Universidad de Navarra

Comprehensive Lab II (Materials 3D). (Gr. Diseño)

Guía docente 2026-27

INTRODUCTION

Course description

Form & Matter Laboratories (Comprehensive Laboratory I and II) are practice-based courses focused on experimentation and hands-on learning. Through the study of **form, image, and materials**, students explore their physical, geometric, and expressive qualities, as well as the techniques used to transform them.

The course follows a **learning-by-doing** approach, helping students develop key skills as future designers. It is closely related to the course **Form & Image / Design Physics Basics** and aims to integrate technical, material, and creative knowledge using manual, digital, graphic, and three-dimensional (3D) techniques.

Degree: Design

Module in the Degree Program: Module 4. Integration Laboratories_ Form & Matter Laboratories_ BASIC

Course name/Area: Comprehensive Laboratory I/Engineering and Architecture

Credits: 6 ECTSs (European Credit Transfer and Accumulation System, 1 ECTS= 25 hours)

Year/Semester: 1st year/2nd semester

Type of course: Required

Instructors:

Ainhoa Gamendia (Industrial Design Engineer) Guest Professor.

Gorka Sánchez (Industrial Design Engineer) Guest Professor.

María Orlowska (Designer) Teaching Assistant.

Borja Iraola (Architect, Ph.D.) Associate Professor, CIE, email: bisaenz@unav.es Principal instructor.

Language: English

Department: Construction, Building Services & Structures (Construcción, Intalaciones y Estructuras, CIE)

Lecture schedule: Wednesday, 9:00-13:00, Classroom A1/Studio Room 4A

LEARNING OUTCOMES (Competencies)

Basic Competencies

• BC01

Universidad de Navarra

Students should have demonstrable knowledge and understanding of an area of study that builds on the base knowledge of general secondary education, and at a level that, although supported by advanced textbooks, also includes aspects that imply knowledge related to the vanguard of the field of study.

• BC03

Students should have the ability to gather and interpret relevant data (normally within their area of study) in order to make judgments that reflect on relevant social, scientific, or ethical issues.

• BC05

Students should have developed the learning and study skills that are necessary for undertaking studies with a high degree of autonomy.

General Competencies

• GC02

Analyze, evaluate, and present the creative qualities of the different technical and material resources in the field of design.

• GC04

Propose, create, and express (both written and verbally) concrete solutions to design challenges that affect today's society.

• GC05

Skilfully manage modern technologies geared toward creation and manufacturing processes specific to the design world.

• GC06

Ability to speak English, B2 level, with knowledge of scientific and academic terminology related to the world of Art, Design, and Applied Arts.

Specific Competencies

• SC01

Use graphic and computer/technological procedures in order to represent concepts, spaces, and objects in Design.

• SC02

Be familiar with the theory of form, as well as the laws of visual perception as they apply to Design.

• SC3

Describe and apply the principles of general mechanics, static, mass geometry, and vector and tensorial fields to the study of design.

• SC04

Know and apply systems of spatial representation to Design.

• SC7

Knowing the composition, as well as the plastic, elastic, and resistance qualities of materials, relating them to the world of design.

Universidad de Navarra

PROGRAM

Project 4._PACKAGING

This project introduces packaging as a technical, communicative, and cultural design system.

- Historical evolution of packaging and materials: natural containers, glass, paper and cardboard, metal, and plastics.
- Industrial development of packaging and the role of branding.
- Functions of packaging: protection, preservation, transport, storage, information, and marketing.
- Packaging levels: primary, secondary, and tertiary packaging.
- Sustainable and innovative packaging solutions.

Exercise: Design and construction of a box and a bag based on a given die-cut, including basic graphic customization.

Project 5._RECYCLING & DESIGN MATERIALS

This project focuses on sustainability, circular economy principles, and material awareness in design.

- Sustainable development goals and circular economy models.
- Environmental pollution, climate change, and global environmental challenges.
- Carbon footprint and product life cycle analysis.
- Recycling systems, symbols, and material identification codes.
- Introduction to upcycling as a creative design strategy.
- Classification, properties, and life cycle of design materials.

