



Aalto University  
School of Arts, Design  
and Architecture

# Sustainable design S1 – course introduction

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*Monday 22.4.2024*

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# Teachers on the course



Aalto University  
School of Arts, Design  
and Architecture



## Tatu Marttila (D.A.)

Senior lecturer in Design for Sustainability

### Main teaching responsibilities:

- English BA Design
- Creative Sustainability Master's Programme

**Research focus:** Transition research, strategic codesign, service design, ecodesign

**Other interests:** Education for SD, Circular economy, Urban CO2 monitoring





## Mikko Jalas (PhD)

Associate professor, Co-Innovating for Circular Solutions

### Teaching:

- Creative Sustainability
- BA Sustainable Design
- Aalto BIZ

### Research:

- Time use, renewable energy, energy efficiency, DIY

### Emerging interests:

- Energy justice
- Eco-welfare state



TOWARDS ECO-WELFARE STATE



Aalto-yliopisto  
Taiteiden ja suunnittelun  
korkeakoulu

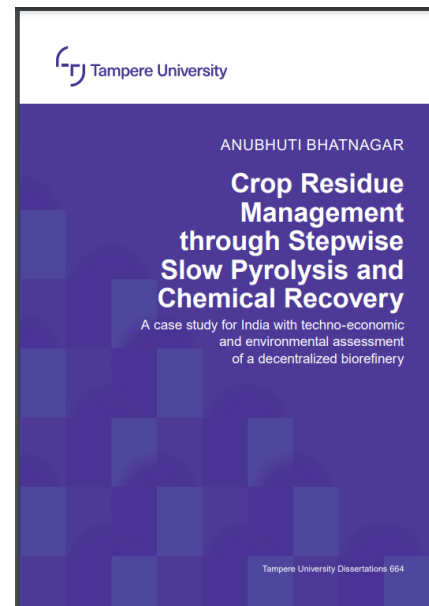


## **Anubhuti Bhatnagar (D.Sc., Tech)**

Teaching assistant for Design for Sustainability

**Research focus:** Social life cycle assessment of textile waste

**Other interests:** Circular economy, Environmental assessment, Biomass conversion process



# Course schedule & practicalities



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# Sustainable Design course 2024

## Welcome to the Sustainable Design course!

This BA-level course introduces major sustainability concerns and connects them to contemporary production processes and consumption patterns.

- **Course code: ARTX-C1008 / Teaching period: V / Credits: 6 ECTS**
- **Teaching days on Mondays (13:15–16:00) and Fridays (9:15–12:00)**
- **Teaching locations in Otaniemi vary from session to another – please, see course schedule for details, however, main location in A-Grid Jeti**
- **Contact teacher for the whole course: Tatu Marttila ([tatu.marttila@aalto.fi](mailto:tatu.marttila@aalto.fi))**



# Course assignments and grading

- **Independent assignments (30% of grade evaluation):**
  - Personal carbon footprint calculation (for session 2) (P/F)
  - Labels and product standards for sustainability (for session 3) (P/F)
  - Communicating sustainability (for session 4) (grade 1–5)
  - Assessment and redesign exercise (for session 8) (grade 1–5)
- **Project work in groups (30%)**
  - Group work with conceptual design case (sessions 9-12) (grade 1–5)
- **Learning diary (40%):**
  - Writing personal learning diary (throughout the course) (grade 1–5)
  - Please note that the language can be either English, Finnish or Swedish!
- **Detailed descriptions and evaluation matrix available at MyCourses!**

