

School of Arts, Design, and Creative Industries

SYLLABUS

TITLE:	Industrial Design Workshop I
CODE:	IND 210
PREREQUISITE:	IND 205: Three-Dimensional Modeling
CREDITS:	3 credits 45 contact hours 1 term

DESCRIPTION

In this course students will apply design methods aimed at researching and exploring the form and function of a product. It introduces concepts of ergonomics, semantics, universal design, environmental issues, and user-centered design. Students will work on typologies of projects such as furniture, tools, household items, and jewelry, among others.

JUSTIFICATION

This is the first course of the group of industrial design workshops that exposes students to communication and product design. Its exercises and class projects provide students with the tools to know and investigate about and with users, their needs and anthropometry.

COMPETENCES

The course develops the following competences in students:

- **Research and exploration**
- **Communication**
- **Ethical sense and social justice**

OBJECTIVES

After completion of the course, students will be able to:

1. Know in an integral way the user and their relationship with their products.
2. Recognize problems, identify needs, and validate them in their design proposals.
3. Propose and prototype with the materials that will be used in their products.

CONTENTS

- I. Design Communication
 - A. 2D drawing
 - B. 3D drawing
- II. Design methodologies
 - A. Universal design
 - B. User-centered design
 - C. Collaborative design
- III. Product Design Considerations
 - A. Research and exploration
 - B. Ergonomics
 - C. Semantics
 - D. Environmental issues
- IV. Prototyping
 - A. Low resolution
 - B. High resolution
 - C. Machines and materials
 - D. Functionality
- V. Design typologies to be worked on in the workshop
 - A. Furniture
 - B. Tools
 - C. Household items
 - D. Functional jewelry and wearables

METHODOLOGY

The following strategies from the active learning methodology are recommended:

- Project Oriented Learning -**POL**
- Research Based Learning - **RBL**
- Collaborative Learning- **CL**
- Visual and didactic Internet resources
- Talks, conferences, exhibitions

EVALUATION

Oral presentations	25%
Partial assignments	40%
Final project	30%
Participation	<u>5%</u>
TOTAL	100%

LEARNING ASSESSMENT

The institutional assessment rubric is applied to the course's core activity.

BIBLIOGRAPHY

Arroyo, T. (2020). *Hand Building Beginner & Intermediate Guide: Discover A Proven System for Learning Hand Building*. Independently published.

Audette, D., McCreight, T., & Audette, D. (2010). *Jewelry Illustration* (1st ed.). Brynmorgen Press.

Baharal, T. (2021). *500 Silver Jewelry Designs: The Powerful Allure of a Precious Metal (500 Series)*. Lark Crafts.

Bauer, W. (2008). *European Cutlery Design 1948–2000: The Bauer Design Collection* (Bilingual ed.). Arnoldsche Verlagsanstalt.

Carey, S., Callender, A. (2019). *From Clay to Kiln: A Beginner's Guide to the Potter's Wheel* (Illustrated ed.). Lark Crafts.

Carr, H. (2020). *Carve Your Clay: Techniques to Bring the Ceramics Surface to Life* (Illustrated ed.). Quarry Books.

The Eastman Kodak Company (2003). *Kodak's Ergonomic Design for People at Work* (2nd ed.). Wiley

Delphia, R., Stern, J., & Walworth, C. (2015). *Silver to Steel: The Modern Designs of Peter Muller-Munk*. Prestel.

Fiell, C., Fiell, P. (2012). *Design of the 20th Century* (1st ed.). TASCHEN.

Fukasawa, N. (2007). *Naoto Fukasawa*. Phaidon Press.

- Govella, A. (2019). *Collaborative Product Design: Help Any Team Build a Better Experience* (1st ed.). O'Reilly Media.
- Izuhara, J. (2020). *Japanese Joinery: Beginner + Intermediate Guide to Japanese Joinery: Japanese Joinery Compendium for Beginner and Intermediate Japanese Carpenters*. Independently published.
- Jackson, A., & Day, D. (1996). *The Complete Manual of Woodworking: A Detailed Guide to Design, Techniques, and Tools for the Beginner and Expert* (7th ed.). Knopf.
- Joensson, W. (2020). *Iconic Product Design: An Illustrated History of the World's Most Innovative Devices*. Skyhorse.
- Hood, W. Jr., Dreis, P., & DuBrock, T. (2018). *Flatware That's Not "Flat": Design and Production of Innovative Table Cutlery, 1890–2015*. Authors.
- Kries, M., Eisenbrand, J., Bassi, A., Ferrari, F., Máčel, O., Pavitt, J., Roode, D. I., Rossi, C., Rüegg, A., Sparke, P., Sudjic, D., Tegethoff, W., Thau, C., Vindum, K., & Ward, G. W. R. (2019). *Atlas of Furniture Design*. Vitra Design Museum.
- Lueder, R., & Rice, B. V. J. (2019). *Ergonomics for Children: Designing Products and Places for Toddlers to Teens* (1st ed.). CRC Press.
- Martin, A. (2007). *The Essential Guide to Mold Making & Slip Casting (A Lark Ceramics Book)* (1st ed.). Lark Crafts.