Exercises: Personal carbon footprint analysis, recycling test, and climate-related research.

Workshop: Learning basketry. How to weave a basket with new recycled materials. Guest invited: Idoia Cuesta

Project 6_SETs & SERIATION

This project examines brand identity, serial design, and packaging systems through a well-known global brand.

- Coca-Cola brand identity: logo, typography, color palette, and design guidelines.
- Evolution of bottles and cans and the introduction of new products.
- Packaging innovation, sustainability strategies, and material choices.
- Relationships between design, art, fashion, and branding through collaborations.

Exercise: Design of a coherent set of Coca-Cola cans for a specific campaign, aligned with brand values.

EDUCATIONAL ACTIVITIES

Face-to-face on-site technical lectures and practical classes and workshops. Online/face-to-face seminars and face-to-face and/or online experimental and practical activities and exercises in the classroom, the LAB, or Studio Room 2 (either individually or in groups). Private mentoring. Subject breakdown: ECTSs and hours of engagement, activities, and methodology according to the following.

 # TECHNICAL LECTURES (6,00 hours) **0,24 ECTSs**

Attendance and active participation in the theoretical and practical tuition through technical lectures. An active attitude, answering the teacher's questions, and resolving problems proposed in class will be evaluated in a positive way.

(Face-to-face learning, 100 % attendance)

 # PRACTICAL CLASSES (54,00 hours) **2,16 ECTSs**

Attendance and active participation in practical classes. Face-to-face meetings of the groups and the teachers, in order to make clear how to put into practice the concepts explained in class, to develop the student's skills and abilities. Depending on each practical work's specific aim, the students will have to concentrate mainly on different aspects and tasks of the making: material execution, graphical aspects, etc.

(Face-to-face learning, 100% attendance)

 # SEMINARS (12,00 hours) **0,48 ECTSs**

Attendance and active participation in the practical tuition through seminars in order to develop the student's abilities and skills in a determined technique. An active attitude, and answering the teacher's questions will be evaluated in a positive way.

(Face-to-face learning, 100% attendance)

 # GUIDED PRACTICE (45,00 hours) **1,80 ECTSs**

Practical works either individually or in small groups on different matters related to the main contents of the subject.

(Face-to-face, in small groups, or individually, depending on the project/exercise, 10% attendance)

 # PRIVATE MENTORING (3,00 hours) **0,12 ECTSs**

Personal interviews with the professors to be counseled about any academic concerns the student may have. Any further consultation regarding other subjects or any other matter related to the student's formation will be also discussed.

(Face-to-face,100% attendance)

 # PERSONAL WORK AND STUDY (30,00 hours) **1,20 ECTSs**

Learning, training, and developing skills in relation to the knowledge of theoretical concepts as well as in the use of the required digital software and tools by applying them in solving the different exercises and projects.

TOTAL: 6,00 ECTSs

ASSESSMENT

Continuous Assessment

Universidad de Navarra

This course follows a **continuous assessment system**, which means that students are evaluated throughout the semester based on attendance, participation, tests, practical exercises, projects, and final portfolio submission.

1. Attendance and Participation – 10%

- Attendance is **mandatory**.
- A minimum of **75% attendance** is required to receive a grade.
- If attendance is below 100%, the grade will be reduced proportionally.
- Active participation in lectures, workshops, and discussions is positively valued.

2. Written Tests – 10%

- Three short written tests (20 minutes each) will be held during the semester.
- Tests assess **basic theoretical concepts** covered in class.
- Each test is graded from **0 to 10**.
- A **minimum grade of 4.5/10** is required in each test to pass.

Retakes:

- If a student fails one test, it must be retaken in the **May ordinary call**.
- If the test is failed again, the student must take a **comprehensive exam** covering the entire course in the **June call**.

