

**Teaching guide of the subject****Academic year: 2016-2017**

Subject	CREATIVITY AND INNOVATION IN INDUSTRIAL DESIGN		
Course	INDUSTRIAL ENGINEERING INTERNATIONAL SEMESTER		
Degree	Transversal course for the seven bachelor's degrees taught in industrial engineering.		
Level	Degree	Character	OPTATIVA
ECTS	6	Year	
Language	inglés	Quarter	2º
Department	Theory of Architecture and Architectural Projects.		
Knowledge section	Architectural Composition		
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1. Objectives

- Students will know the current trends in industrial design and the challenges of the discipline and will use them as a starting point for creation and innovation.(1)
- Students will analyze different products and will extract from them their innovation strategies. (1)
- Students will know and apply creative techniques in the development of design projects. (2)
- Students will create drawings prior to final design ideation, and discuss critically about the process, choice of alternatives and decision making in the final result.(2 Y 3)
- Students will know and apply the methods and techniques for the semiotic analysis.(3)
- Students will develop skills for creating visual messages. (3 y 4)
- Students will understand, apply and implement the basic principles of visual, graphic and compositional language. (4)
- Students will apply the main concepts of Graphic Design in different projects. (4)



2. LEARNING UNITS

1. Innovation in industrial design. Evolution of the discipline, current trends and challenges for innovation.

- Innovation in industrial design. Basic concepts and tools for innovation.
- Icons of innovation in the discipline.
- Design social utopia or reality? Trends and design challenges: emotional design, critical design, inclusive design, design for extreme situations, health design, green design, etc.

BASIC BIBLIOGRAPHY

AICHER, Otl: *El mundo como proyecto*. Barcelona: Gustavo Gili, 1997.

BONSIEPE, Gui, *El diseño de la periferia*. Debates y experiencias. Barcelona: Gustavo Gili, 1985.

BRAUNGART, Michael; McDONOUGH, William: *Cradle to Cradle. De la cuna a la cuna. Rediseñando la forma en que hacemos las cosas*. Madrid: McGraw Hill, 2005 (1ª ed. 2003).

PAPANEK, Victor: *Diseñar para el mundo real: ecología humana y cambio social*. Madrid: Blume, 1977.

WOODHAM, Jonathan M.: "Design and Social Responsibility". *Twentieth Century Design*. Londres, Oxford: Oxford University Press, 1997. Págs. 221- 239.

COMPLEMENTARY BIBLIOGRAPHY

A.A.V.V. (ANTONELLI, Paola (ed.)): *Safe. Design Takes on Risk*. Nueva York: The Museum of Modern Art, 2005.

A.A.V.V. (HURTADO, Rosario y FEO, Roberto): *Diseños para Todos*. Madrid: Optima!, 2008

A.A.V.V. (SMITH, Cynthia E.), *Design for the other 90%*. Nueva York: Smithsonian, Cooper-Hewitt, National Design Museum, 2007.

BARBEZO, Silvia; COZZO, Brunella: *Ecodesign*. Ullmann. Köningswinter, 2009.

BROWER, Cara; MALLORY, Rachel; OHLMAN, Zachary: *Diseño eco-experimental*. Barcelona: Gustavo Gili, 2007. (1ª ed. Experimental Eco-Design. Rotovision, 2005.)

FIELL, Charlotte & Peter (eds.): *Designing the 21st Century*. Colonia: Taschen, 2003.

HERWIG, Oliver: *Universal Design. Solutions for a barrier-free living*. Basel: Birkhäuser, 2008.

NORMAN, D.A.: *La psicología de los objetos cotidianos*. Ed. Nerea, Madrid, 1990.

NORMAN, Donald A.: *Por qué nos gustan o no los objetos cotidianos*. Barcelona: Paidós, 2005.

NORMAN, Donald A. *El diseño de los objetos del futuro. La interacción entre el hombre y la máquina*. Paidós, Barcelona, 2010.

PIBERNAT, Oriol (comis.) *La utilidad del diseño*. Madrid: Círculo de Bellas Artes, 2008.

PUYUELO CAZORLA, Marina; MERINO SANJUAN, Mª Dolores (comis.): *Reptes de Disseny/Retos del Diseño/ Design Challenges*. Valencia: Universitat Politècnica de València, 2009.

UPHAUS, Nicolas (ed.): *Ecological Design*. Italia: teNeues, 2008.