# Course schedule & tasks

## Sustainable design course – sessions and locations:

- Mon 22.4. (Jeti - A208d, A Grid) – Intro to course & sustainability
- Fri 26.4. (Jeti - A208d, A Grid) – Multi-level design model: Positioning design strategies
- Mon 29.4. (Jeti - A208d, A Grid) – Tools to guide product design and certify performance
- Fri 3.5. (Jeti - A208d, A Grid) – Communicate sustainability with design
- Mon 6.5. (Maari C-D [Win] 184-186, Maarintalo) – Sustainability research: Edupack & materials
- Fri 10.5. (Jeti - A208d, A Grid) – Assess sustainability
- Mon 13.5. (Jeti - A208d, A Grid) – Redesign & communication of improvement
- Fri 17.5. (U119 / M240 / M237, Otakaari 1) – Assessment & redesign presentations
- Mon 20.5. (Jeti - A208d, A Grid) – Case work kick-off
- Fri 24.5. (Jeti - A208d, A Grid) – Case work continues
- Mon 27.5. (U119 / M240 / M237, Otakaari 1) – Interim check & tutoring sessions for groups
- Fri 31.5. (only in Zoom) – Final deliverables check-up & tutoring session
- Mon 3.6. (U119 / M240 / M134, Otakaari 1) – Final presentations
- Fri 7.5. (no class) – Finalize diary & course feedback, independent work

# Week 1 (Mon 22.4. – Fri 26.4.):

Week	Date	Place	Session no.	Session topic	Session activity plan	Tasks & materials	Teacher in charge	Contact hrs	Readings	Exercises	Groupwork	Reflection	Student workload
Week 1						Reading: Allwood, J., & Cullen, J. (2010). Sustainable Materials - with Both Eyes Open (Chapters 1 and 2)			2				2
	Mon 22.4. (13.15-16.00)	Jeti - A208d, A Grid	1	<b>Introduction to Sustainable Design: Key concepts and concerns of sustainability. IPAT. Consumption hotspots.</b>	* The syllabus and introductions of the teachers * Mikko Jalas on sustainability models, priority material streams, systems view on materials use * Four coumers exercise: Where do you see change coming from?	Session materials: - Slides, readings; Introduce also course Presemo!	Mikko (Tatu, Anu)	3					3
						Reflection 1: Where do you see change coming from – regulation, business & design, consumers & values, science & technology						3	3
						Reading: Ceschin, F., & Gaziulusoy, I. (2016). Evolution of design for sustainability.			6				6
						Exercise: Calculate your own carbon footprint with SITRA's lifestyle calculator				1			1
	Fri 26.4. (9.15-12.00)	Jeti - A208d, A Grid	2	<b>Multi-level design model: Positioning design in the field of sustainability. Strategies on different levels.</b>	* Lecture and discussion on the evolution of design for sustainability * Pick a corner/approach you are most interested in. Discuss your choice and your interest with peers groups of 3-4. Insert one slide to a googleslide-file.	Session materials: - Slides, reading - Google sheets about each DfS angle/level for groups to edit. - Signs for the classroom about the angles/levels.	Mikko	3					3
						Reflection 2: What level is most important? How are levels connected?						3	3
<b>Total student workload per week</b>													<b>21</b>

## LEGEND

Contact

Reading

Exercise

Groupwork

Reflection



## Week 2 (Mon 29.4. – Fri 3.5.):

Week	Date	Place	Session no.	Session topic	Session activity plan	Tasks & materials	Teacher in charge	Contact hrs	Readings	Exercises	Groupwork	Reflection	Student workload
Week 2						Exercise: Find labels and product standards for sustainability. Submit at MyCourses three different labels/ different type.				3			3
	Mon 29.4.	Jeti - A208d, A Grid	3	<b>Tools to guide product design and certify performance.</b>	* Lecture on labelling and certification schemes * Students insert their labels on a Miro board * View and discuss the inserted labels	Session materials: - Slides - Miro board in which labels can be placed Susan Vihma's text / video material	Mikko	3					3
									4				4
						Exercise: Select a product/service that communicates sustainability effectively or interestingly. Submit an image and preliminary ideas on how and what the products communicate. Use Susan Vihma's categories of semiotic meanings.				4			4
	Fri 3.5.	Jeti - A208d, A Grid	4	<b>Communicate sustainability with design</b>	* Lecture. Questions and comments on design semiotics (based on the video and some who have read Vihma's text) * Discuss the products students have identified	Session materials: - Slides, reading/video - Miro board on design semiotics	Mikko	3					3
						Reflection 3: Think about your own product choice and those of the fellows students. What/how and how they communicate about sustainability? What is greenwashing in visual language?						4	4
<b>Total student workload per week</b>													<b>21</b>

