FACULTY OF
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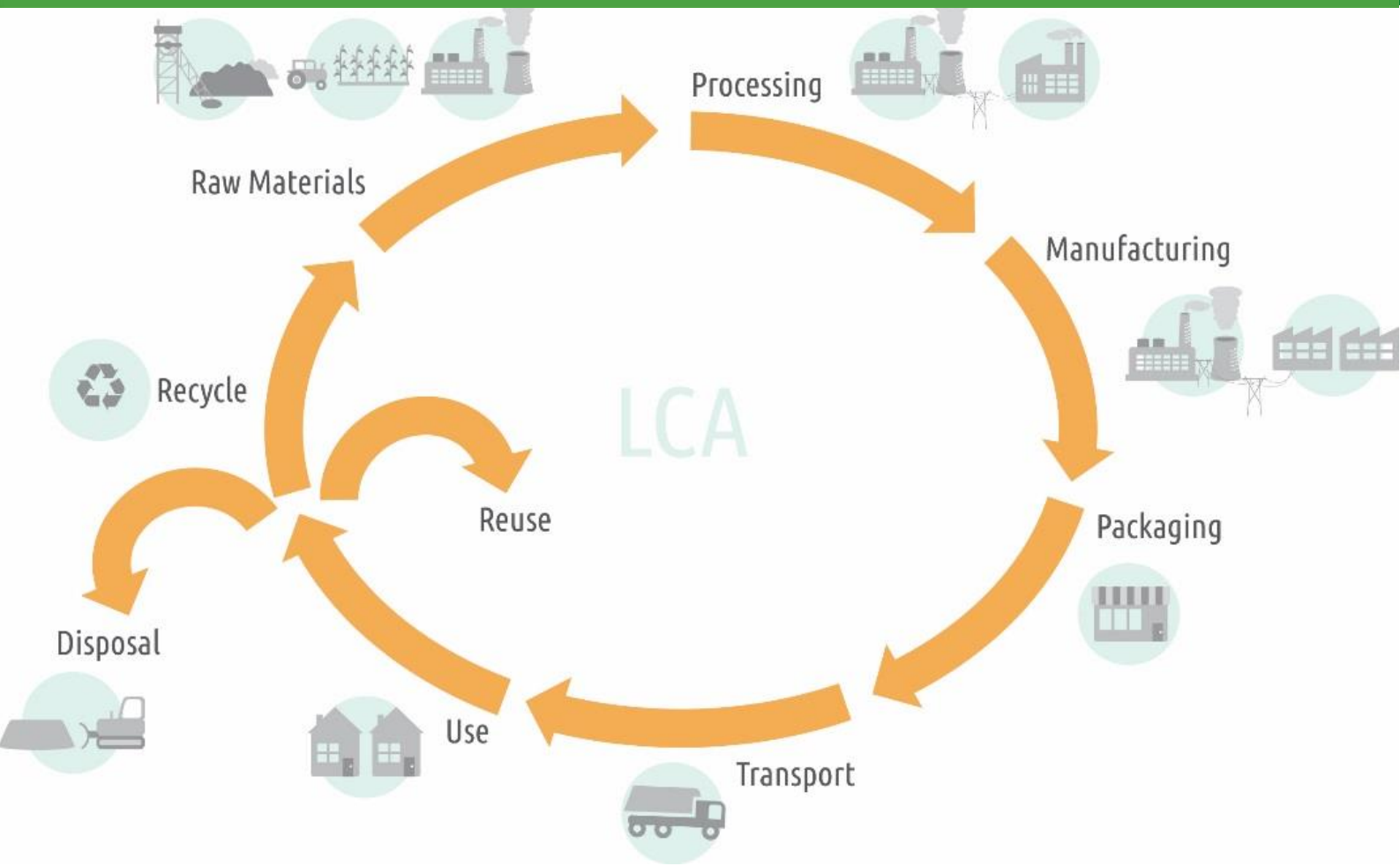


