

MA-Eco-Social Design

# Design & Materials Course

WS 2019-2020

**SYLLABUS**

course description

The course belongs to the class “caratterizzante” (alternativa) in the MA in Eco-Social Design (LM-12). This course is a compulsory optional subject in the area “**Make & Intervene**” and “Skills & Technologies”

Course title	<b>Design &amp; Materials</b> <b>Area: Make &amp; Intervene</b> and Skills & Technologies
Course code	<b>96107</b> and 96007
Scientific sector	<b>ICAR/13 – Disegno industriale</b>
Degree	<b>Master in Eco-Social Design (LM-12)</b>
Semester	<b>I</b>
Year	<b>1<sup>st</sup> and 2<sup>nd</sup></b>
Credits	<b>6</b>
Modular	<b>No</b>
Lecturer	Prof. Nitzan Cohen, office F5.07, <a href="mailto:nitzan.cohen@unibz.it">nitzan.cohen@unibz.it</a> , tel. +39 0471 015xxx, Webpage: <a href="https://www.unibz.it/en/faculties/design-art/academic-staff/person/35262-nitzan-cohen">https://www.unibz.it/en/faculties/design-art/academic-staff/person/35262-nitzan-cohen</a>
Scientific sector of the lecturer	<b>ICAR/13</b>
Teaching language	<b>English</b>
Office hours	<b>18</b>
Teaching language	<b>English</b>
Total lecturing hours	<b>60</b>
Total hours of self-study and/or other individual educational activities	<b>about 90</b>
Attendance	<b>highly recommended</b>

Prerequisites	-
Course page	

### Course description

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, production techniques and logic. In parallel, the course would encourage the development a critical attitude towards making, producing, using and consuming.

The course covers the basics concerning Environmental footprints and Carbon impact understanding and analysis. In addition, the course provides a solid base of knowledge concerning the most common materials and material groups, as well as related technologies and processes. The knowledge and experience gained, would as well aid in future decision making in terms of materials, modelling and processes for specific use and context. It focuses as well on DIY Materials and Material Tinkering as well as thinking and designing 'through' and 'with' materials and technologies – (existing and developing).

Encouraging any form of collaboration, relations and synergies with other fields and courses as well as the yearly theme (Agenda 1.5°) the course program is adaptive and foresees a possible support in developing the material side of the student's main project.

give practical knowledge to help the students in the development of their semester project, according to its topic "make transformation tangible".

### Course Structure:

- **Frontal Lectures:** Focusing on diverse **topics** and specific **materials**.

□ **Topics:** Material introduction, Material-Technology and Function... why is it like that??. Ecological Footprint... Carbon emissions and daily life, Craft vs Mass production, Product Life cycle,

□ **Materials:** Paper, Wood, Metal, Plastic, Glass and Earthware, Soft materials, Growing Materials.

- **Guest Impulse lectures:** Material driven design > Projects overview: Material-based Design projects done very recently by young Designers – our Faculty graduates and Students.

Hopefully this talk series would as well include professionals coming from the outside, but it is still open (budget question)

- **Material modelling Workshops:** Model making workshops using specific materials (as well as digital technologies) and their characteristics as a means and not an aim, dealing with diverse aspects: the concept and state of mind of model making itself, The characteristics of the material, possibilities and constraints, and further-on touching some modelling principles: variation making, proportions, three dimensional orientation and manipulation, transformation from 2d to 3d, tolerance and accuracies, learning to work and 'feel' different materials, scales and many more. This part includes about 2-3 assignments which are partly linked to each other.

- **DIY Material tinkering Workshops:** 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 here make first experiences with this kind of work and investigate / tinker one or more growing materials.
- **Final project:** Using a specific material or technology as a starting point, the final project concluding the course would be developed. This could be a development of new DIY material, using Tinkering techniques (recommended) or choosing any existing material or technology as a starting point to develop a project which would follow the principles taught in the course.

