Syllabus

Course Description

Course Title	Design & Materials
Course Code	96107
Course Title Additional	-
Scientific-Disciplinary Sector	ICAR/13
Language	English
Degree Course	Master in Eco-Social Design
Other Degree Courses (Loaned)	LM-65
Lecturers	Prof. Aart van Bezooijen, Aart.vanBezooijen@unibz.it https://www.unibz.it/en/faculties/design-art/academic-staff/person/38596
Teaching Assistant	
Semester	First semester
Course Year/s	1st and 2nd
CP	6
Teaching Hours	60
Lab Hours	0
Individual Study Hours	0
Planned Office Hours	18
Contents Summary	Based on their interests and focus, students select courses in areas Observe, Analyse & Apply and of Make & Intervene, to which the course in Design & Materials belongs. The course in Design & Materials teaches students how to engage critically and creatively with the materials – production processes, materials and energy – in socially, environmentally and economically sustainable ways. Beyond this, the course also supports students in their projects, wherever these require research through design and

	experimentation with modes of production and use of materials (involving approaches and methods such as life cycle assessment, circular economy, distributed micro-production, innovative merging of traditional and emerging techniques, etc).
Course Topics	The course will support the development of practical skills and knowledge, aiming to build up a base of knowledge and understanding concerning the world of materials in general as well as taking a closer look towards specific materials and production techniques in the context of design. In parallel, the course encourages the development of a critical attitude on the eco-social impact of our material choices here and now, and how to look differently at the relationships between humans, objects, materials and systems running our planet. Understanding materials requires personal engagement with matter. Due to the transformable character of materials, we cannot rely on general understanding or indirect knowledge. "Plastics can be as clear as glass, as sharp-edged as stone, and as metallic as aluminum. Aluminum can look like quicksilver, wood can look like plastic" (Paola Antonelli, Mutant Materials in Contemporary Design, 1995). Therefore, the course focuses on the creation and adaptation of materials and material qualities exploring the mutable character and formability of matter. Just like the shape of a product, materiality can be designed. To go beyond surface and finishing, this course involves the creation of so-called do-it-yourself materials (working with ingredients and recipes) and the adaptation (changing the material properties) of existing materials in order to understand their (mutable) character. This hands-on approach of working with materials will support our sensorial skills to better understand, create and select appropriate materials for future design projects. The industrial processing of materials (involving extraction, production, distribution, consumption, disposal and/or recycling) will be reviewed in the context of bio-based cycles where composting often closes the cycle. The course includes a special focus on the lifecycle of materials based on the principles of a circular economy including the elimination of waste and pollution, circulating products and materials and the regeneration of nature.

	Every semester includes hands-on exercises with different materialities, waste(d) material streams such as bio-based materials (e.g. food waste) and industrial scraps. Along this material driven approach we are encouraging any form of collaboration, relations and synergies with other fields and courses (e.g. design research, "Material Matters" student initiative, BITZ Fablab, Material Library). The course program is adaptive and foresees possible support in developing the material aspects of the student's main projects.
Keywords	Do-it-yourself materials, recycling materials, upcycling, superuse, growing materials, material recipes, circular design, material flows, material classification, material selection, material libraries, product life cycle, material research, environmental and social impact, industrial production, biological production, growing as making, urban mining, traditional crafts, digital crafts, speculative futures
Recommended Prerequisites	-
Propaedeutic Courses	
Teaching Format	Input lectures: Focusing on diverse material topics for discussion. Topics:"Material activism / Introduction to DIY Materials" – "Recycling materials / Urban mining" – "Bio-based materials / Back to nature?" – "Social materials / Inclusive ways of making" – "Circular design / The lifecycle of materials". Guest lectures: Diverse guest speakers will give us a better insight in the business practices of materials. First, from the perspective of young creatives starting their own material-driven design studio. Second, with entrepreneurial input from a materials manufacturing company. Finally, we learn more from material experts about the role and importance of documenting and sharing materials within "Material Libraries". Material tinkering: DIY-Materials are materials created through self-production, often by techniques and processes of the designer's own invention, as a result of a process of tinkering with materials. We will make first experiences with this kind of work and investigate / tinker one or more recycled and growing materials. Including the further development of (raw) materials through processes involving shaping, colouring and surface treatments.

	Excursions: We will be visiting and/or reviewing materials-related events and exhibitions. Through on-site excursions and online presentations we will take a closer look at the role(s) of circular and bio-based materials in design. Small summaries of these excursions are part of the final documentation. Skill sharing: This course is not only about learning from the lecturers and guests. We also put high value on the dialogue between the participants and will support this process of skill sharing. The content and format of the courses will be fine-tuned according to the dialogues, collaborations and dynamics of you as a group. Learning by doing: Learning by doing: The approach of this semester project is very much on "Learning by Doing", also for its lecturers. Hands-on exercises at the university workshops and fab lab should support you in becoming more skilled and independent in materialising your ideas. Parts of the course should be seen as an experimental teaching formats and will adapt according to your needs.
Mandatory Attendance	Highly recommended.
Specific Educational Objectives and Learning Outcomes	Knowledge and understanding Students will have developed their own individual project practice and will be able to: - Develop creative solutions and processes - making complex problems tangible through design, visualization and storytelling - developing prototypes or delegating their development Applying knowledge and understanding Students will be able to: - make tangible ideas, reports and projects, such as sketches, visualizations, mock-ups, models, prototypes, interventions and prototype events Making judgements Students will be able to: - assess the sustainability of projects

	- judging independently and critically practical procedures, technical procedures, materials, construction methods and technologies and their impact on the environment, individual or group Communication skills Students will be able to: - communicate convincingly in different ways and with different audiences - present projects convincingly Learning skills Students will be able to: - working independently to learn according to different situations and in a personal way through the development of prototypes, models, mock-ups and the feedback they provide
Specific Educational Objectives and Learning Outcomes (additional info.)	-
Assessment	Project documentation: The course process and exercises should be documented along the course. The personal documentation format will be discussed at the start of the course. This documentation is the main deliverable of the course and will be developed step-by-step along the course (not only in the end). Material kit: Besides the process documentation - results will include a material kit with physical samples to be documented in the Material Library. A template and list of requirements will be provided during the course. Documenting and sharing material information will be useful at later stages in your (and others) studies. Oral exam presentation: The final exams bring together the (group) presentations of the physical Material Kit(s) and process documentation visualizing the material exercises, personal experiences and final outcomes. N.B. – ALL STUDENTS TAKING THE EXAM AS NON-ATTENDING STUDENTS MUST AGREE UPON THE CONTENT WITH THE

	LECTURER.
Evaluation Criteria	Level of the acquired knowledge concerning Design & Materials in all aspects and perspectives as discussed in the course. Originality, coherence and aesthetic qualities of the material kit, in relation to the context and the aims of the course; in particular, related to the use of materials and aspects of the production process. Effectiveness in communicating the project. Attitude, participation and active contribution to the course.
Required Readings	Radical matter : rethinking materials for a sustainable future, Kate Franklin, Caroline Till, 2019 Materiology : the creative's guide to materials and technologies, MatériO, 2013 Material Alchemy, Studio Aikieu, 2014¿ Material Designers: Boosting talent towards circular economies: Valentina Rognoli, Seetal Solanki, Pere Ilorach, 202
Supplementary Readings	-
Further Information	-
Sustainable Development Goals (SDGs)	Responsible consumption and production, Industry, innovation and infrastructure