CPD Course | Dept. of Chemical Engineering

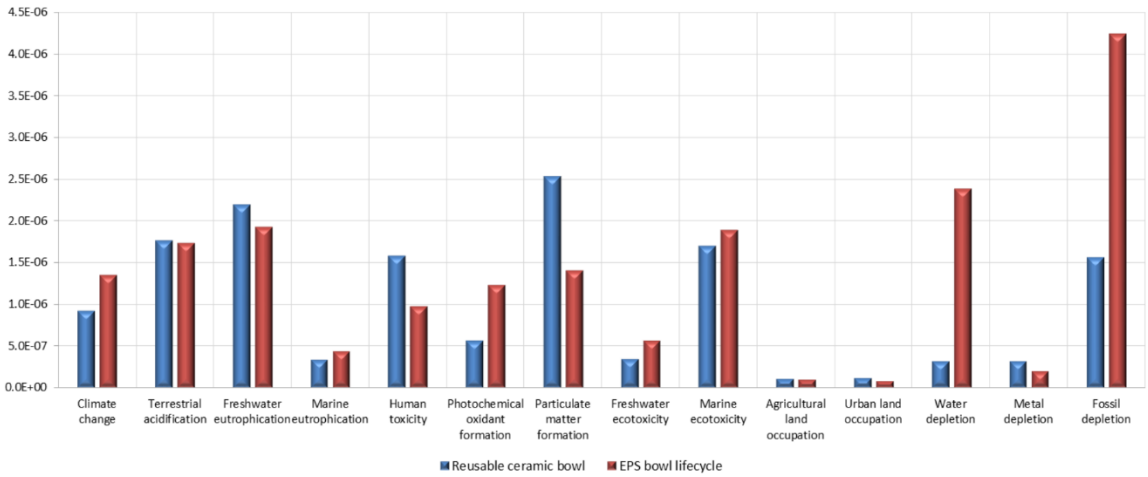
Life Cycle Assessment

18 – 20 June 2019

UNIVERSITY OF CAPE TOWN
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

Course Objectives

To familiarise the student with the environmental assessment tool known as Life Cycle Assessment, some of its diverse uses, the ISO norms, the science behind some of its key impact categories (beyond carbon and water), its use to support decision-making in product systems, process systems or in policy-making. Further to allow the student to develop skills and insights in the important steps of goal and scope definition, inventory modelling, data quality assessment, choice of impact assessment categories, interpretation and uncertainty propagation, partly by working with LCA software and databases.



Course Content

Course topics

- LCA history and uses
- The ISO norms
- Goal and scope definition
- Inventory modelling, data quality assessment
- The science behind some key impact categories
- Carbon footprints
- Water footprints
- LCA to support decision-making in product systems, process systems or in policy-making
- Interpretation and uncertainty propagation
- LCA software and databases

Course outcomes

Knowledge (Information plus Understanding)

- Explain functional units used in specific LCAs.
- Discuss the relevance of impact categories to particular LCAs and select the appropriate impact assessment models
- Interpret LCA results, paying appropriate care to uncertainty.
- Discuss the usefulness of life cycle thinking, single-impact (e.g. carbon footprint) vs multi-impact approaches in different decision-making contexts.

Skills (Application of Knowledge)

- Define the goal and describe the scope for a comparative product LCA.
- Model the foreground system on a spreadsheet and transfer this to an LCA software package to couple with well-selected background processes into a working system model.
- Choose relevant LCIA categories and report on the modelling outcomes.
- Interpret the LCA results.

Values and Attitudes

- Value quantitative full-system evidence in environmental decision-making
- Question environmental myths

Course Presenters

Dr Philippa Notten, a principal consultant at The Green House, has an undergraduate and PhD degree in Chemical Engineering from the University of Cape Town. Pippa is also an Adjunct Associate Professor at the University of Cape Town in the Department of Chemical Engineering. She is an expert LCA practitioner with over 15 years of experience, primarily relating to life cycle assessment (LCA) in the food, retail, and consumer good sectors, and in the primary industries. Her research work has centred on developing LCA methodology, notably the development of a rigorous approach to the quantification of uncertainty in the information needed to support LCA, and the development of life cycle impact assessment indicators relevant to South Africa (water and biodiversity).

Philippa is a skilled trainer with experience in providing graduate-level courses at universities, summer schools, workshops and conferences. Pippa also coordinates and provides training on LCA and SimaPro software to individual clients and small groups.