VIÑOLAS MARLET, Joaquim: *Diseño Ecológico. Hacia un diseño y una producción en armonía con la naturaleza*. Barcelona: Blume, 2005.

2. The creative process. Creativity techniques.

- Introduction to industrial design. The design process. Phases.
- Creativity. The process of creativity.
- Creativity techniques: association of ideas, brainstorming, sleepwriting, automatic writing, esperpento, forced relationships, Synectics, etc.



BASIC BIBLIOGRAPHY

GÓMEZ-SENENT, E. *Las fases del proyecto y su metodología*. Valencia: ETSII, 1992.

MUNARI, Bruno. *Cómo nacen los objetos. Apuntes para una metodología proyectual*. Barcelona: Gustavo Gili, 1983.

RICARD, André. *La aventura creativa*. Barcelona: Ariel, 2000.

COMPLEMENTARY BIBLIOGRAPHY

ACHA, Juan: *Introducción a la creatividad artística*. Méjico: Trillas, 2008.

ALONSO MONREAL, Carlos: *Qué es la creatividad*. Madrid: Biblioteca Nueva, D.L., 2000.

BASSAT, Luis: *La Creatividad*. Barcelona: Conecta, 2014.

GÓMEZ-SENENT, E. *Las fases del proyecto y su metodología*. Valencia: ETSII, 1992.

RICARTE BESCÓS, José María: *Procesos y técnicas publicitarias: ideas básicas*. Bellaterra: Universitat Autònoma de Barcelona, 2000.

VALDERRAMA, Beatriz: *Creatividad Inteligente: guía para convertir ideas en innovación*. Madrid: Pearson, 2012.

3. Design Thinking. Process and development.

- Introduction to visual thinking and process: See, watch, imagine, show.
- Problem solving. Group Graphics and procedures.
- Storyboarding and Idea Mapping. Visual Planning and Digital Capture.

BASIC BIBLIOGRAPHY

ARNHEIM, Rudolph. *El pensamiento visual*. Buenos Aires: Eudeba, 1971.

BUZAN, Tony: *Cómo crear mapas mentales*. Barcelona: Urano, 2013.

CROSS, Nigel: *Design Thinking*. Gran Bretaña: Bloomsbury, 2011.

ROAM, Dan: *Tu mundo en una servilleta*. Barcelona: Gestión 2000, 2010.

SIBBET, David: *Visual Meetings: How Graphics, Sticky Notes and Idea Mapping Can Transform Group Productivity*. Hoboken, NJ: Wiley, 2010.

COMPLEMENTARY BIBLIOGRAPHY

AUMONT, J.: *La imagen*. Barcelona: Paidós, 1992.

BARTHES, R.: *La aventura semiológica*. Barcelona: Paidós, 1993.

ROAM, Dan: *La Clave es la servilleta: Resolver problemas y vender ideas mediante dibujos*. Barcelona: Gestión 2000, 2013.

VOGEL, Craig; CAGAN, Jonathan; BOATWRIGHT, Peter: *The design of things to come: How ordinary people create extraordinary products*. New Jersey: Wharton school publishing, Pearson education, 2005.

4. Graphic creation processes. Visual communication.

- Visual Representation and graphic design concepts.
- Methodology graphic project: planning, visual communication strategies and phases of a graphic project.
- Corporate Visual Identity: identity, identification levels and methodology.

BASIC BIBLIOGRAPHY

ARNHEIM, Rudolph. *Arte y percepción visual: psicología del ojo creador*, Alianza, 1979.

CHAVES, N: *La imagen corporativa: Teoría y metodología de la identificación institucional*. Gustavo Gili, Barcelona (3ª Ed., 1994).

DONDIS, D.A.: *La sintaxis de la imagen. Introducción al alfabeto visual*. Gustavo Gili, Barcelona, 1997.



SWANN, A: *Bases del Diseño Gráfico*. Gustavo Gili, Barcelona, 1990.

COMPLEMENTARY BIBLIOGRAPHY

ADAMS, S. y MORIOKA, N: *Logo Design Workbook: A Hands-On Guide to Creating Logos*. Rockport Publishers, Inc. 2004.

ARNHEIM, Rudolph. *El pensamiento visual*. Buenos Aires: Eudeba, 1971.

BARTHES, R.: *La aventura semiológica*. Barcelona, Paidós, 1993.