3. Individual and Group Exercises and Assignments – 40%

This section includes all **individual and group-based exercises and projects** developed throughout the semester. These activities assess the students' ability to apply theoretical knowledge, develop design proposals, work with materials, and communicate ideas effectively.

- Exercises and projects are evaluated using a **letter grading system (A–E)**.

- A (9,0-10,0) A# = 9 A = 9,5 A# = 10,0

- B (7,5 -8,5) B# = 7,5 B = 8 B# = 8,5

- C (6,0 - 7,0) C# = 6 C = 6,5 C# = 7

- D (4,5 -5,5) D# = 4,5 D = 5 D# = 5,5

- E (<4,5)

- All submissions must be delivered in their **final version**. To pass the subject in May, a **media grade of D** is required.
- Some exercises and projects may have a **higher weighting** in the final grade, as specified in the course guidelines.
- Both individual and group work require full compliance with the technical, conceptual, and formal requirements of the assignment.
- These exercises and projects together account for a significant percentage of the final grade and are a core component of the continuous assessment system.

Resubmissions are not allowed under any circumstances, unless explicitly authorized by the instructors. Students are therefore expected to submit complete and well-developed work by the established deadlines.

4. Portfolio, Project Presentations, and Content – 40%

- Students must submit a **complete portfolio** including all projects and exercises.
- Oral presentations will be assessed based on clarity, coherence, and communication skills.
- All projects must meet the requirements of **all subjects involved** in the course.

According to the content of Article 5.4 (Royal Decree 1125/2003), the score of the final grades of the continuous assessment of the semester and the May exam or exercise will adjust to the numeric scale of **0 to 10**, with an accuracy of a decimal place, adding a qualitative grade according to the following:

0,0-4,9 Suspenso (SS)

5,0-6,9 Aprobado (AP)

7,0-8,9 Notable (NT)

9,0-10 Sobresaliente (SB)

MH Sobresaliente y matrícula de honor (SB, MH)

A grade of **5,0/10,0** is required to pass the course.

A MATRICULA DE HONOR mention can be awarded to those students with a grade equal to or superior to 9.0.

May and June Ordinary and Extraordinary Calls

Those students not having passed any of the three tests in the May Ordinary Call will have to pass all of them in the June Extraordinary Call. Students not having passed the practical exercises will have to do a new one proposed by instructors, to be submitted on the same day of the June exams, according to the official calendar. Main criteria and grades score of the May exams. The official June Call exams calendar will be published on the webpage in advance.

As stated in the General Evaluation Regulations of the University of Navarra, approved in May 2019: "*Students who request it may be evaluated in the extraordinary call, even if they have passed in that course. To do this they must request to be included in the minutes at least five days before the start of the exam period of that call. The final grade of the subject will be that of the extraordinary call, even if it is lower than the one obtained previously*".

Those interested must submit an instance through Academic Management choosing the option "convocatoria extraordinaria: solicitud para concurrir (grado)", before the 1st of December (first-semester subjects) o 1st of June (second-semester subjects).

Students with Special Learning Needs

Reasonable adjustments will be done for students with special learning needs, either regarding the methodology and/or evaluation of the course, but they will be expected to fulfill all course objectives. Such students must communicate to the Course responsible for their condition in September (first-semester subjects)/January (second-semester subjects).

Course Repeaters

Attendance is required unless any instructor authorizes the absence, for justified reasons. The only difference with the regular students will be the fact that **all the practical exercises and work will be done individually**. In any other matter, the former criteria for the subject will be applied.

Universidad de Navarra

ACADEMIC INTEGRITY

Academic Integrity is a fundamental value, essential to the pursuit of learning and scholarships at the University of Navarra (UN). Participating honestly, respectively, responsibly, and fairly in this academic community ensures that the UN degree that you earn will continue to be valued and respected as a true signifier of a student's work and academic achievement. As a result, the UN treats cases of academic misconduct very seriously.

