Freie Universität Bozen
Libera Università di Bolzano
Università Liedia de Bulsan

-> *Syllabus in lingua italiana*

Syllabus
Course description

Course title	**Project PD - D4** **RESTART 2020**
Course code	97095
Scientific sectors	Module 1: ICAR/13 product design Module 2: INF/01 digital modelling + project assistance Module 3: M-FIL/05 theories and languages of product design
Degree	Bachelor in Design and Art (L-4)
Semester	Summer semester 2019/20
Year	2nd or 3rd
Credits	19
Modular	Yes

Teaching language	Module 1: German Module 2: English Module 3: English
Total lecturing hours	180 (Module 1: 90, Module 2: 60, Module 3: 30)
Total hours of self-study and / or other individual educational activities	370 (Module 1: about 210, Module 2: about 65, Module 3: about 95)
Attendance	not compulsory but recommended
Prerequisites	*For students enrolled from 2012/13 onwards*: having passed the WUP courses; *for students enrolled from 2016/17 onwards*: having passed the WUP project;

Project description and specific educational objectives	The course belongs to the class "caratterizzante" (module 1), "di base" (module 2) and "affine integrativa" (module 3) in the curriculum in Design. **PROJECT DESCRIPTION (English)** ***Course description module 1 – Product Design:*** Restart 2020 The industry is facing a legitimation crisis. How can a transformation to rethought and sustainable products work out? We have to encourage each other to pioneer. Old-fashioned habits and standards must be forced open and replaced by a new natural conception. New formal models must be developed. A new understanding of products is

necessary.

Key questions:

- How do we wash laundry?
- How do we toast bread?
- How do we protect ourselves from the rain?
- How do I use my computer?
- How do I get from A to B?

How would products facing these questions look if they were designed for the first time – today.

Let's forget the genealogy and think new instead. What kind of solutions, products or systems for a positive future aren't even here yet?

We are going to face these kind of prompts, by rethinking radically the design of not just of everyday products but the entire infrastructure that allows each product to be produced, distributed and used.

Educational objectives module 1 – Product Design:

As a first step, we will take a closer look on the theory behind the topic. Important key words are: transformation of the industry; sustainability; co2 neutrality.

Why do so many everyday-use products look the way they do? Are they contemporary? Is there potential to make them better? What kind of questions are the right ones? How may the opposite products look?

What kind of rules do we have to make so products can be produced in a contemporary and sustainable way? Important key words are: recyclability; choice of materials; meaningfulness; purity of variety.

As a second step, everyone will choose a topic in which he or she sees potential to make things better. Think big ideas!

In the practical phase, we will design a model, using analogue and digital techniques, and round off our work by building a prototype.

PROJECT DESCRIPTION (German)
Course description module 1 – Product Design:

Restart 2020

Die Industrie steckt in einer Legitimationskrise. Wie kann eine Industrietransformation hin zu neu gedachten und nachhaltigen Produkten gelingen?

Wir müssen uns ermutigen, Pionierleistungen zu erbringen. Althergebrachte Gewohnheiten und Standards für ein neues Selbstverständnis aufsprengen.Neue Formleitbilder müssen entwickelt werden. Ein neues Produktverständnis ist notwendig.

Grundsatzfragen:

- Wie waschen wir Wäsche?
- Wie bräunen wir Brot?
- Wie schütze ich mich vor Regen?
- Wie bediene ich meinen Computer?
- Wie komme ich von A nach B?

Wie würden Produkte zu diesen Fragestellungen ausschauen, wenn wir sie heute zum ersten Mal entwerfen würden. Vergessen wir den Stammbaum, denken wir die Dinge neu.

Welche Lösungen, Produkte oder Systeme für eine positive Zukunft gibt es noch gar nicht? Hier soll angeregt werden.

Wir werden uns dieser Art von Aufforderungen stellen, indem wir nicht nur das Design von Alltagsprodukten, sondern die gesamte Infrastruktur, die die Herstellung, den Vertrieb und die Nutzung der einzelnen Produkte ermöglicht, radikal überdenken.

