SYLLABUS
ACADEMIC YEAR
2016-17

COURSE GENERAL OVERVIEW

Course details	
Title	Managing Technology and innovation
Degree	MIM
Year	2016-2017
Semester	1st semester
Credits ECTS	3
Core/elective	(Elective)
Departament	ICADE Business School
Area	Business Management

Instructor`s details	
Professor	
Name	Dr. Óscar Gallego Castilla (Mr.)
Department	Management
Área	ICADE Business School
Office	
e-mail	ogallego@comillas.edu, oscgal123@gmail.com
Phone	Mornings (2 hours/week) and by appointment (via email)
Contact	By appointment (via email)

COURSE DESCRIPTION

Context of the course

The course in the professional context

"Managing Technology and Innovation" deals with the key processes, learnings and research activities through which companies manage and monitor their capacity to innovate, a topic of very high relevance in the field of Strategic Management. The way a company manages its innovation in a consistent manner across time will determine whether they will grow twice as fast in employment and sales vs. those which do not. In other words, companies which are innovative will thrive, and those which are not, will perish. Innovation management includes, amongst others: creativity, research, services and product developments, integration of processes, and interactions between markets, technologies and organizational requirements.

The subject of technology and innovation is of the highest interest for practitioners to know: in 2006 the smartphone did not exist, Facebook was starting to exist and a traditional business like ExxonMobil was worth six times Apple. On late July 2016, Apple, Alphabet (Google), Microsoft, Facebook and Amazon were the five most

valuable publicly traded companies, and a week later on August 1st those five companies were at the top six worldwide companies by market cap. Technological innovation has fostered the Digital Transformation which is just showing up at all levels of society, affecting the way we live, governments operate, and companies manage their internal and external resources. Understanding the value and key innovation processes is absolutely key for students and professionals if they are to survive and prosper in business. Managing technology and innovation is no longer a "nice-to-have" item: it is a mandatory knowledge to practice daily.

This course will address the managing of technology in the realm of innovation to give the students the edge business and society require for them to succeed as professionals and practitioners.

Objectives

"Managing Technology and Innovation" covers key topics regarding the managing of innovation in the global arena, including innovation as a source of sustainable competitiveness which is focused on the avoidance of common management issues.

The main course objectives are:

- the concept of innovation and its diversity
- the strategic and operational decision making approach in the innovation process
- promoters and inhibitors of innovation
- fostering creativity in multicultural environments
- ownership of innovation in a global environment
- how to obtain technology
- organizing innovation
- transferring and exploiting innovation within a company
- innovation ecosystems
- open, disruptive and sustainable innovation
- people management in innovation

COURSE CONTENTS

Contents
PART I: THE FRAMEWORK
1. TM activities & tools
2. Innovation
PART II: TM MANAGEMENT ACTIVITIES & TOOLS
3. Acquisition, identification and selection
4. Patents, portfolio and road mapping
PART III: IDENTIFYING INNOVATION OPPORTUNITIES
5. Change management and technology transition
6. Standards control and network effects
7. Technology acquisition strategies
PART IV: HARVESTING INNOVATION
8. Reaping innovation benefits

9. Technology sale

PART V: CREATING AND MANAGING AND INNOVATIVE COMPANY

10. External and internal innovation incentives: people management

11. Organizing to innovate

12. Innovation and sustainability

Skills

General skills of area-course

COMPETENCIAS GENERALES (CG):

CGI 1. Capacidad de análisis y de síntesis

RA1. Comprende pormenorizadamente el material bibliográfico propio de la materia.

RA2. Ordena, clasifica y resume de manera lógica y coherente los contenidos del material bibliográfico propio de la materia.

CGI 2. Resolución de problemas y toma de decisiones

RA1. Es capaz de identificar las limitaciones que afectan a la toma de decisiones y de buscar una decisión satisfactoria.

RA2. Toma decisiones y resuelve problemas prácticos haciendo uso de contenidos teóricos y conforme a metodologías reconocidas de resolución de problemas.

CGI 4. Capacidad de gestionar información proveniente de fuentes diversas

RA1. Busca y utiliza documentación de distintas fuentes, proveniente de diversas vías, para sus actividades de aprendizaje, discriminando conforme a su valor y a la utilidad de cada una de ellas.

RA2. Desarrolla pensamiento crítico, cuestionando la información gestionada, generando conclusiones y puntos de vista propios.

RA3. Es claro, preciso, exacto y relevante en el uso de la información, profundizando con lógica e imparcialidad.

CGS16 - Orientación a la acción y a la calidad.

RA1. Relaciona los conocimientos con las distintas aplicaciones profesionales o prácticas.

RA2. Resuelve casos prácticos que presentan una situación profesional real.

CGS 17. Capacidad de elaboración, y transmisión de ideas, proyectos e informes, soluciones y problemas

RA1. Argumentar de manera independiente y crítica sobre conceptos y teorías diversas.

RA2. Conocer y aplicar diferentes teorías, modelos y herramientas en la resolución de problemas prácticos.