The University of Navarra's CODE OF CONDUCT/EVALUATION: RULES AND PROCEDURES documents outline the behaviors that constitute academic misconduct, the process for addressing academic offenses, and the penalties that may be imposed. Students are expected to be familiar with them,

(https://www.unav.edu/documents/10162/32684638/Normativa+general+sobre+la+evaluaci%C3%B3n+%28English%29.pdf/455c05fb-ad0e-9083-04b3-1f285832d4d9?t=1588076072000/ https://www.unav.edu/documents/11310/16248366/Code+of+Conduct.pdf)

Potential offenses include, but are not limited to:

IN PROJECTS, EXERCISES, AND ASSIGNMENTS

· Using someone else's ideas or words without appropriate acknowledgment.

· Submitting your own work in more than one course without the permission of the instructor.

· Making up sources or facts.

· Obtaining or providing unauthorized assistance on any assignment (this includes collaborating with others on assignments that are supposed to be completed individually).

ON TESTS AND EXAMS

· Using or possessing any unauthorized aid, including a cell phone.

· Looking at someone else's answers

· Misrepresenting your identity.

· Submitting an altered test for regrading.

MISREPRESENTATION:

· Falsifying institutional documents or grades.

· Falsifying/altering any documentation required by the University, including (but not limited to), medical notes.

The minimum penalty for such offenses is to fail the assignment; the more common penalty is to fail the course. If there is any question about what is or is not permitted in the course, please do not hesitate to contact the course instructor. For any questions about appropriate research and citation students are expected to seek out additional information from the instructor.

Missed Tests and Assignments

Universidad de Navarra

Students who miss a test, exercise, or any assignment for reasons entirely beyond their control (e. g., illness) may submit a request to schedule a makeup in the case of the exercises or assignments. Provided that notification and documentation are provided in a timely manner and that the request is subsequently approved, no academic penalty will be applied.

In such cases, students must notify instructors on the date of the missed exercise/assignment due date and submit supporting documentation (e.g. Verification of Student Illness or Injury Form) within 48 hours of the originally scheduled due date. Students who do not provide the instructor with appropriate or sufficient supporting documentation will be given a grade of 0 (zero) for the missed course deliverable.

Note that the physician's report must establish that the patient was examined and diagnosed at the time of illness, not after the fact. Statements that merely confirm a report of illness made by the student and documented by the physician will not accept a statement. (IN CASE A STUDENT MISSES ANY MIDTERM TEST FOR LEGITIMATE REASONS, HE/SHE WILL HAVE TO REPEAT IT AT THE END OF THE SEMESTER).

Late Assignments

Students who, for reasons beyond their control, are unable to submit an assignment by its deadline must obtain approval from the instructor for an extension. Supporting documentation will be required as per the policy on missed tests and assignments.

Emails

At times, the course instructors may decide to communicate important course information by email. As such, all students are required to have a valid University email address. Students are responsible for ensuring that their university address is set up and properly entered on the University intranet.

ADI

The online course page for this course is accessed through ADI. To access the course page, go to the University portal, log in, and log in using your UN user and password. Once you have logged in, look for the My Courses module where you'll find the link to all your course websites.

Lectures and course materials prepared by the instructors, or the invited guests are considered by the University to be an instructor's intellectual property. Students wishing to record a lecture or other course material in any way are required to ask the instructor's explicit permission and may not do so unless permission is granted (note: students who have been previously granted permission to record lectures as an accommodation for a disability are, of course, excepted). This includes tape recording, filming, photographing PowerPoint slides, ADI materials, etc.

If permission is granted by the instructor, it is intended for the individual student's own study purposes and does not include permission to publish them in any way. It is absolutely forbidden for a student to publish an instructor's notes to a website or sell them in any other form without formal permission.

OFFICE HOURS

Students must **arrange an appointment in advance via email** to attend office hours. The specific time and date will be confirmed directly with the instructor.

BIBLIOGRAPHY

Dardi, D., Pasca, V., Auerbach-Lynn, B., & Turnbull, K. (2019). *Design history handbook*. Silvana.

Munari, B., Artal Rodríguez, C., & Romaguera y Ramió, J. (1985). ¿Cómo nacen los objetos? (2ª ed.). Gili.