FLOCH, J.M.: *Semiótica, marketing y comunicación; bajo los signos, las estrategias*. Paidós Comunicación, Barcelona, 1993.

KANIZSA, G.: *Gramática de la visión percepción y pensamiento*. Barcelona, Paidós, 1998.

MUNARI, B: *Diseño y Comunicación Visual, contribución a una metodología didáctica*. Gustavo Gili, Barcelona, 1996.

LEBORG, C: *Visual Grammar*. Princeton Architectural Press, New York, 2006.

LUPTON, E: *Graphic Design Thinking*. Princeton Architectural Press, Maryland Institute College of Art, New York, 2008.

LUPTON, E. y PHILLIPS J.C: *Graphic Design The New Basics*. Princeton Architectural Press, New York, 2008.

SEBEEK, T.A: *Signo, una introducción a la semiótica*. Paidós Comunicación, Barcelona, 1996.

POULLIN, R: *The Language of Graphic Design: An Illustrated Handbook for Understanding Fundamental Design Principles*. Rockport Publishers, 2011.

WHEELER, A: *Designing Brand Identity. An essential guide for the entire branding team*. John Wiley & Sons, Inc., Hoboken, New Jersey, 2009 (3th edition)

ZELANSKY, P. y FISCHER, M.P. *Color*. Blume, Madrid, 2001.

3. Teaching and Learning Methods

The course consists of 4 modules or learning units; each one is divided into theoretic lessons, workshop/practices, public corrections or checking and concerted tutoring classes.

The lectures will use primarily expository method for transmitting the fundamental knowledge of the subject. Active student participation will be encouraged.

In the tutoring classes a personal relationship between teacher and students will be established. They are usually developed in groups, previously arranged, in order to check the proper development of the work, prior to final delivery.

The practical classes/workshop will support for understanding and deepening of the concepts provided in lectures. The exercises will be done individually or in small groups, depending on the activity to develop and the number of students enrolled. Some of the works will be done in the classroom and others in non-attendance hours. All the works of each learning unit will be presented to the teacher and other students and handed to the teacher on the dates indicated in the schedule presented below.

4. Activities evaluated and grading system

- The evaluation of students in **ordinary call** will be held according to the following parameters:
 - Attendance: 20% (It is obligatory to attend at least 80% of classes).
 - Activities and Works made in Learning Unit 1: 20%

- Activities and Works made in Learning Unit 2: 20%
- Activities and Works made in Learning Unit 3: 20%
- Activities and Works made in Learning Unit 4: 20%

To pass the course is essential to approve each of the parts separately.

- The evaluation of students in **extraordinary call** will be held according to the following parameters:
 - Exam of the contents presented in lectures: 20%
 - Activities and Works made in Learning Unit 1: 20%
 - Activities and Works made in Learning Unit 2: 20%
 - Activities and Works made in Learning Unit 3: 20%
 - Activities and Works made in Learning Unit 4: 20%

To pass the course is essential to approve each of the parts separately.

5. Additional Considerations

	LEARNING UNIT 1				LEARNING UNIT 2				LEARNING UNIT 3				LEARNING UNIT 4				
	th	w	t	ch	th	w	t	ch	th	w	t	ch	th	w	t	ch	
WEEK 1	1	1			1	1											WEEK 1
WEEK 2	1	1			1	1											WEEK 2
WEEK 3	1	1			1	1											WEEK 3
WEEK 4	1	1			1	1											WEEK 4
WEEK 5	1	1			1	1											WEEK 5
WEEK 6			2				2										WEEK 6
WEEK 7				2				2									WEEK 7
WEEK 8				2				2									WEEK 8
WEEK 9									1	1			1	1			WEEK 9
WEEK 10									1	1			1	1			WEEK 10
WEEK 11									1	1			1	1			WEEK 11
WEEK 12									1	1			1	1			WEEK 12
WEEK 13											2				2		WEEK 13
WEEK 14												2				2	WEEK 14
WEEK 15												2				2	WEEK 15
CLASS ATTENDANCE	5	5	2	4	5	5	2	4	4	4	2	4	4	4	2	4	
	16				16				14				14				
NON ATTENDANCE	24				24				21				21				

EVALUATION	20%	20%	20%	20%	20%
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theory [th]; workshop [w]; tutorial [t]; public checking [ch]