furcht, William Hoffman •The Stem Cell Dilemma: Beacons of Hope or Harbingers of Doom?

Additional

Schrage, M. The Innovator's Hypothesis. How Cheap Experiment are Worth more than Good Ideas. 2014

Alexander Ostelwalder Blog de Alexander Ostelwalder
<https://strategyzer.com/>