

Course – Concept:

Life Cycle Assessment (LCA) – An introduction

Politechnika Łódzka, Wydział Inżynierii Procesowej i Ochrony Środowiska

www.wipos.p.lodz.pl

Lecturers:

- Dipl.-Ing. (FH) Markus Will, MSc. Sarah Barth, University of Applied Sciences Zittau/Görlitz

Contents:

Life Cycle Assessments are used to identify and evaluate potential environmental effects of a product system. The analysis and evaluation takes into account the entire life cycle of a product, from resource extraction and processing, through production, use and disposal, including all transport processes. The methodological procedure is internationally standardised by ISO 14040 and ISO 14044.

Teaching Mode:

- Online Course via ZOOM platform

Learning Outcomes:

After successful participation in this module students are able to:

- define the terms life cycle inventory (LCI) and life cycle assessment (LCA)
- deal with the requirements of relevant norms and standards (especially ISO 14001, ISO 14025, Product Category Rules) and apply them in their own models
- differentiate different types of impact assessment and assess their methodological suitability.
- to critically examine LCA studies and assess their methodological quality.

Assessment:

- Major examination, written report as **Learning Diary**, instructions and feedbacks will be provided

Literature and Materials

- Lecture Slides and recordings will be provided to the students
- Klöppfer, W. und Grahl, B. (2009): Life Cycle Assessment (LCA). Ein Leitfaden für Ausbildung und Beruf. WILEY-VCH Verlag, Weinheim.
- Curran M.A. (2015): Life Cycle Assessment Student Handbook. Wiley-Scrivener.
- Hausschild et al. (2018): Life Cycle Assessment - Theory and Practice. Springer
- Hauschild, Huijbregts, Guinée, et al. (2015) Life cycle impact assessment. Springer
- Finkbeiner, M (ed.) (2011): Towards Life Cycle Sustainability Management. Springer Verlag.

Grupa 1:

A	23.05 14:00 – 15:30, 16:00 – 17:30 (4 units), online Markus Will
1	<ul style="list-style-type: none"> • Introduction to the course, goals and content
2	<ul style="list-style-type: none"> • Exercise “Which product is the greenest”
3	<ul style="list-style-type: none"> • Debriefing Exercise
4	<ul style="list-style-type: none"> • Overview on LCA-Methodology
A	30.05, 14:00 – 15:30, 16:00 – 17:30 (4 units), online Sarah Barth
1	<ul style="list-style-type: none"> • Structure, Goal and Scope of LCAs
	Scope of investigation
2	<ul style="list-style-type: none"> • Functional Unit, system Boundaries, Accounting procedure, Cut-Off Criteria
3	<ul style="list-style-type: none"> • Allocation Procedures
4	<ul style="list-style-type: none"> • Data collection and data quality
	<ul style="list-style-type: none"> • Life Cycle Inventory
A	06.06., 16:30 – 18:00 (2 units), online Markus Will
1	<ul style="list-style-type: none"> • Exercise: The Diapers Controversy
2	<ul style="list-style-type: none"> • Debriefing Exercise
	<ul style="list-style-type: none"> • Homework: Exercise Mass Balancing
A	13.06., 16:00 – 18:15 (3 units), online Sarah Barth
1	<ul style="list-style-type: none"> • Life Cycle Impact Assessment – Approaches and Methods
2	<ul style="list-style-type: none"> • Critical Review and Interpretation in LCA
	<ul style="list-style-type: none"> • Calculation of the environmental impact of a meal
A	27.06., 16:30 – 18:00 (2 units), online Markus Will
1	<ul style="list-style-type: none"> • Exercise: Critical Review
2	<ul style="list-style-type: none"> • Wrap up of Lectures

Group 2: (Monday)

A	22.05 14:00 – 15:30, 16:00 – 17:30 (4 units), online Markus Will
1	<ul style="list-style-type: none"> • Introduction to the course, goals and content
2	<ul style="list-style-type: none"> • Exercise “Which product is the greenest”
3	<ul style="list-style-type: none"> • Debriefing Exercise
4	<ul style="list-style-type: none"> • Overview on LCA-Methodology
A	05.06, 08:00 – 9:30, 10:00 – 11:30 (4 units), online Sarah Barth
1	<ul style="list-style-type: none"> • Structure, Goal and Scope of LCAs
	Scope of investigation

2	<ul style="list-style-type: none"> • Functional Unit, system Boundaries, Accounting procedure, Cut-Off Criteria
3	<ul style="list-style-type: none"> • Allocation Procedures
4	<ul style="list-style-type: none"> • Data collection and data quality
	<ul style="list-style-type: none"> • Life Cycle Inventory
A	05.06., 16:30 – 18:00 (2 units), online Markus Will
1	<ul style="list-style-type: none"> • Exercise: The Diapers Controversy
2	<ul style="list-style-type: none"> • Debriefing Exercise
	<ul style="list-style-type: none"> • Homework: Exercise Mass Balancing
A	12.06., 8:00 – 10:15 (3 units), online Sarah Barth
1	<ul style="list-style-type: none"> • Life Cycle Impact Assessment – Approaches and Methods
2	<ul style="list-style-type: none"> • Critical Review and Interpretation in LCA
	<ul style="list-style-type: none"> • Calculation of the environmental impact of a meal
A	26.06., 16:30 – 18:00 (2 units), online Markus Will
1	<ul style="list-style-type: none"> • Exercise: Critical Review
2	<ul style="list-style-type: none"> • Wrap up of Lectures