Course Syllabus

1- Basic Information:

Course Name	Technology Change and Innovation
Course ID	TCI
Contact Hours (Registered Sessions)	15 Hours
Contact Hours (Synchronized Sessions)	15 Hours
Mid Term Exam	-
Exam	1h15min
Registered Sessions Work Load	15 Hours
Synchronized Session Work Load	15 Hours
Credit Hours	6

2- Pre-Requisites: No pre-requisite is needed.

3- Course Objectives:

The aim of this course is to introduce the main concepts of innovation and creativity. It explains the types of innovation and the adoption life cycle. It shows how to make people and group creative and presents the tools to enhance creativity. It presents the principles of idea and project management, and shows the different types and tools used in idea and project management. It outlines the role of teams and social networks in innovation. It presents the different types of protecting intellectual property such as patents, copyrights, trademarks, secrecy and open source.

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Intended Learning Outcomes (ILO):

Code	Intended Learning Outcomes
ILO1	Explain innovation, types of innovation, and adoption life cycle.
ILO2	Explain creativity, how to make people and group creative, and the tools to enhance creativity.
ILO3	Present the principles of idea management and the different types of idea management and the challenges. Explains the principles of project management, project selection, and the tools used in project management such as stage gate models, and enlightened experimentation.
ILO4	Explain the role of teams and social networks in innovation
ILO5	Explain the different types of protecting intellectual property such as patents, copyrights, trademarks, secrecy and open source.

4- Course content (15 hours of synchronized sessions)

Chapter Number	Chapter Title	Summary	ILO
1	Innovation	– Definition of innovation and innovation management. – Types of innovation: Incremental and radical innovations, Architectural and modular innovations	**ILO1**
2	Adoption life cycle	– Adoption life cycle: innovators, early adopters, early majority, late majority and laggards	**ILO1**

		– Crossing the chasm from early to mass market – Innovation adoption at the individual level. – Evaluation of alternatives: status quo and endowment effect,	
3	Creativity	– Definition of Creativity – Creativity and innovation – Divergent thinking – What makes people creative – How to enhance creativity – Tools to enhance creativity: left–right brain alteration, design thinking – How groups can be creative.	**ILO2**
4	Idea management	– Basic principles of idea management – Types of creativity – History of idea management programs – Types and challenges of idea management – How to stimulate people to continuously submit ideas?	**ILO3**
5	Project management	– Definition of project and project management – Reactive and Proactive project selection – Tools for project management: Financial valuation methods and Road mapping. – Rules of enlightened experimentation	**ILO3**
6	Stage gate models	– Importance of Stage Gate Models – Different parts of Stage Gate Models: Scoping, Build Business Case, Development, Testing & Validation, Launch – Sequential versus concurrent development – Case study: casserole home cooker	**ILO3**

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7	Teams, social networks and innovation	− What is a team and social network are important for innovation − Key elements of team and social network success	**ILO4**
8	Protecting intellectual property	− Patents − Copyrights − Trademarks − Secrecy − Open source	**ILO5**

5− Assessment Criteria (Related to ILOs)

ILO codes	Intended Learning Outcomes	Home work	Synchronized Sessions	Exam
	To achieve ILO the student should be able to:			
ILO1	1. Innovation	∗	∗	∗
	2. Adoption life cycle	∗	∗	∗
ILO2	1. Creativity	∗	∗	∗
LO3	1. Idea management	∗	∗	∗
	2. Project management	∗	∗	∗
	3. Stage gate models		∗	∗
ILO4	1. Protecting intellectual property		∗	∗

ILO5	1. Teams, social networks and innovation			*	*

6- Main References

- All content of the course can be downloaded from Moodle course page as Pdf files and registered sessions.

- Synchronized sessions.

7- Additional References

- Daniel R. A. Schallmo, Leo Brecht, Bujar Ramosaj, "Process Innovation: Enabling Change by Technology", Springer Berlin Heidelberg Springer Gabler (2018)

- Satyajit Majumdar, Samapti Guha, Nadiya Marakkath, "Technology and Innovation for Social Change", Springer India (2015)

- Andreas Altmann, Bernd Ebersberger, "Innovation, Technology, and Knowledge Management", Springer (2013)

- Gerhard Fuchs, Philip Shapira, Rethinking Regional Innovation and Change: Path Dependency or Regional Breakthrough, Springer 2005