Specific skills of area-course

Specific skills in the elective course:

CE OPT 02. Conocimiento y comprensión de las habilidades necesarias para gestionar la innovación en los niveles estratégicos y operativos de una empresa internacional, orientándose a la creación de una ventaja competitiva sostenible mediante la generación, la transferencia y la explotación de las innovaciones.

RA 1. Comprende la importancia de la innovación y la considera como parte esencial de la estrategia de la empresa.

RA 2. Identifica la dinámica de los procesos de innovación en sus diferentes tipologías y componentes.

RA 3. Conoce las herramientas de vigilancia tecnológica y los incentivos a la innovación de la empresa.

RA 4. Distingue y evalúa críticamente los diferentes modelos de gestión y de organización de la innovación.

RA 5. Distingue y evalúa críticamente los distintos mecanismos de obtención de tecnología, de protección de la innovación y explotación de la tecnología.

RA 6. Comprende las singularidades de la gestión del personal de I+D+i, y es capaz de reflejarlas en acciones que incentiven la creatividad e incrementen la generación de ideas innovadoras.

RA 7. Identifica las cuestiones más actuales relativas a la gestión de la innovación en un escenario global (innovación abierta; innovación disruptiva; protección de la innovación; innovación sostenible)

TEACHING METHODOLOGY

Course teaching activities	
Teaching and learning in the classroom: Activities	**Skills**
Lectures. Instructors promote debate during theoretical lectures. Students must come to lectures with all pre-reading done. Attendance and participation are essential requirements of the effectiveness of lecturing sessions.	CE OPT 02, CGI1, CGI4
Individual portfolio oral and written presentation. Each student will orally present at least some portion of the portfolio he/she has been working on. These include business cases and class work. Presentations will take place in class and will be addressed to the rest of the class mates who are expected to ask questions to and evaluate those presenting.	CE OPT 02, CGI1, CGI2, CGI4, CGS16, CGS17,
Collaborative learning and class participation. Students work in group on a guided basis; they elaborate a portfolio focused on a specific real Company.	CE OPT 02, CGI2, CGI4, CGS17
Teaching and learning outside the classroom: Activities	**Skills**

Individual study and reading. Each student needs to organize their time outside the class in order to do all the pre-readings of each session, and in order to study the subject. The course instructor recommends some complementary reading. **Group portfolio oral and written presentation**. At the end of the semester, students will hand in a piece of argumentative writing several paragraphs long written about one topic proposed by the instructor. Alternatively, students might work in group on the portfolio of a company addressing some key questions like: What is the actual business of the Company?; What innovation process does the Company follow?; What are they key technology levers of the Company? **Tutorials**. Students will have a chance to meet with the course instructor individually and outside the class if required. These tutorial sessions will help students solve problems and uncertainties faced regarding the course contents, activities and assessment.	CE OPT 02, CGI1, CGI4 CE OPT 02, CGI1, CGI2, CGI4, CGS16, CGS17 CGI1, CGS17

COURSE EVALUATION AND ASSESSMENT CRITERIA

Students have to pass each and every assessment activity shown in the table below. In case of failure, students must re-sit each failed activity.

Assignments must be delivered in the time and date specified by the course instructor, otherwise the students will get a grade of "0" in the missed assignment.

Activities to be assessed	WEIGHT
Individual portfolio oral and written presentation	20%
Collaborative learning & class participation	10%
Group portfolio oral and written presentation	20%
Individual exam	50%

SUMMARY OF STUDENTE'S WORKING HOURS			
CONTACT HOURS			
Lectures	Group work sessions	Managed activities	Evaluation / assessment
14	14		2
WORKING HOURS OUTSIDE THE CLASSROOM			

Individual reading and preparation	Individual work on essay	Collaborative learning (work in groups)	Individual study
10	10	10	15
		TOTAL CREDITS ECTS:3	75

REFERENCES AND OTHER BIBLIOGRAPHIC RESOURCES

Basic references

Books

Tidd, J. y Bessant, J. (2013). *Managing Innovation: Integrating Technological, Market and Organizational Change*. Chichester: John Wiley, Fifth edition.

Cetindamar, D., Phaal, R. and Probert, D. (2016). *Technology Management: Activities & Tools*. London: Palgrave, Second edition.

Web

Course web page and technology and innovation links, such us:

- EUROSTAT (http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home)
- INE (www.ine.es)
- Competitive index IMD International Lausana (http://www.imd.org/research/publications/wcy/index.cfm)
- Competitive index (ICG) del Foro Económico Mundial (http://www.weforum.org/issues/global-competitiveness)
- Reports from COTEC (www.cotec.es)
- INNOSIGHT (http://www.innosight.com/index.cfm)
- Ministerio de Economía y Competitividad. Secretaría de Estado de Investigación, Desarrollo e Innovación (http://www.idi.mineco.gob.es)
- Oficina Española de Patentes y Marcas (www.oepm.es)