

Syllabus
Course description

Course title	Project Product Design 2.d "The skin of things"
Course code	97167
Scientific sector	Module 1: ICAR/13 Module 2: ICAR/13 Module 3: M-FIL/05
Degree	Bachelor in Design and Art (L-4)
Semester	Summer semester 2023/24
Year	2 nd
Credits	19 (Module 1: 8 CP, Module 2: 6 CP, Module 3: 5 CP)
Modular	Yes

Total lecturing hours	180 (Module 1: 90, Module 2: 60, Module 3: 30)
Total hours of self-study and/ or other individual educational activities	295 (Module 1: about 110, Module 2: about 90, Module 3: about 95)
Attendance	not compulsory but recommended
Prerequisites	To have passed Product Design 1; to have certified the language level proficiency B1 in the modules' languages in years following the first
Maximum number of students per class	20

Course description	<p><i>The course belongs to the class "caratterizzante" (module 1), "di base" (module 2) and "affine integrativa" (module 3) in the curriculum in Design.</i></p> <p>Description Module 1 – Product Design: EN Covers, panelling, housings or containers serve to hold an interior together and shield it from the outside. They can absorb, divert, store and release energies and substances, adapt to changing conditions or change shape. They can withstand extreme conditions or break in a controlled manner, they can be permeable, repellent or mouldable.</p> <p>As a user-interface it links between its inherent function and the person operating it, can be manipulated and offers access through separations, foldings and openings. Shape and composition of the outer skin are always related to the underlying structure and content it</p>
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encloses. This is how the body of an object is formed, where its character is revealed and its condition can be read.

It charges a product with values and promises something about its properties. It plays with expectations and habits, with effect, seduction, deception and camouflage. This user-experience sometimes takes over the actual purpose. The resources used are hardly in proportion to the lifespan of an object, generate enormous environmental problems and raise questions about materials, disposal and reusability.

"Smart" materials and technologies are supposed to lead us into the future. At the end of the day, it still takes a clever productdesigner who knows how to use them correctly or explores unusual ways to offer completely new design-perspectives.

This topic will be used to cover fundamental technical, constructional and formal aspects of productdesign. However, it should mainly serve as an creative playground and invite to practical experimentation and modelmaking. Accompanied to the development of your own thematic focus and concept, we will analyse the topic from different perspectives and explore it through practical work in the studio. Excursions to companies in the surrounding area will give us an insight into the development and manufacture of products and their casings.

DE

Verkleidungen, Gehäuse, Abdeckungen oder Behälter dienen dem Zusammenhalt und der Abschirmung eines Innenlebens vor äußeren Einflüssen. Sie können Energien und Stoffe aufnehmen, umleiten, speichern und wieder abgeben, sich wechselnden Bedingungen anpassen und ihre Form verändern. Sie können extremen Bedingungen standhalten oder aber kontrolliert zerbrechen, durchlässig, abweisend oder anschmiegsam sein.

Als Nutzeroberfläche bildet sie die Verbindung, zwischen der ihr innewohnenden Funktion und dem der sie bedient, lässt sich Manipulieren und bietet Zugang durch Trennungen, Klappen oder Öffnungen. Form und Beschaffenheit der Außenhaut stehen dabei immer im Zusammenhang mit der darunterliegenden Struktur und dem Inhalt, den Sie umschließt. Über sie entsteht der

Körper eines Gebrauchsgegenstands. Hier zeigt sich sein Wesen, lässt sich sein Zustand ablesen.

Sie lädt ein Produkt mit Werten auf und verspricht etwas über seine Eigenschaften. Sie spielt mit Erwartungen und Gewohnheiten, mit Effekt, Verführung, Täuschung und Tarnung. Nicht selten übernimmt dieses Erlebnis den eigentlichen Zweck. Die aufgewendeten Ressourcen stehen dabei kaum im Verhältnis zur Lebensdauer eines Gegenstands, erzeugen enorme Umweltprobleme und werfen Fragen hinsichtlich Materialien, Entsorgung oder Wiederverwendbarkeit auf.

"Smarte" Materialien und Technologien sollen uns hierbei in die Zukunft führen. Am Ende braucht es immer noch einen klugen Produktentwickler, die diese richtig einzusetzen weiß oder über ungewöhnliche Wege ganz neue Perspektiven anbietet.

