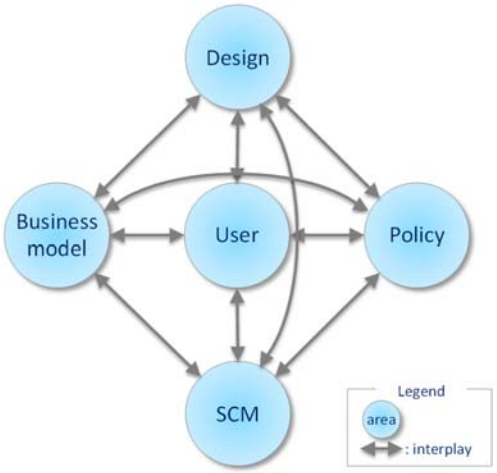
Updated: 2018-03-14



Syllabus for

P51 – Transdisciplinary Approach to Circular Economy Research

Credits	1.5 credits
Examiner	Tomohiko Sakao, Linköping University
Contact	Tomohiko Sakao, Linköping University tomohiko.sakao@liu.se +46 (0) 13 28 22 87
Target group	A PhD student working on Circular Economy and wishing to explore and learn transdisciplinary aspects of Circular Economy research.
Prerequisites	Knowledge on Circular Economy is required. Experience of research related to Circular Economy at least in one area as a PhD student for a period of more than one year is required. Scientific papers published and submitted (e.g. a journal or conference paper) by a course applicant will be evaluated for

course admission. There will also be a limitation for the number of registrants.

Aim

The course aims at facilitating the participant to **learn the interplays between different areas relevant to Circular Economy**. The areas are: business model, governmental policy, product/service design, user behaviour, and supply chain management (see the Figure above). The course also aims at supporting the participant to carry out or reflect upon his/her research with a **transdisciplinary approach**.

Teachers/ tutors

Ken Webster, Ellen MacArthur Foundation
Christian Kowalkowski, Linköping University
Erik Sundin, Linköping University
Tomohiko Sakao, Linköping University

Arnold Tukker, Leiden University (tbc)
Andreas Schroeder, Aston Business School (tbc)
Benny Tjahjono, Cranfield University (tbc)
Casper Boks, Norwegian Univ. of Science and Technology(tbc)
Daniel Brissaud, Grenoble Institute of Technology (tbc)
Ruud Balkenende, Delft University of Technology (tbc)
tbc: to be confirmed

Learning outcomes

Upon successful completion of the course, the participants should be able to demonstrate advanced knowledge of various disciplines of Circular Economy through ability:

- to refer to existing knowledge in different disciplines,
- to relate the existing knowledge above to a context of the PhD candidate's research (i.e. with a transdisciplinary approach), and
- to reflect on the applicability of the knowledge learnt for her or his research.

Contents and organisation

This intensive course gives opportunities to discuss and reflect upon different disciplines relevant to Circular Economy research with peer PhD students working in different countries. It also gives opportunities to discuss with leading researchers and experts in Circular Economy (as shown in teachers/tutors).

This course is in an advanced level and English is the used language. It will consist mainly of group works (in about 2-3 members). All in all, this course will be unique in its focus and interactions with peer PhD students and internationally leading researchers.

Around 20 participants are expected. A group consists of 2-3 PhD students working on the same area (group formulation will be carried out by the organizer according to the applicant's research experience). Therefore, roughly 6-10 groups will be expected. Each group may hold same members throughout the course, or the group formulation may be changed in case a sufficiently high number of PhD students (e.g. 25) participate.

Below you can find the schedule of activities that the course includes. The group work activities are further described after the table.

Day	Time	ID	Activity
Friday 25th May – Introduction to the Course and First Group Work Session			
May 25	9:00 – 11:30	1	Introductory and inspiring lectures: · *What is transdisciplinary on environmental sustainability research?* Sergio Brambilla and Tomohiko Sakao, Linköping University · *Remanufacturing business cases from interdisciplinary perspective*. Erik Sundin, Linköping University · *Value from marketing perspective.* Christian Kowalkowski, Linköping University
	11:30 – 12:30	2	Organized lunch
	12:30 – 13:00	3	Activity to form good teams!
	13:00 – 15:30	4	**Group work 1: To derive the needs to other disciplines "bubbles" for efficient transition to a Circular Economy**
	15:30 – 17:00	5	Group presentation to getting feedback from peers
	18:00 – 19:30	6	Organized dinner
	19:30 – open	7	Activity to form even better teams!
Saturday 26th May – Second Group Work Session			
May 26	8:30 – 11:00	8	**Group work 2: to find how to address the needs given from the other areas**
	11:00 – 12:00	9	Group presentation (getting feedback from peers)
	12:00 – 13:00	10	Organized lunch
	13:00 – 14:30	11	Group work Review (revising presentation based on feedback for the upcoming final presentation of Monday)
May 27			OFF
Monday 28th May – Final Group Work Session			
May 28	10:00 – 11:30	12	Discussions among PhD participants on career concerns and experience
	11:30 – 12:20	13	Organized lunch
	12:20 – 12:40	14	Closing of the course by Per-Olof Brehmer, Head of Department of Management and Engineering
	12:40 – 14:00	15	**Group work 3: final presentation of results to teachers and tutors** This will be the time to present the results to senior experts from Circ€uit and from the EMF –Ken Webster. It will be followed by a discussion among participants and supervisors on the results

Group work 1: Each group aims to derive needs on the other four areas in order for more efficient transition to a Circular Economy to be realized. E.g., a group on business model will derive needs on governmental policy (e.g. repeal a specific regulation hindering a "circular" business model),

product/service design (e.g. design more durable products enabling a long-term service level agreement model), user behaviour (e.g. stopping vandalism on a shared product facilitating product sharing), and supply chain management.