### LEGEND

Contact

Reading

Exercise

Groupwork

Reflection



# Week 3 (Mon 6.5. – Fri 10.5.):

Week	Date	Place	Session no.	Session topic	Session activity plan	Tasks & materials	Teacher in charge	Contact hrs	Readings	Exercises	Groupwork	Reflection	Student workload
Week 3						Readings: Ashby et al (2013). Materials and Sustainable Development — a White Paper			5				5
	Mon 6.5.	R017/ 184-186 Maari C-D (Win)	5	<b>Sustainability research &amp; Granta Edupack &amp; Materials</b>	* Lecture on assessing sustainability * Introduction on Granta Edupack database * Introduce "Assessment & redesign" -exercise for weeks 3-4	Session materials: - Slides, reading - Granta fact-finding sheet (PDF) - Online resources, material libraries	Tatu	3					3
						Exercise: Research your redesign topic, perform META matrix exercise				5			5
					(Thu 9.5. Ascension Day)	Get to know the edupack database			3				3
	Fri 10.5.	Jeti - A208d, A Grid	6	<b>Product redesign (Tatu)</b>	* Lecture on ecodesign strategies for product life cycle extension and sustainability * Continue "Assessment & redesign" -exercise * Introduce & discuss topic selection	Session materials: - Slides - Ecodesign Strategy Wheel (PDF), META sheet (PDF) - Topics for exercise (list)	Tatu	3					3
						Reflection 4: How comprehensive is the view Granta Edupack gives on sustainability challenges.						3	3
<b>Total student workload per week</b>													<b>22</b>

## LEGEND

Contact

Reading

Exercise

Groupwork

Reflection



# Week 4 (Mon 13.5. – Fri 17.5.):

Week	Date	Place	Session no.	Session topic	Session activity plan	Tasks & materials	Teacher in charge	Contact hrs	Readings	Exercises	Groupwork	Reflection	Student workload
Week 4						Reading: Allwood & Cullen (Chapters 16 & 17)			5				5
	Mon 13.5.	Jeti - A208d, A Grid	7	<b>Circular economy: Strategies for life cycle extension, 4R and other strategies, end-of-life management</b>	* Lecture on circular economy and systemic sustainability * Continue with redesign examples	Session materials: - Slides - Redesign examples	Tatu	3					3
						Exercise: Continue with your redesign exercise				7			7
						Exercise: Prepare poster presentation (before/after), upload to MyCourses by Thursday midnight!				4			4
	Fri 17.5.	Otaakaari 1: U119 / M240 / M237	8	<b>Presentation of Redesign – improvement ideas and strategies</b>	* Class divided into three (when we give the redesign exercise); Each track will have 30 students * 3 min presentation, 2 min discussion . No hybrid. Those missing the class will upload a vide presentation (3min).	Session materials: - Poster presentations uploaded to MyCourses - Students present their posters accompanied with a 3 min ptch talk	Tatu Mikko Anu	3					3
						Reflection 5: What kind of feedback did you get on your redesign presentation? Did the audience understand your idea?						3	3
<b>Total student workload per week</b>													<b>25</b>