Educational objectives module 1 – Product Design:

Im ersten Schritt werden wir das Thema theoretisch untersuchen. Als wichtige Schlagworte zählen hier: Industrietransformation, Nachhaltigkeit, CO^2-Neutralität

Warum sehen viele Gebrauchsgegenstände heute aus, wie sie aussehen. Passt das noch? Wo ist Verbesserungspotential? Was für Fragestellungen sind die Richtigen? Und wie können die Produkte dazu aussehen?

Welche Regeln müssen aufgestellt werden, damit Produkte zeitgemäß und nachhaltig produziert werden können? Als wichtige Schlagworte zählen hier: Recyclingfähigkeit, Materialwahl, Sinnhaftigkeit,

Sortenreinheit

Im zweiten Schritt sucht sich jeder Einzelne ein Themengebiet, in dem er Verbesserungspotential sieht. Big Idea!

Im nächsten Schritt wird das Projekt anhand von digitalen und analogen Modellen ausformuliert und zu einem Prototypen umgesetzt.

Course description module 2 – Digital Modelling:
The course is based on Fredrik Skåtar's idea of goal-oriented skills training. That is, by striving for reality conversion of one's idea, the student will gain skills and knowledge automatically: he or she will research for the best ways of getting to the next phase of the design process. Therefore, the technology of choice is a task-oriented combination of both digital and non-digital design methods, putting the student's idea in the foreground. This is indeed similar to

Sketches (by hand or as physical sketch models) and ideas will be organised, examined and refined with help from parametric 3d-modelling and digital fabrication. We will primarily use Rhinoceros and Grasshopper, the latter is here regarded as an essential future design interface soon to be widely established. There will be a series of lectures and tutorials where overarching parametric systems will be presented — setups that are applicable to the students' individual projects when modified accordingly. Much emphasis will also be on geometry, CAD-technologies, mathematics, basic scripts and precedents — indispensable knowledge for starting to be creative using parametric modelling.

Similar to this and tied to the project, we also examine the geometry and function of precedent design objects that relate to each student's project focus.

The first lectures will be introductory and thereafter goal-oriented and individual. The goal in this course is to convert the ideas of *Restart 2020* into a design product. The design process towards this goal will revolve along these segments: *idea - sketch - research - prototype - evaluation or reconsideration*.
— Where e.g. a *prototype* can be both a refined 3d-model or a physical model and *evaluation* is based on visualisations presented with good graphic design. A *reconsideration* will always take place, given that the idea

transforms when examined.

Educational objectives Module 2 – Digital Modelling:

- Overall: to acquire skills for managing a design project from sketch to prototype, primarily aided by parametric digital modelling and digital fabrication techniques.
- Overview: the students will get tutorials focusing on overarching parametric and geometrical topics: 2d-tessellations, surface construction, mapping / orienting, solid construction and fabrication preparation — topics that can be implemented on any design task when modified.
- To acquire knowledge of geometry, mathematics, design precedents and specific terminology and techniques used in 3d-modelling.
- Examining and testing technical and scientific issues of the field of product design with help from digital modelling and fabrication.
- To acquire experience from the design processes: how it examines and refines one's ideas and skills. From first sketches, to digital sketches, to 3d-models and to 3d-models.
- To acquire skills in mediating one's idea fast and clear, using appropriate sculptural and visual language (images, models, graphic design)

Course description module 3 – Theories and Languages of Product Design:

An inquiry about the language of products presupposes an exploration of the multiple relations that a certain object enjoys. These relations can be with other objects, with production and use practices, but also those relations among parts constituting the very object.
Indeed, values and meanings of an object emerge from the intertwining of these relations.
In this semester we will especially explore the relations among artifacts, the infrastructure through which they can work and the practises to which they take part in everyday life. Such exploration will provide the tools to devise how, by redesigning artifacts in relation to network which differs from the existing one, these very artifacts can maintain or change their meanings and through them the practices they take part to.