Group work 2: Each group aims to find how to address the needs given from the other four areas in order for more efficient transition to a Circular Economy to be realized. E.g., a group on business model will find how to address the needs given from governmental policy, product/service design, user behaviour, and supply chain management.

Group work 3: Each group will present the results to experts in different disciplines. Who will be the experts giving feedbacks needs to be confirmed.

Homework for each participant before the course start

• Record a two-minute pitch on the current state of his/her own research. This should be an update useful for all the participants to know each other's work. Submit the video clip no later than the 11th of May in a specific manner to be informed.
• Watch the video clips submitted as above.
• Create a list of needs of your category area to the other four areas. To be used in **Group work 1**.

Literature

To be used in the lectures (in **Activity 1**):

Sakao, T. and Brambila-Macias, S. A. (2018). "Do we share an understanding of transdisciplinarity in environmental sustainability research?" Journal of Cleaner Production 170: 1399-1403. https://doi.org/10.1016/j.jclepro.2017.09.226

Helkkula, A., Kowalkowski, C., and Tronvoll, B. (2018), "Archetypes of service innovation: Implications for value cocreation," Journal of Service Research. https://doi.org/10.1177/1094670517746776

On design

Sundin, E., & Bras, B. (2005). Making functional sales environmentally and economically beneficial through product remanufacturing. Journal of Cleaner Production, 13(9), 913-925. https://doi.org/10.1016/j.jclepro.2004.04.006

On business models

Kindstrom, D., & Kowalkowski, C. (2014). Service innovation in product-centric firms: a multidimensional business model perspective. Journal of Business & Industrial Marketing, 29(2), 96-111. https://doi.org/10.1108/Jbim-08-2013-0165

On user acceptance

Pettersen, I. N., Boks, C., & Tukker, A. (2013). Framing the role of design in transformation of consumption practices: beyond the designer-product-user triad. International Journal of Technology Management, 63(1-2), 70-103. https://doi.org/10.1504/Ijtm.2013.055580

On supply chain

Genovese, A., Acquaye, A. A., Figueroa, A., & Koh, S. C. L. (2017). Sustainable supply chain management and the transition towards a circular

economy: Evidence and some applications. Omega-International Journal of Management Science, 66, 344-357.
https://doi.org/10.1016/j.omega.2015.05.015

For further references

1. Ceschin, F., & Gaziulusoy, I. (2016) Evolution of design for sustainability: From product design to design for system innovations and transitions. Design Studies, 47, 118-163. https://doi.org/10.1016/j.destud.2016.09.002
2. Prendeville, S., & Bocken, N. (2017). Design for remanufacturing and circular business models. In Sustainability Through Innovation in Product Life Cycle Design (pp. 269-283): Springer. https://doi.org/10.1007/978-981-10-0471-1_18
3. Smith, D. J. (2013). Power-by-the-hour: the role of technology in reshaping business strategy at Rolls-Royce. Technology Analysis & Strategic Management, 25(8), 987-1007. https://doi.org/10.1080/09537325.2013.823147
4. Mylan, J. (2015). Understanding the diffusion of Sustainable Product-Service Systems: Insights from the sociology of consumption and practice theory. Journal of Cleaner Production, 97, 13-20. https://doi.org/10.1016/j.jclepro.2014.01.065
5. Lieder, M., & Rashid, A. (2016). Towards circular economy implementation: a comprehensive review in context of manufacturing industry. Journal of Cleaner Production, 115, 36-51. https://doi.org/10.1016/j.jclepro.2015.12.042

Venue for May 25,26,28

A-house of Campus Valla, Linköping University
https://goo.gl/maps/9hCLCSWWMZ32

Participants carry out preparation and follow-up work, if any, in their home places.

Examination

Grading is pass or fail.

Active participation for all the parts of this course and contribution to the group work is necessary.

A follow-up report is required in addition, describing that the course goal is fulfilled on the participant's own research context. This report should be between 500 and 1,000 words. Typically, this should be able to be used for a part of a scientific paper by the Ph.D. student in the future. This must be submitted by June 30, 2018.

Registration fee

A participant should bear 1,200 SEK (excluding VAT) as a registration fee for this course, unless he or she is already admitted to EU CircEuit. This covers needed basic costs during the three days (class rooms, lunches, dinner, coffee/tea, sweets.).

How to apply

An applicant is requested to email relevant materials to the course examiner to show that his/her knowledge and experience against the prerequisites stated above. The result of evaluation will be emailed to the applicant within one week after all the needed materials are received. Deadline for sending the needed materials is April 19, 2018. Please also note that the number of seats is limited and therefore application may be closed as soon as the maximum number of applicants are approved. Thereafter, in addition, registration

needs to be completed on the following site: http://www.trippus.net/graduateschool_delegate (same site as the link found at http://www.cirpips2.org/index.php/related-events). Deadline for registration **and payment** (via invoice, etc.) is May 7, 2018.

Related event

On May 29-31, an international conference on PSS is held in Linköping and this PhD course is coordinated with it: http://www.cirpips2.org/index.php/related-events Many participants of this course will remain in this conference. Synergy from e.g. extended discussion opportunity is expected with this conference.

Especially, Day 1 of the conference (May 29) includes a key note speech by Ken Webster (Ellen MacArthur Foundation) and a panel discussion with PSS providers from industry in the morning and parallel industry-oriented workshops in the afternoon. Registration fee for this conference is required separately (Registration of only Day 1 is an option).

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