McCauley, P. (2011). *Ergonomics: Foundational Principles, Applications, and Technologies (Ergonomics Design & Mgmt. Theory & Applications)* (1st ed.). CRC Press.

McElroy, K. (2017). *Prototyping for Designers: Developing the Best Digital and Physical Products* (1st ed.). O'Reilly Media.

Morrison, J., Fukasawa, N., & Hara, K. (2010). *Muji* (1st ed.). Rizzoli.

Nagelberg, S. (2014). *Batch Manufacturing for Ceramics: Models and Molds, from Process to Product* (1st ed.). Lulu.com.

Nendo, N. (2021). *nendo: 2016–2020*. Phaidon Press.

Orron, J. (2018). *Chair Anatomy: Design and Construction* (1st ed.). Thames & Hudson.

Pollock, N. (2020). *Japanese Design Since 1945: A Complete Sourcebook*. Abrams.

Product Design & Development. Advantage Business Media. ISSN 1084-7278.

<https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=bsu&jid=1E1&lang=es&site=ehost-live&authtype=shib&custid=s5316525>

Revere, A., McCreight, T., McLean, G., & Oye, E. (2011). *Professional Jewelry Making: A Contemporary Guide to Traditional Jewelry Techniques* (1st ed.). Brynmorgen Press.

Richardson, L. (2017). *100 Midcentury Chairs: And Their Stories*. Gibbs Smith.

Richbourg, F. K. (2012). *Simple Soldering: A Beginner's Guide to Jewelry Making* (Illustrated ed.). Interweave.

Rinaldi, T. (2021). *Patented: 1,000 Design Patents*. Phaidon Press.

Risdon, C., Quattlebaum, P. (2018). *Orchestrating Experiences: Collaborative Design for Complexity* (1st ed.). Rosenfeld Media.

Rossetti, P. R. (2017). *Universal Design Toolkit: Time-saving ideas, resources, solutions, and guidance for making homes accessible*. Rossetti Enterprises Inc.

S. (2018). *Ergonomics in Product Design*. Sendpoints Publishing Co.

Sartin, J. (2013). *The Complete Photo Guide to Making Metal Jewelry*. Quarry Books.

Schwandt, J. (2018). *Simply Danish: Silver jewelry - 20th Century* (English and German Edition). Arnoldsche Verlagsanstalt.

Stern, J., Tucker, K. W., & Venable, C. (2005). *Modernism in American Silver: 20th-Century Design*. Yale University Press.

Yanagi, S. (2019). *The Beauty of Everyday Things* (Translation ed.). Penguin Classics.

ELECTRONIC RESOURCES

<http://universaldesign.com/products/>

<http://www.ijdesign.org/index.php/IJDesign/article/view/602/327>

<https://universaldesign.ie/What-is-Universal-Design/>

<https://www.claytimes.com/>

<https://www.core77.com/>

<https://www.designboom.com/>

https://www.domusweb.it/en/shop/digital_archive.html

<https://www.ganoksin.com/>

<https://www.yankodesign.com/>

RECOMMENDED RESOURCES

Ashby, M. F., Johnson, K. (2014). *Materials and design: The art and science of material selection in product design*. Elsevier Science & Technology.

<https://www.proquest.com/legacydocview/EBC/5754493?accountid=39118>

Chapman, J. (2021). *Meaningful stuff: Design that lasts*. MIT Press.

<https://www.proquest.com/legacydocview/EBC/6689147?accountid=39118>

Cuffaro, D., Zaksenberg, I. (2013). *The industrial design reference and specification book: Everything industrial designers need to know every day*. Quarto Publishing Group USA.

<https://www.proquest.com/legacydocview/EBC/3399938?accountid=39118>

Design Management Journal. ISSN 1942-5074.