Educational objectives module 3 – Theories and

	Languages of Product Design: ● the acquisition of the basic knowledge so as to be able to look critically at their own work and to deal with the complexities of contemporary society ● the acquisition of the basic knowledge concerning the descriptive issues of design practices and outcomes ● to have the ability to finalise the implementation of a project undertaken in the field of product design with the basic knowledge acquired in the theoretical subjects ● the acquisition of the basic knowledge concerning the culture of design in all its aspects ● knowledge of the important semiotic and anthropological aspects ● know how to describe, analyse, define and contextualise their projects ● know how to apply the research methods and results in the project to the various areas of the project itself ● developed a good independent judgment, both in the critical evaluation of their work and in the ability to use the appropriate interpretive tools with respect to the contexts where they are going to apply their own design practice and / or to continue their studies, assessing also the social and ethical aspects ● communicate at a professional level and argue the reasons for their choices and justify them from a formal, technical, scientific and theoretical point of view

Module 1	**Product Design**
Lecturer	Steffen Kehrle e-mail: sk@ateliersteffenkehrle.com, tel. +49 172 7233467, webpage: www.ateliersteffenkehrle.com
Teaching language	German
Assistance/Office hours	Monday 13-19 Tuesday 9-18
List of topics covered	.Understanding of the topic .Turning the general topic into a personal briefing method from research to a final product .Creating a concept .Transforming a concept into a product .How to present a concept or a product in a convincing way .prototyping the idea
Teaching format	Lectures,micro-workshop,practical and theoretical,exercises,discussions

Module 2	**Digital Modelling**
Lecturer	Fredrik Skåtar, Architect SAR/MSA office F1.01b e-mail: fredrik@skatar.com tel. +49 177 896 85 87 webpage www.skatar.com
Scientific sector of the lecturer	INF/01
Teaching language	English and/or German (+some communication in Italian)
Office hours	Monday 15-20 Tuesday 9-20 Wednesday 9-13

List of topics covered	• Goal: Product design / Art object / Architectural context
	• Process: Geometry / Sketching / Sculpture / Composition / Visualisation / Idea mediation
	  ○ 3D Modeling & Parametric design: foremost Rhino/Grasshopper
	  ○ Visualisation: Unreal's Twinmotion, VRay, Keyshot,
	  ○ Graphic design: InDesign, Illustrator, Photoshop
	• Production methods / Material knowledge / Light concepts
	  ○ Physical sketch models
	  ○ 3d-model preparations and exports
	  ○ Fabrication: 3d-printing, CNC-milling. In combination with non-digital assembly

Teaching format	Frontal lectures / tutorials, exercises, discussions. Accompanied by online video-tutorials: https://vimeo.com/showcase/5608375

Module 3	**Theories and Languages of Product Design**
Lecturer	Alvise Mattozzi office F4.04 e-mail amattozzi@unibz.it tel. +39 0471 015194 webpage https://www.unibz.it/it/faculties/design-art/academic-staff/person/11597-alvise-mattozzi
Teaching language	English
Office hours	Wednesday 18-19
List of topics covered	- theories of the language and of the signification of objects - the relational approach to the signification of objects - theoretical consequences of the relational approach to the signification of objects - the description of objects - the description of relations among bodies and materials - the description of the objects' configuration (shape, color, consistency) - a model for the analysis of objects

	- the description of the production and use practices of objects - the symbolic value of objects - craftsmanship as theorized in cognitive and social sciences - relations between design and craftsmanship
Teaching format	The module will include frontal lectures, individual and group exercises and discussions. OLE-Moodle will be used to manage teaching materials and exercises.

Learning outcomes	***Learning outcomes for module 1 – Product Design:*** ● to have the ability to design, develop and implement a project in the field of product design ● to have the ability to think in social context ● know how to analyze, design and develop industrial projects for mass consumption ● knowledge of the technical and scientific aspects of the design of industrial products for mass consumption ● present at a professional level their own projects realized in the field of product design in the form of an installation, both oral and written ● communicate at a professional level and argue the reasons for their choices and justify them from a formal, technical point of view **Learning outcomes for module 2 – Digital Modelling:** ● To acquire design process experience — which will automatically support the student's next project. ● To be able to carry out a design task with help from contemporary design methods. ● To acquire an overview of parametric design, enough to start using it in coming projects. ● Basic knowledge of geometry, mathematics and digital design-specific terminology and operations. ● Skills in creating CAD-models (Rhinoceros) and parametric CAD-models (Grasshopper) ● Material knowledge, — foremost gained from one's own design project but also from other students ● Skills in creating digital models (2d and 3d) suited for digital fabrication. ● Presentational skills: visualisations (VRay and Twinmotion) and graphic design (InDesign, Photoshop) ● Training one's ability to mediate one's idea, verbally

