

# Circular Economy

## Titulaires

Wouter ACHTEN (Coordonnateur) et Prakash VENKATESAN

## Mnémonique du cours

ENVI-F438

## Crédits ECTS

5 crédits

## Langue(s) d'enseignement

Anglais

## Période du cours

Deuxième quadrimestre

## Campus

Solbosch

## Contenu du cours

This course consists of two parts, given by two teachers. M. Vankatesan and M. Achten

M Vankatesan will focus on...

M. Achten will focus on how to evaluate circular economy (activities).

In a first place the basic reasoning of the necessity to evaluate the potential environmental impacts (and/or benefits) of circular economies will be explained, as well as the methodological challenges that that necessity entails. In a second step we'll have a glance at the current evaluation initiatives that exist and to which critics they are prone. Based on that we will revisit some of the methods seen in the Q1 course on Impact Assessment and Management, and see how some of these methods could potentially help in evaluating circular economy activities, and which methodological advancements that would entail. In that context we will deepen the knowledge on life cycle assessment and input-output analysis.

This part of the course will also pay attention to the biological cycles as described in the butterfly model of the Ellen McArthur Foundation, mainly by talking about the carbon neutrality debate ongoing in the carbon-accounting and carbon-assessment context.

In this course we also organise excursions (specific communication on these will follow when the course has started) which give you the opportunity to visit several different types of organisations which are undertaking different types of circular economy activities.

## Objectifs (et/ou acquis d'apprentissages spécifiques)

The teaching unit aims to present the notion of circular economy in general, to analyze industrial sectors in terms of their

environmental impact, to study the processes put in place to improve circularity (recycling, reuse, repair, energy recovery, etc.) and to set up assessment tools.

In the part of M Venkatesan ...

In the part on environmental assessment (Part of M. Achten) the objectives are:

- > get insight in the assessment challenges of circular economy activities, and the potential solutions to be found in adapting known assessment methods
- > gain knowledge on consequential LCA
- > gain knowledge on Input-Output models specifically developed for circular economy actions/solution
- > gain knowledge on how to treat timing of GHG emission in assessment of bio-based circular solutions

## Pré-requis et co-requis

### Connaissances et compétences pré-requis

For the part of M. Venkatesan...

For the part of M. Achten the course on Environmental Impact Assessment and Management gives the necessary knowledge to enter this course on circular economy.

## Méthodes d'enseignement et activités d'apprentissages

Part I (Venkatesan): ...

Partie II (Achten) : This part consists of 3-4 on-campus teaching sessions, where there is place for interactivity. There is also the possibility to provide the material via online packages and to come to class only for discussions, Q&R, etc. For some of the topics external speakers are invited to transfer their expertise.

## Contribution au profil d'enseignement

Understand and improve the environmental balance of production processes and, in particular, improve their circularity at different scales (material, product, system).

## Références, bibliographie et lectures recommandées

M. Venkatesan...

For his part, M. Achten will provide reading material along the teaching material following the rhythm of the teaching sessions.

## Support(s) de cours

Université virtuelle

## Autres renseignements

### Lieu(x) d'enseignement

Solbosch

### Contact(s)

Wouter Achten

## Méthode(s) d'évaluation

Examen écrit

### Méthode(s) d'évaluation (complément)

Partie I: written exam which may include a part on multiple choice questions and a part on excursions.

Partie II : Open and closed question (2 questions)

### Construction de la note (en ce compris, la pondération des notes partielles)

Prorated to the number of hours: parts I: 68%; Part II: 32%.

### Langue(s) d'évaluation principale(s)

Anglais

## Programmes

### Programmes proposant ce cours à la faculté des Sciences

MA-ENVI | **Master en sciences et gestion de l'environnement** | finalité Gestion de l'environnement/bloc 1