Prof Harro von Blottnitz is professor in the Faculty of Engineering and the Built Environment at the University of Cape Town (UCT) and is registered as a professional engineer with the Engineering Council of South Africa. He defines his research and teaching interests by the multiple challenges of sustainable development in developing country settings. He holds a BSc in Chemical Engineering from UCT, a BSc Honours in Operations Research from UNISA, an MSc in Engineering from UCT and a Doctorate in Engineering from the RWTH Aachen in Germany. Specific research interests include Life Cycle Assessment, renewable energy (biogas, biodiesel and bio-ethanol) and waste management. Many of his graduates have gone on to practise as knowledge providers in the emerging green economy.

Prof H. Scott Matthews is a professor in the Department of Civil and Environmental Engineering and the Department of Engineering and Public Policy at Carnegie Mellon University in the USA. Matthews's research and teaching focuses on engineering, economic, and social decision-making under uncertainty via large datasets, computation, and visualization methods. He has contributed to development of tools for environmental and energy life cycle assessment (LCA) of products and processes (such as the EIO-LCA model), estimating and tracking environmental effects across global supply chains (such as carbon footprinting), and the sustainability of infrastructure systems. He is also the lead author of an open access LCA textbook that is widely used around the world. Matthews has served as chair of the Committee on Sustainable Systems and Technology with the Institute of Electrical and Electronic Engineers and on the Executive Committee for the American Center for Life Cycle Assessment. At Carnegie Mellon, he is a member of the Green Design Institute, an interdisciplinary research consortium at Carnegie Mellon focused on modeling energy and environmental problems in the developing world. He has taught graduate and undergraduate courses in the Departments of Economics, Civil and Environmental Engineering, Engineering and Public Policy, and Computer Science.

Dr Valentina Russo is a System Engineer by education and is registered as candidate engineer with the Engineering Council of South Africa. She holds a Postdoc position at E&PSE group (UCT). Her research activities and work experiences deals with analysis of complex systems, spanning over different topics - biotech (2004-2012) and biofuel production (2013-2014). Nowadays she's involved in Industrial Ecology related themes, such as the LCA of the agri-food sector, the Water Footprinting and LCI. She holds an Engineering Degree in Computer Science and Automation Engineer from Roma-Tre University (Italy); a PhD in System Engineering from Sapienza University of Rome (Italy) and a PG MSc Degree in Homeland Security from UCBM of Rome (Italy). More, in the light of her continuing professional development she undertook several courses, in the recent past, in the field of the Life Cycle Assessment and System Thinking. She has been involved in teaching activities since 2006 and co-supervised about 40 bachelors and master's degree theses.

Course Overview

Name	Life Cycle Assessment
Duration	18 – 20 June 2019
Venue	Chemical Engineering
CPD Points	3 CPD points, ECSA Validation No: UCTLCA19
Participants	Environmental and sustainability assessment practitioners and scientists; life cycle designers, managers and engineers
Other	For technical enquiries, contact: harro.vonblottnitz@uct.ac.za
Format	This CPD course forms part of the 4th year level course in Life Cycle Assessment offered by the Department of Chemical Engineering. The CPD course is a 3-day certificated course from which a participant can obtain CPD points.
Fees	**R8900.00**. Discounts for groups, staff and students of UCT, and students of other tertiary education institutes are available under certain circumstances. The course fee includes lecture notes and readings which will be available electronically for download on a Vula site before the lectures commence. Details will be sent to participants.

***** VAT is not applicable. Payment details are on the application form.

Registration

Registration and Cancellation

- Register for this course
- Registration covers attendance of all sessions of the course, lunch vouchers, and course material.
- Registrations close one week before the start of the course. Confirmation of acceptance will be sent on receipt of a registration form.
- Cancellations must be received one week before the start of a course, or the full course fee will be charged.
- **For more information on application and registration procedures, please visit our website:** www.cpd.uct.ac.za

Certificates and CPD Points

A certificate of attendance will be awarded to CPD participants who attend at least 80% of the lectures. Please note: If you are interested in attending this course for credit purposes, you will need to register for the Honours Programme or as an Occasional Student. If you attend the course as a CPD participant, academic credit cannot be claimed in retrospect.
CPD participants can also request a formal university transcript, which will show this course as part of a Professional Development Career.
The course fee includes lecture notes and readings which will be available electronically for download on a Vula site before the lectures commence. Details will be sent to participants.

Contact details

For more information or details on CPD courses, visit our website or contact us.

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