### **Educational objectives**

#### **Students will be able to:**

- collaborate with experts and other designers to develop and implement an integrated project;
- prototype.
- take into account the environmental, social, sustainable and economic impacts occurring within the tension between global and local dimensions.
- develop a personal way of thinking, leading to critical judgements and self-assessments.
- balance inspiration and systematic planning.
- balance more intuitive ways of working with more analytical ones.
- communicate in a convincing way, through a variety of modalities (three-dimensional, written, oral, visual).
- talk with experts about the project.
- read experts' articles, studies and reports related to one's own project issues and integrate those analyses with one's own project design.
- take into account the sustainability requirements of the objects; integrate the sustainability requirements in the project and in one's own design.
- use relevant software and hardware tools and systems productively.
- design and make an object.

#### **Knowledge will be acquired in the following fields:**

- systems, techniques, processes and materials of production, with particular attention to the impacts on the environment and on the society due by the production, distribution and the complete life cycle of an object.
- Experiment with materials and techniques, both traditional and digital, in order to gain a thorough understanding of the process and the object (learning by doing).
- Document the complete process in a professional and continuous way.

#### **List of topics covered**

Products life cycle, material use, material research, environmental and social impacts, traditional crafts, digital crafts, future designer, growing materials, DIY Materials, system design, networked production, distributed manufacturing, peer2peer production.

#### **Teaching format**

Frontal lectures, workshop sessions, mentoring sessions, practical hands-on exercises, group presentations and reviews.

#### **Learning outcomes**

### Knowledge and understanding

Students will acquire knowledge of materials and technologies in relation to Design process, projects and products. They would gain personal experience and understanding as to the complexity and possibilities DIY and growing materials hold and will see them into a more system-based context. Overall the students would build a solid foundation towards the world of materials and their relation to production technologies and final context, strongly relating to the social and environmental aspects.

### Applying knowledge and understanding

Students will be able to apply acquired knowledge in the current and future development of their own projects.

### Making judgments

Students will acquire the ability to critically reflect on the appropriation of materials and techniques to meet the goals of future projects. Keeping a hands-on approach, they will be as well asked to review other projects.

### Communication skills

Students will be able to communicate their designs bringing on point arguments. They will be asked to use specific terminology. They'll be tested in order to understand whether to stand for their projects or renegotiate them.

### Learning skills

Students will learn how to approach questions related to materials and production processes. They will know how to be in charge of their own design decisions, mostly production related ones.

## **Assessment**

Oral:

- Physical presentation of the students' complete design process, all artefact produced in the different phases and parts and especially the final project.
- Holding a knowledgeable and critical discourse concerning on both the final developed project and more generally towards the world of materials in Design and the related product logic and sustainability aspects as discussed in the course.
- The presentation takes place as a separately from the semester project.
- Students have to deliver a complete documentation of the semester work. The format of the documentation will be defined and communicated semesters' end.at the latest.

Additionally, the shared documentation has to be submitted. It communicates the project together with design research, enriched by outcomes from all courses students choose to do during the semester. The format of the documentation will be defined and communicated two weeks before the end of the semester at latest

## **Non-attending student assessment**

Non-attending students have the same assessment criteria as Attending students.

- All assignments and projects need to be done, and the required knowledge has to be acquired.
- The exam of non-attending students may take longer (max. 20 minutes) in order to test specific knowledge in relation to manufacturing and material aspects of the presented project, and beyond.

**Assessment language:** English

**Evaluation criteria and criteria for awarding mark**

- Level of the acquired knowledge concerning material & Design in all aspects and perspectives as discussed in the course.
- Originality, coherence and aesthetic qualities of the design project, in relation to the context and the aims of the project; 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**

[Design and technology : product design](#) , Will Potts [and three others] 2017

[Prototyping and low-volume production](#) , Rob Thompson 2011

[In the bubble : designing in a complex world](#) , John Thackara, 2005

[How bad are bananas? : the carbon footprint of everything](#) , Mike Berners-Lee 2010

Vezzoli 1998

**Supplementary readings**

[Material matters : new materials in design](#) , Philip Howes and Zoe Laughlin 2012

[Lo sviluppo di prodotti sostenibili : i requisiti ambientali dei prodotti industriali](#) , Ezio Manzini, Carlo

+ Further readings will be given during the course.