## LEGEND

Contact

Reading

Exercise

Groupwork

Reflection



# Weeks 5–6 (20.5. – 31.5.):

Week	Date	Place	Session no.	Session topic	Session activity plan	Tasks & materials	Teacher in charge	Contact hrs	Readings	Exercises	Groupwork	Reflection	Student workload
Week 5						Readings: These readings are to support the groupwork. Students select one of the following Allwood book chapters 20, 21 or article on biomaterials (TBA).			5				5
	Mon 20.5.	Jeti - A208d, A Grid	9	<b>Material futures 1 /Group work kick-off</b>	* Introduce thematic case work in groups *Present focus themes * Assign topics and groups for groupwork (20 x groups of 4 students?)	Session materials: - Allwood book as a basis - Industries self-initiatives (e.g. carbon neutral steel), industrial symbiosis - Introductions to focus themes: Concrete, Plastic and Bio-based novel materials 3x20 min	Tatu Anu	3					3
						Groupwork: Study selected material/project & produce a concept with this material					5		5
						Groupwork: Produce a design concept idea with selected material					5		5
						Reading: Allwood book, chapter 23			3				3
	Fri 24.5.	Jeti - A208d, A Grid	10	<b>Material futures 2</b>	* Lecture on material driven design for sustainability (Pirjo K.) * Lecture and discussion on policy and market drivers	Session materials: - Reading and slides on chapters 23-25	Tatu Anu Pirjo	3					3
						<b>Total student workload per week</b>							24
Week 6						Groupwork: Prepare short interim presentation					3		3
	Mon 27.5.	Otaakaari 1: U119 / M240 / M237	11	<b>Design with materials</b>	* Scheduled tutoring sessions with Tatu, Mikko, Anu (detailes schedule to be announced)	Session materials: - Groups prepare a presentation (ie. few slide PPT) of the material and your concept, uploaded to MyCourses	Tatu Mikko Anu	3					3
						Groupwork: Incorporate feedback					6		6
						Groupwork: Finalize concept idea					6		6
	Fri 31.5.	(online)	12	<b>Tutoring online</b>	* Online: Final status check, instructions for course finalization for all		Tatu	2					2
						Groupwork: Prepare poster and presentation					4		4
						<b>Total student workload per week</b>							24

## LEGEND

Contact

Reading

Exercise

Groupwork

Reflection



# Week 7 (Mon 3.6. + finalisation):

Week	Date	Place	Session no.	Session topic	Session activity plan	Tasks & materials	Teacher in charge	Contact hrs	Readings	Exercises	Groupwork	Reflection	Student workload
Week 7													
	Mon 3.6.	Otaakaari 1: U119 / M240 / M134	13	Design with materials	* Three groups for presenting: 13.15-13.25 Introduction 13.25-14.25 Presentations (3x20min) 14.40-15.40 Presentations (3x 20min) 15.40-16.00 Course feedback discussion	Session materials: - Groups prepare a presentations, uploaded to MyCourses	Tatu Mikko Anu	3					3
				Course feedback	During week 7, DL 7.6.2	Fill in the feedback form (Compulsory)				1			1
	Fri 7.6.					Reflection 6: How did your group work turn out? Why? How would you improve the concept? Consider also other groups' outcomes, what was most interesting in them?						4	4
						Finalize your learning diary: Structure your diary according to reflection questions 1–6. Try to also cover how your thinking has changed during the course when editing and finalising your reflections.						7	7
						Time to think						10	10
						<b>Total student workload per week</b>							<b>25</b>
												<b>TOTAL</b>	
								38	33	25	29	37	162

## LEGEND

Contact

Reading

Exercise

Groupwork

Reflection



# Recommended practices / housekeeping

- **Be active in the class.** If you feel comfortable, introduce yourself when you ask a question or make a comment...
- **Bring a laptop to the class – we use online whiteboards!**
- **If you did not get the chance to ask a question or want to make an anonymous comment, you can use the course Presemo board at <https://presemo.aalto.fi/sud2024>**
- **All the materials can be found in MyCourses**, and the main communication channel is MyCourse's 'Announcements' page
- Assignment boxes have deadlines: Please observe them!
- The reflections/learning diary is something that benefits your learning: Start writing it from the very beginning...

# Thanks!



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