<https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=bsu&jid=8WVR&lang=es&site=ehost-live&authtype=shib&custid=s5316525>

Design Management Review. ISSN 1557-0614.

<https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=bsu&jid=7NB&lang=es&site=ehost-live&authtype=shib&custid=s5316525>

Glass, T. (2018). *Prompt: Socially Engaging Objects and Environments*. Walter de Gruyter GmbH.

<https://www.proquest.com/legacydocview/EBC/5157902?accountid=39118>

International Journal of Occupational Safety and Ergonomics. ISSN 2376-9130.

<https://search.ebscohost.com/login.aspx?direct=true&AuthType=shib&db=edspub&AN=edp159096&lang=es&site=eds-live&scope=site&authtype=shib&custid=s5316525>

Journal of Industrial Design and Engineering Graphics.

<https://www.proquest.com/publication/2034495?accountid=39118>

Kepes. ISSN 1794-7111.

<https://search.ebscohost.com/login.aspx?direct=true&AuthType=sso&db=fap&jid=B6GY&lang=es&site=ehost-live&authtype=shib&custid=s5316525>

Koch, M. W. (2020). *Ergonomics*. *Salem Press Encyclopedia of Science*.

<https://search.ebscohost.com/login.aspx?direct=true&AuthType=shib&db=ers&AN=89250448&lang=es&site=eds-live&scope=site&authtype=shib&custid=s5316525> +

McCauley, P. (2012). *Ergonomics: foundational principles, applications, and technologies*. CRC Press.

Peters, S., Drewes, D. (2019). *Materials in progress: Innovations for designers and architects*. Walter de Gruyter GmbH.

<https://www.proquest.com/legacydocview/EBC/5888973?accountid=39118>

Popescu, D., Gharbi, A., Stefanoiu, D., & Borne, P. (2017). *Process control design for industrial applications*. John Wiley & Sons, Inc.

<https://www.proquest.com/legacydocview/EBC/4843076?accountid=39118>

Rähse, W. (2014). *Industrial product design of solids and liquids: A practical guide*. John Wiley & Sons, Inc.

<https://www.proquest.com/legacydocview/EBC/1666550?accountid=39118>

Regenesis, G. (2016). *Regenerative development and design: A framework for evolving sustainability*. John Wiley & Sons, Inc.

<https://www.proquest.com/legacydocview/EBC/4627926?accountid=39118>

Shapiro, D. (2016). *John Vassos: Industrial design for modern life*. University of Minnesota Press.

<https://www.proquest.com/legacydocview/EBC/4392069?accountid=39118>

Stack, T., Ostrom, L. T., & Wilhelmsen, C. A. (2016). *Occupational ergonomics: A practical approach*. John Wiley & Sons, Inc.

<https://www.proquest.com/legacydocview/EBC/4519159?accountid=39118>

Trabucco, A. (2014). *Reflexiones sobre el diseño industrial contemporáneo el ser de los objetos: una visión multidisciplinar*. Editorial Nobuko.

<https://elibro.net/en/lc/sagrado/titulos/77287>

Walker, S., Evans, M., Cassidy, T., Holroyd, A. T., & Jung, J. (Eds.). (2018). *Design roots: Culturally significant designs, products, and practices*. Bloomsbury

Publishing Plc.

<https://www.proquest.com/legacydocview/EBC/5226711?accountid=39118>

Whalen, J. (2019). *Design for how people think: Using brain science to build better products*. O'Reilly Media, Incorporated.

<https://www.proquest.com/legacydocview/EBC/5747289?accountid=39118>

World, I. P. O. (2019). *Looking good: An introduction to industrial designs for small and medium-sized enterprises*. World Intellectual Property Organization.

<https://www.proquest.com/legacydocview/EBC/5982425?accountid=39118>

REASONABLE ACCOMMODATION

For detailed information on the process and required documentation you should visit the corresponding office. To ensure equal conditions, in compliance with the ADA Act (1990) and the Rehabilitation Act (1973), as amended, any student in need of reasonable accommodation or special assistance must complete the process established by the Vice Presidency for Academic Affairs.

ACADEMIC HONESTY, FRAUD, AND PLAGIARISM

Any student who fails to comply with the Honesty, Fraud, and Plagiarism Policy is exposed to the following sanctions: receive a zero in the evaluation and/or repetition of the assignment, an F(*) in the course, suspension, or expulsion as established in the document *Política de Honestidad Académica* (DAEE 205-001) effective in August 2005.

All rights reserved | Sagrado | October 2021 | Translated June 2022