

## **Environmental footprint and life cycle assessment**

Ed. 2018

Responsible: Fabio Iraldo

### **Course description**

Life Cycle Thinking is a course focused on the life-cycle impact of processes and products from cradle-to-grave. There continues to be an increase in global pressure on manufacturers to understand their supply chain and be held accountable for their environmental footprint. Industries are starting to understand that setting environmental goals will not only reduce their overall impact, but also result in a significant cost savings. However, the first step in making improvements is understanding the process and/or product's environmental baseline. This can be done for a stand-alone manufacturing facility through material and energy balances or it can be done over the product's life cycle by using tools such as life-cycle assessment. This course will discuss key concepts such as Eco-Design, Environmental Footprint to understand a product's impacts on the environment, life-cycle assessment used in practical applications and in communication strategies.

### **Learning objectives**

Students who complete this course will develop:

- An understanding of green design and life-cycle management
- Knowledge and skills to understand the environmental baseline of a process and identify opportunities for pollution prevention through LCA utilizing practical case studies
- A fundamental understanding of life-cycle assessment as a tool used to measure environmental impact and to support product Eco-design
- An exposure to practical case studies and real-world examples of applying LCA to specific products/processes

### **Course contents**

- Life-Cycle Thinking: Life-Cycle Assessment (LCA), Streamlined LCA
- The Product Environmental Footprint method: principles and guidelines
- LCA Software: Modeling environmental impacts using SimaPro
- The LCA approach as a supporting tool for EcoDesign and for Green Marketing

### **Textbook(s), readings and other materials**

Recommended textbook but not mandatory:

Iraldo F., T. Daddi and F. Testa (2015), Environmental Certification for Organisations and Products – Management approaches and operational tools, Chapter 4, Routledge.

Iraldo F. Testa F., Daddi T., Nucci B. and Tessitore S., The state of play of LCAs, Environmental Economics, Volume 6, Issue 2, 2015

Recommendation 2013/179/EC of the European Commission concerning the Environmental Footprint of Products and Organizations

### **Faculty**

**Fabio Iraldo**  
**Matteo Donelli**

### **Course schedule**

<b>Date - time</b>	<b>Topic</b>	<b>Teacher</b>
14/9 9.00 – 13.00	<i>Content</i> An introduction to LCA and environmental footprinting: key-concepts, aims and operational methods, experiences and support tools	F.Iraldo
14/9 14.00 – 18.00	<i>Content</i> LCA as a support to Eco Design and product innovation	F. Iraldo
17/9 9.00 – 13.00	<i>Content</i> A frontier for the LCA reference standards and methods: the EC Product Environmental Footprint (PEF) - The EC Pilot study on for the PEF	F. Iraldo and M. Donelli
17/9	<i>Content</i> Set up and modelling of an LCA / PEF study	F. Iraldo and M. Donelli

14.00 – 18.00	by using the Simapro software	
18/9 9.00 – 13.00	<i>Content</i> Set up and modelling of an LCA / PEF study by using the Simapro software – follows from the day before	F. Iraldo and M. Donelli
18/9 14.00 – 18.00	<i>Content</i> Case - study on Carlsberg beers	F. Iraldo and M. Donelli