Anhand der Thematik werden grundlegende technische, konstruktive und gestalterische Aspekte von Produkten behandelt. Sie soll aber vor allem als Spielwiese dienen und zum praktischen Experimentieren am Modell einladen.

Begleitend zur Entwicklung eines eigenen Schwerpunkts und Konzepts werden wir das Thema aus verschiedenen Blickwinkeln analysieren und durch praktisches Arbeiten im Atelier erschließen. Mit Exkursionen zu Produktionsbetrieben in der Umgebung werden wir uns Einblicke in die Entwicklung und Fertigung von Produkten und Produktverpackungen verschaffen.

Description Module 2 – Digital Fabrication

EN

3D modelling and design is a language that connects a designer with his/her own ideas, at first, and later on, with an entire chain of designers, companies, and manufacturers. This means that a designer must be able to read, understand and write the rules of 3D design. Digital modeling is not just programming; it is something much broader: it is intrinsic to the design itself and strongly linked to every phase of the creative process. Through lectures, case studies, workshops and through a semester long exercise in biomimicry and digital fabrication, students will learn to observe, model and materialize their ideas in a systematic, logic, and production-oriented way. The geometrical limitless nature of parametric design will provide them with not only a

modelling tool, but a new way of thinking and producing products and systems.

IT

La modellazione e il design in 3D sono un linguaggio che connette un designer con le proprie idee, inizialmente, e successivamente, con un'intera catena di designer, aziende e produttori. Ciò significa che un designer deve essere in grado di leggere, comprendere e scrivere le regole del design in 3D. La modellazione digitale non è solo programmazione; è qualcosa di molto più ampio: è intrinseco al design stesso e fortemente legato ad ogni fase del processo creativo. Attraverso lezioni, studi di caso, workshop e tramite un esercizio semestrale di biomimetica e fabbricazione digitale, gli studenti impareranno a osservare, modellare e materializzare le proprie idee in modo sistematico, logico e orientato alla produzione. La natura geometricamente illimitata del design parametrico non fornirà loro solo uno strumento di modellazione, ma un nuovo modo di pensare e produrre prodotti e sistemi.

Description Module 3 – Theories and languages of product design

Module 3 introduces students to concepts and debates shaping contemporary product design. It identifies and engages with the ideas, themes and practices that have impacted material culture, both past and present. When addressing the above themes, we will explore the role of technology, materials, craft, contemporary concerns with sustainability and circularity, and new roles for product design. In the end, the module aims to enable students to understand the defining debates surrounding product design while helping them develop critical thinking skills when applying concepts relevant to the work carried out in their chosen project.

Specific educational objectives	Knowledge and understanding - have acquired one's own project methodology in the field of product design. This methodology includes the ability to oversee all phases of design, from the generation of ideas to the realisation of the finished project. Through the integrated teaching of project subjects and subjects of a technical, scientific and theoretical nature, graduates will be able to simultaneously address all these aspects and consider them as synonymous with the development of a project that is successful on a formal, technical, scientific and cultural level.
Lecturer	<p>Module 1 – Product Design: Sebastian Camerer email: sebastian.camerer@unibz.it Sebastian Camerer / Free University of Bozen-Bolzano (unibz.it)</p> <p>Module 2 – Digital Fabrication: Ofer Kristal email: ofer.kristal@unibz.it Ofer Kristal / Free University of Bozen-Bolzano (unibz.it)</p> <p>Module 3 – Theories and languages of product design Sònia Matos email: Sonia.CabralMatos@unibz.it Sónia Matos / Free University of Bozen-Bolzano (unibz.it)</p>
Scientific sector of the lecturer	Module 1 – Sebastian Camerer: ICAR/13 Module 2 – Ofer Kristal: ICAR/13 Module 3 – Sonia Matos: M-FIL/05
Teaching language	Module 1 – German Module 2 – Italian Module 3 – English
Office hours	Module 1: Tu-Wed: 8:30 – 10:30 by appointment Module 2: Tu: 14:00-15:00 Module 3: Thursday: 12:00 – 13:00
List of topics covered	<p>Module 1: EN Design and development of everyday objects for the home, office, person, travel, etc. Design of Product-Housings, Covers, Containers, and Packagings. Principal methods of product development, creative techniques and project-management.</p>

Product Semantics, Interface design, Product graphics and User Experience. Principals for the protection and transport of goods. Structural design, Engineering and Manufacturing techniques.

