

<b>Program</b>	<b>09TT- Engineering in Telecommunication Technologies and Services</b>
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<b>Course number and name</b>	
<b>Number</b>	95000192
<b>Name</b>	Creativity and Innovation Creatividad e Innovación
<b>Semester</b>	Y4-S7 / Y4-S8

<b>Credits and contact hours</b>	
<b>ECTS Credits</b>	3
<b>Contact hours</b>	30

<b>Coordinator's name</b>	Carlos Alberto López Barrio
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<b>Specific course information</b>		
<b>Description of course content</b>		
<p>We might say that the basic mission of an Engineer is to apply their knowledge to develop new products and services with the intention of increasing productivity and providing benefit to the Society. The above statement, which in fact includes the definition of Innovation, requires something more than just technical knowledge. Innovation is Applied Creativity and individuals with such abilities are fundamental for the progress of Society.</p> <p>The aim of this course is to present the concepts and basic tools that facilitate Innovation, as well as motivate and strengthen creative capabilities through practice and, to a lesser extent, facilitate the development of other skills that would later serve students along their professional careers. In other words, the course focuses on the personal skills that a creative person should exhibit in an innovative organization, which is ready to adapt and successfully evolve within a global and competitive market.</p>		
<b>List of topics to be covered</b>		
<ol style="list-style-type: none"> <li>1. The New Engineer: Technical skills and innovation. Personal organization skills: planning and time management</li> <li>2. The Creative Engineer: Creativity methodologies and techniques. Creativity as a problem solving tool: identifying needs. "Design Thinking" methodology. Creativity from technological innovation</li> <li>3. The Innovative Engineer: The CANVAS Business Model</li> <li>4. Knowledge management: technological monitoring and dissemination of results</li> </ol>		
<b>Prerequisites or co-requisites</b>		
There are no prerequisites for this elective course.		
<b>Course category in the program</b>		
<input type="checkbox"/> R (required)	<input checked="" type="checkbox"/> E (elective)	<input type="checkbox"/> SE (selective elective)

**Specific goals for the course**

**Specific outcomes of instruction**

At the end of the course the students will be able to:

- RA373: Apply the basic processes, methodologies and tools to support innovation.
- RA374: Generate and transmit innovative ideas or generate innovative alternative solutions to problems or specific situations.
- RA375: Generate a basic idea for a new business or enterprise and go through the first stages of analysis of the state-of-the-art and the competence.
- RA376: Elaborate documents and prepare presentations to disseminate their project results.
- RA377: Adequately plan their short-term personal agenda and projects.

**Student outcomes addressed by the course**

CG7, CG8, CG10, CG11, CG12

**Bibliography and supplemental materials**

- "La innovación que sí funciona. Cómo gestionarla, medirla y obtener beneficio real de ella". Dávila, T; Epstein, M.J. y Shelton, R. (2006). Ed. Deusto, Barcelona.
- "Business Innovation in the 21st Century". P. Gupta, Accelper Consulting, 2007.
- "El pensamiento creativo". Edward de Bono, Editorial Paidós Ibérica, 1994.
- "La empresa creativa". Franc Ponti, Granica, 2001
- "Las ruedas mágicas de la creatividad". Carlos Rebate y Alicia Fernández del Viso, Plataforma Editorial, 2011.
- "Documentación Científica y Técnica. Búsqueda y recuperación documental". Juan L. Bravo Ramos, ICE-UPM, 2012.

**Teaching methodology**

<input checked="" type="checkbox"/> lectures	<input type="checkbox"/> problem solving sessions	<input checked="" type="checkbox"/> collaborative actions	<input type="checkbox"/> laboratory sessions
<b>Other:</b>	Students develop their activities in the framework of a case study that is divided in two main parts: (i) "Design Thinking" methodology for reaching a creative solution to a proposed challenge and (ii) an innovative project that aims to justify the viability of bringing this solution to the market by elaborating a Business Model CANVAS.		