	and visually, in a professional and uncomplicated manner. ● To be able to explain technical issues regarding parametric modelling and digital fabrication. ***Learning outcomes for module 3 – Theories and Languages of Product Design:*** ● to have the ability to finalize the implementation of a project undertaken in the field of product design by making use of the knowledge related to the language of products ● to have the ability to grasp the main phenomena relate to language and meaning ● knowledge of the important semiotic aspects of product design ● know how to apply methods of empirical research in the socio-cultural sciences ● know how to present critical and planning analysis orally ● know how to present written critical and planning analysis ● know how to apply the research methods and results in the project to the various areas of the project itself ● develop a good independent judgment, both in the critical evaluation of their work and in the ability to use the appropriate interpretive tools with respect to the contexts where they are going to apply their own design practice and / or to continue their studies, assessing also the social and ethical aspects ● communicate at a professional level and argue the reasons for their choices and justify them from a theoretical point of view.

Assessment	***Assessment details for module 1 – Product Design:*** The final exam consist of a documentation of the project developed during the semester. The student is asked to present the project with the following documentation: . screen presentation . complete printed documentation of the project (a booklet will be handed at the faculty secretariat the day before the exam .a model . material that will be defined with the students during the course **Assessment details for module 2 – Digital**

	Modelling: Students are to make an elevator-pitch presentation of their design process, as part of the final hand-in documents and also part of the final, verbal presentation. Topics that will be discussed: ● How were the digital tools integrated in the design process? ● How did the practical (sculptural and visual) work transform your idea into a finished object? ● What knowledge did you gain from the course? ***Assessment details for module 3 – Theories and Languages of Product Design:*** Written and oral: written and oral assignments during the semester Eventual non-attending students will have to do a written test based on the below bibliography, besides the final presentation.
Assessment language	The same as the teaching language
Evaluation criteria and criteria for awarding marks	*The evaluation of the single modules does not result in three separate marks, but will add up to the overall project evaluation. There is only one final overall mark for the project, which is defined by the average of the three marks, weighted according to the credits of the individual modules. The professors evaluate the project according to the following criteria:* ***Evaluation criteria and criteria for awarding marks for module 1 – Product Design:*** Process and implementation of the project Relation and understanding of the given brief Final object or research Model Presentation **Evaluation criteria and criteria for awarding marks for module 2 – Digital Modelling:** Students will be evaluated on the ability of using the interdependency of sketching, researching, refining and ultimately realising their ideas with help from 3d-models and digital fabrication. ***Evaluation criteria and criteria for awarding marks for module 3 – Theories and Languages of Product Design:*** The final mark is an average of the marks obtained by the assignments carried out during the semester (or the

	written test for non-attending students) and the assessment of the final presentation. Relevant for the assessment are: - the coherence and consistency of the assignments results with the assignments' briefs - the ability to fulfill assignments' briefs' requirements - ability to include in the final presentation concepts, categories and models learn in the module Part of the mark is also related to the participation to discussions, debates and exercises in class.

Required readings	***Module 1 – Product Design:*** [they will be communicated at the start of the course] **Module 2 – Digital Modelling:** ● Fredrik Skåtar's video-tutorials: https://vimeo.com/showcase/5608375 ● The Forum of https://discourse.mcneel.com/ ***Module 3 – Theories and Languages of Product Design:*** - Italo Calvino, "La poubelle agréée", published in *The Road to San Giovanni*, Pantheon Books, New York, 1993, pp. 91-126 (Originally published in Italian as "La poubelle agréée" in *La strada di San Giovanni*, Mondadori, Milano, 1990, pp. 71-93; a German translation is also available) - Latour, B. 1992. "Where Are the Missing Masses? The Sociology of a Few Mundane Artifacts." In *Shaping Technology/Building Society: Studies in Sociotechnical Change*, edited by W.E. Bijker and J. Law, 225–58. Cambridge, MA: MIT Press. other required readings will be communicated during the first weeks of the course.
Supplementary readings	***Module 1 – Product Design:*** [they will be communicated at the start of the course] ***Module 2 – Digital Modelling:*** ● Grünbaum, B., Shephard, G. C. (2016) *Tilings and Patterns*, Dover Publications, USA (original work published 1987) ● Diegel, O., Nordin, A., Motte, D. (2019) *A Practical Guide to Design for Additive Manufacturing*.