DE

Design und Entwicklung von Alltagsgegenständen. Gestaltung von Produkt-Umhausungen, Verkleidungen, Behälter und Verpackungen. Konstruktionsdesign, Engineering und Fertigungstechniken. Produktsemantik, Interfacedesign, Produktgrafik und User Experience. Prinzipien zur Aufbewahrung, dem Schutz und Transport von Gütern. Grundlegende Methoden der Produktentwicklung, Kreativitätstechniken und Projektmanagement.

Module 2:

EN

The course aims at establishing a functioning relation between research / analysis / sketching / digital modelling and digital fabrication. Main phases:

- Research / analyze a natural object that presents a formal / behavioural logic.
- Write / draw / sketch pseudo-codes to explain the logic.
- Use visual scripting or 3D modelling (Rhino / Grasshopper) to explain the formal logic of the object.
- Use visual scripting to model a "true representation" of the object.
- Use any digital fabrication method to create a physical model (based on 3D model).
- Translate the researched logical / behavioral patterns into an everyday item.
- Use visual scripting to create your version of the item, incorporating the natural logic.
- Use any digital fabrication method (3d printing, CNC, Milling, etc.) to create a physical model (based on 3D model).

IT

Il corso cerca di stabilire una relazione funzionante tra ricerca/analisi/schizzi/modellazione digitale e fabbricazione digitale. Fasi principali:

- Ricerca/analisi di un oggetto naturale che presenta una logica formale/comportamentale. Scrivere/disegnare/schizzare pseudocodici per spiegare la logica.
- Utilizzare lo scripting visuale o la modellazione 3D (Rhino/Grasshopper) per spiegare la logica formale dell'oggetto.

	<ul style="list-style-type: none"> - Utilizzare lo scripting visuale per modellare una "rappresentazione vera" dell'oggetto. - Utilizzare qualsiasi metodo di fabbricazione digitale per creare un modello fisico (basato sul modello 3D). - Tradurre i modelli logici/comportamentali ricercati in un oggetto quotidiano. - Utilizzare lo scripting visuale per creare la propria versione dell'oggetto, incorporando la logica naturale. - Utilizzare qualsiasi metodo di fabbricazione digitale (stampante 3D, CNC, fresatura, ecc.) per creare un modello fisico (basato sul modello 3D). <p>Module 3: Modernity, postmodernism, craft, sustainability, and circularity.</p>
<p>Teaching format</p>	<p>Module 1 Lectures, Exercises, Workshops, Excursions, personal consultations</p> <p>Module 2 Lectures, exercises, workshops, case studies, tutorials, personal reviews</p> <p>Module 3 Frontal lectures, reading sessions, and discussions on issues related to the course, individual and group exercises.</p>
<p>Expected learning outcomes</p>	<p>Disciplinary competence</p> <p><i>Knowledge and understanding</i></p> <ul style="list-style-type: none"> - have acquired the basic technical, scientific and theoretical knowledge necessary to realise a project in the field of product design. - have acquired the basic knowledge necessary for further Master's studies in all components of project culture as well as in technical, scientific and theoretical subjects <p><i>Applying knowledge and understanding</i></p> <ul style="list-style-type: none"> - use the basic knowledge acquired in the technical, scientific and theoretical fields to realise a mature project to recognise the main phenomena of contemporary. - make use of the skills acquired during the course of study in the event of continuing studies in a Master's degree programme in the field of design and to develop them further.