Mari, E. (2021). *Autoprogettazione?* (Prima edizione, agosto 2002. Undicesima ristampa, giugno 2021.). Edizioni Corraini.

Sudjic, D. (2009). *The language of things: understanding the world of desirable objects* (1st American ed.). W.W. Norton & Company

Papanek, V. (2011). Design for the real world: human ecology and social change (2nd ed., completely rev.). Thames & Hudson.

Rodgers, P., & Milton, A. (2011). *Product Design*. Laurence King Publishing

Ambrose, G., & Harris, P. (2010). *Design Th!nking*. AVA Publishing

Delft Design Guide: Perspectives, Models, Approaches, Methods (2020)

Fashion: the definitive visual guide / foreword by Caryn Franklin. (2019). DK.

Han, B.-C., & Chamorro Mielke, J. (2021). No cosas: quiebras del mundo de hoy (Primera edición: octubre de 2021.). Taurus.

Basic Bibliography

PACKAGING

Jackson, P. (1956-). (2016). *Structural packaging: design your own boxes and 3-D forms*. Laurence King Publishing

Jackson, P. (1956-). (2016). *Folding techniques for designers: from sheet to form*. Laurence King Publishing.

Jackson, P. (1956-). (2014). *Cut and fold techniques for promotional materials*. Laurence King Publishing.

Jackson, P. (1956-). (2018). *How to Make Repeat Patterns: A Guide for Designers, Architects and Artists*. Laurence King Publishing.

Candace Ellicott, & Sarah Roncarelli. (2010). *Packaging Essentials: 100 Design Principles for Creating Packages*. Rockport Publishers.

Capsule, Michelle Taute, & Maura Keller. (2012). *Design Matters: An Essential Primer-Brochures, Logos, Packaging, Portfolios*. Rockport Publishers.

RECYCLING & DESIGN MATERIALS

Lefteri, C. (2014). *Materials for Design*. Laurence King Publishing

Lefteri, C. (2015). *Making it: manufacturing techniques* (2nd ed.,). Laurence King

Thompson, R., Thompson, M., & Burgess, N. (2017). *The materials sourcebook for design professionals*. Thames & Hudson.

Ashby, M. F. (2011). *Materials selection in mechanical design* (4th ed.). Butterworth-Heinemann.

Daniel Kula, & Élodie Ternaux. (2014). *Materiology: The Creative Industry's Guide to Materials and Technologies: Vol*. Expanded edition. Birkhäuser

Stephens, S. M. W., Stephens, A. B., & Benson, E. (2009). *The big book of green design* (1st ed.). Collins Design.

Duncan Baker-Brown. (2017). *The Re-Use Atlas: A Designer's Guide Towards the Circular Economy*. RIBA Publishing

Circular Design for Fashion. (2021). Ellen MacArthur Foundation Publishing

SETS&SERIATION

Reymond, W., & González, S. (2007). *Coca-Cola: la investigación prohibida* (1ª ed.). Base.

Ciafone, A. (2019). *Counter-Cola: a multinational history of the global corporation*. University of California Press.

Sunzi 6th cent. B.C. (n.d.). The Art of War. [Recurso electrónico].

Other Recommended Bibliography

PAPER BOOKS

Ibbotson, Toby & P. Chong, (2016). *Ecopackaging now*. Victoria, Australia. Shanghai, China. The Images Publishing Group Pty Ltd.

Pentawards & J. Widerman (2017). *The Package Design Book*. Compilation Edition, Bibliotheca Universalis Series. Taschen GmbH.

Steven DuPuis,& J. Silva (2011). *Package Design Workbook: The Art and Science of Successful Packaging 1*. Rockport Publishers.

Van Der Ryn, Sim & S. Cowan (2007). *Ecological design*, *10th Edition*. USA, Island Press.

PDF eBOOKS/Articles/Directives:

ENVIRONWISE GUIDE. Packaging: A guide to packaging eco-design

The Dieline TEAM Packaging Dielines I: The designer's Guide to Packaging.