Springer Verlag
- Ostwald, M.J. (2010) *Ethics and the auto-generative design process*, Building Research and Information, vol 38, no 4, pp. 390-400.
- Sennett, R. (2009) *The Craftsman*. Hoover Institution Press

Module 3 - Theories and Languages of Product Design:

[the following are the main sources, available in English, used to elaborate and outline the module]

Akrich, Madeline, and Bruno Latour. 1992. "A Summary of Convenient Vocabulary for the Semiotics of Human and Nonhuman Assemblies." In *Shaping Technology/Building Society: Studies in Sociotechnical Change*, edited by Wiebe E Bijker and John Law, 259–64. Cambridge: MIT Press.

Albers, Josef. 1975. *Interaction of Color.* Yale University Press.

Fontanille, Jacques. 2006. *Semiotics of Discourse*. Peter Lang.

Floch, Jean-Marie. 2001a. *Visual Identities*. A&C Black.

Floch, Jean-Marie. 2001b. *Semiotics, Marketing and Communication: Beneath the Signs, the Strategies*. Palgrave Macmillan.

Greimas, Algirdas Julien. ([1972] 1995) 'Toward a Topological Semiotics', *Nordic Journal of Architectural Research*, 8(4): 65–81.

Greimas, Algirdas Julien. 1989. "Figurative Semiotics and the Semiotics of the Plastic Arts." *New Literary History* 20 (3): 627–49.

Jullien, François. 1995. *The Propensity of Things: Toward a History of Efficacy in China*. Zone Books.

Latour, Bruno. 2000. "The Berlin Key or How to Do Words with Things." In *Matter, Materiality and Modern Culture*, edited by Paul Graves Brown, 10–21. London: Routledge.

Mattozzi, Alvise. 2010. "The Semiotic Analysis of Objects: A Model." In *Design Semiotics in Use*, edited by Susann Vihma, 40–69. Helsinki: Aalto University Press.

Mattozzi, Alvise. 2017. "Semiotics' Razor. Or, How to Tell Products' Signification Apart from Products' Communication." *MEI | Mediation And Information* 40.

Mattozzi, Alvise. 2019. "Cycles of Dispositions–

Unfoldings . A Retro-ANT View of Practices." *Sociologica* 13 (3): 87–105.

Mattozzi, Alvise, and Tiziana Piccioni. 2012. "A Depasteurization of Italy? Mediations of Consumption and the Enrollment of Consumers within the Raw-Milk Network." *Sociologica*, no. 3/2012.

Moholy-Nagy, László. 1947. *Vision in Motion*. Chicago: Paul Theobald.

Parolin, Laura Lucia, and Alvise Mattozzi. 2013. "Sensitive Translations: Sensitive Dimension and Knowledge within Two Craftsmen's Workplaces." *Scandinavian Journal of Management*, Body, Senses and Knowing in Organization, 29 (4): 353–66.

Sedda, Franciscu. 2017. "Relationalism: From Greimas to Hyperstructuralism." *Sign Systems Studies* 45 (1/2): 16–32.

Shove, Elizabeth. 2004. *Comfort, Cleanliness and Convenience: The Social Organization of Normality*. Oxford, England; New York: Bloomsbury Academic.

Shove, Elizabeth, and Frank Trentmann. 2018. *Infrastructures in Practice: The Dynamics of Demand in Networked Societies*. Routledge.

Verganti, Roberto. 2009. *Design Driven Innovation: Changing the Rules of Competition by Radically Innovating What Things Mean*. Boston, Mass: Harvard Business Press.