	<p>Transversal competence and soft skills</p> <p><i>Making judgements</i></p> <ul style="list-style-type: none"> - Be able to make independent judgements for the purpose of developing their own design skills and in relation to all those decisions (technical, scientific and theoretical) that are necessary to bring a project to completion. <p><i>Communication skills</i></p> <ul style="list-style-type: none"> - present an independently realised project in the field of product design in the form of an installation, orally as well as in writing in a professional manner. <p><i>Learning skills</i></p> <ul style="list-style-type: none"> - have learned a design methodology at a professional level - in the sense of being able to identify, develop and realise solutions to complex design problems by applying the acquired knowledge in the technical, scientific and theoretical fields - in order to start a professional activity and/or continue their studies with a master's degree programme. - have developed a creative attitude and learned how to enhance it and develop it according to their own inclinations. - have acquired basic knowledge in theoretical, technical and scientific subjects as well as a study methodology suitable for continuing studies with a Master's degree programme.
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<p>Assessment</p>	<p>Module 1:</p> <p>Presentation of the project: each candidate will present his work through graphic drawings, a model, photographs, a synthetic text and a concentrate of his work in a booklet. The design path, the final result and all the materials delivered will be evaluated. The presentation of the project will be public.</p> <p>Materials to be delivered: three days before the examination date the following documents must be delivered to the project assistant:</p> <ol style="list-style-type: none"> 1. construction drawings; 2. model of proportions or functional model (possibly in 1:1 scale); 3. Max. 3 photos that highlight the characteristics of the final elaborate format 10cm x 15cm, 72 dpi, RGB, jpg and 300 dpi, CMYK, tif;
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	<p>4. short summary text where the final paper is presented (max 500 characters, doc or rtf);</p> <p>5. the data need to be concentrated in a booklet in A5 format. The facsimile of the booklet will be delivered and explained to the students one month before the end of the project.</p> <p>NB: The timely delivery of all the materials being examined is essential for admission to the exam itself.</p> <p>Module 2: The final assessment will be the result of work conducted during the entire semester. In particular the following will be evaluated:</p> <ul style="list-style-type: none"> • The ability to express ideas through technical representations (2D Tables – 3D models). • The motivation and the commitment shown during the module and in the atelier. • The spirit of observation and the curiosity displayed. • The ability to develop functional ideas. • The ability to create a methodical framework and work systematically. <p>Materials to be delivered: three days before the examination date the following documents must be delivered:</p> <ul style="list-style-type: none"> - 3D Models / Codes - 2D drawings - Physical models - Conceptual Sketches and Diagrams <p>Module 3 For the exam, there is one summative assessment task. Students should provide a 2000-word and visually illustrated appendix, added to the project documentation and submitted five working days before the final exam. The appendix is graded against three learning outcomes: Research, Comprehend, Analyse and Communicate. Each learning outcome is weighted equally.</p>
<p>Assessment language</p>	<p>The same as the teaching language</p>
<p>Evaluation criteria and criteria for awarding marks</p>	<p><i>By exam's date, each student must upload on the Microsite of the faculty detailed documentation of the work done during the course.</i></p>

	<p>http://portfolio.dsgn.unibz.it/wp-admin <i>Documentation is an integral part of the exam. The documentation must include visual documentation and an abstract of the project.</i></p> <p>The final assessment is based on the content of all the exercises according to the following criteria:</p> <p>Module 1 The quality and clarity of the research, the creativity and the originality of the design concept, the quality and clarity of the design process, of the development and realization of the project such as the professionalism and consistency of the presentation and documentation.</p> <p>Also contributing to the final evaluation will be the initiative and the personal commitment in the atelier, in the research and the study and the participation in the project or the continuity, the attention and the curiosity demonstrated.</p> <p>Module 2 (15/100) Participation, punctuality, learning abilities. (25/100) Ability to research, observe, analyse and create logic / conceptual links. (25/100) Ability to express ideas through 3D models / 2D drawings. (35/100) Quality of final submission</p> <p>Module 3 (25/100) Research: Identify relevant sources of information relating to your chosen topic. (25/100) Comprehend: Evaluate and discuss ideas and debates relating to your chosen topic. (25/100) Analyse: Demonstrate informed knowledge of a chosen topic. (25/100) Communicate: Convey pertinent ideas using written and visual information effectively.</p>
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<p>Required readings</p>	<p>Module 1: -</p> <p>Module 2: -</p> <p>Module 3: Students can find suggested readings for this module in the Library Reserve Collection. Additional readings will be</p>
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	communicated to students in class and pending on specific project interests.
Supplementary readings	Module 1: - Module 2: Arturo Tedeschi, <i>My AAD – Algorithms Aided Design: Parametric Strategies Using Grasshopper</i> , Le Pensur Publisher, Brienza 2014 Carlos Alberto Montana Hoyos, <i>Bio-ID4S: Biomimicry in Industrial Design for Sustainability</i> , VDM Verlag, Brienza 2010 Module 3: -