The Dieline TEAM Packaging Dielines II: The designer's Guide to Packaging.

The packaging designer's book of patterns. Free pdf

NATURE (article). The environmental cost of fast fashion.

EUROPEAN PARLIAMENT AND COUNCIL DIRECTIVE 94/62/EC of 20 December 1994 on packaging and packaging waste

COCA-COLA ZERO Brand identity

2020 Coca-Cola Design Style

Webs of Interest

PACKAGING

The Dieline — http://www.thedieline.com

Packaging of the World — http://www.packagingoftheworld.com

Lovely Package — http://lovelypackage.com

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Packaging Design Archive — http://www.packagingdesignarchive.org

BXP Brand Experience — http://www.bxpmagazine.com/design-packaging

Dezeen — https://www.dezeen.com/tag/packaging

Behance — https://www.behance.net

Package Inspiration — http://www.packageinspiration.com

Beach Packaging Design — http://beachpackagingdesign.com/boxvox

BP & O — http://bpando.org/packaging-reviews

DESIGN MATERIALS &RECYCLING

WWf Carbon footprint calculator --- https://footprint.wwf.org.uk/?VxJw3wfC56=1722320882&Kq3cZcYS15=f974aa3a80924137a28d0aa0da880699&Kq3cZcYS15=f93D#/

OUR WORLD IN DATA. Emissions --- https://ourworldindata.org/co2-and-other-greenhouse-gas-emissions

AIRE_ECOEMBES --- https://www.ecoembes.com/proyectos-destacados/chatbot-aire/

SETS&SERIATION

COCA-COLA BRAND IDENTITY --- https://prspot.wordpress.com/2013/02/08/the-identity-of-coca-cola/

COCA COLA's marketing through 130 years---https://thinkmarketingmagazine.com/3-marketing-lessons-from-coca-cola-130-years-old-brand-identity/

COKE DESIGN --- https://vincevoron.com/project/coke-brand-design-system

IFP: MARKETING INSIGHT FOR PROFESSIONALS COCA-COLA'S 4 most powerful lessons in branding ---- https://youtu.be/mFcPit-A7-4

INTERBRAND_ 2022 report on best world brands ----- https://www.interbrand.com/best-brands

TED Talks

Package design matters TIM HANKINS

https://www.youtube.com/watch?v=Q8Be64oFVLQ

Making the best of a bad situation VANESSAGRONDIN

https://www.youtube.com/watch?v=v08F0YE-k2E

Packaging is for people SILVIA VITALE

https://www.youtube.com/watch?v=Db68SjgC3oY

Why you should design useless things SIMONE GIERTZ

https://embed.ted.com/9dc3ccde-f9b0-4a6b-bbbb-12b3f575a1ca

Microplastics SHARA DUD

https://www.ted.com/talks/sarah_dudas_microplastics_are_everywhere/transcript?language=es

Universidad de Navarra

Biofabrication SUZANNE LEE

https://www.ted.com/talks/suzanne_lee_why_biofabrication_is_the_next_industrial_revolution/transcript

The environmental footprint of a T-shirt ANGEL CHANG

https://youtu.be/BiSYoeqb_VY

Did paper beat plastic? LAYLA ACAROGLU

https://www.ted.com/talks/leyla_acaroglu_paper_beats_plastic_how_to_rethink_environmental_folklore?utm_campaign=tedspread&utm_medium=referral&utm_source=tedcomshare

Cradle-to-cradle design WILLIAM MCDONOUGH

https://www.ted.com/talks/william_mcdonough_cradle_to_cradle_design?utm_campaign=tedspread&utm_medium=referral&utm_source=tedcomshare

What nonprofit organizations can learn about Coca-Cola MELINDA GATES

https://www.ted.com/talks/melinda_gates_what_nonprofits_can_learn_from_coca_cola?utm_campaign=tedspread&utm_medium=referral&utm_source=tedcomshare