

INTEGRATED SUSTAINABLE SOLUTIONS FOR WATER AND WASTE TREATMENT IN DECENTRALISED CONTEXT UNDER THE FRAMEWORK OF THE CIRCULAR ECONOMY

Maria Cristina Lavagnolo/Alberto Pivato

Program:

The issues related to the development of strategies and technologies for the circular economy, the reuse and recycling of materials, the protection of the environment and human health (prevention of pollution) and for remediation through the sustainable and integrated treatment of solid, liquid and gaseous waste, have undergone rapid development in recent years, acquiring, at international level, primary importance in the socio-economic development strategies of the various countries. The most complete expression of what has happened in the sector is represented by the recent European policies on the Circular Economy, which has become a starting point for a review and planning of our future society. In this course, sustainable and integrated treatments for water and waste will be presented, specifically designed for decentralized contexts, and discussed considering some case studies, focusing particularly on closure of materials loops and on the impacts avoided.

References:

- European Commission (2014). Towards a circular economy: A zero waste programme for Europe
- Lothar Reh (2013). Process engineering in circular economy. Particuology <http://dx.doi.org/10.1016/j.partic.2012.11.001>
- Lavagnolo M.C. (2020). "Closing the Loop" of the Circular Economy and Covid19, Detritus, 10, 1-2, <http://dx.doi.org/10.31025/2611-4135/2020.13949>
- Cossu R., Grossule V., Lavagnolo M.C. (2019). Sustainable Low Cost Waste Management: Learning from Airlines, Detritus Journal, 6, 1-3. <http://dx.doi.org/10.31025/2611-4135/2019.13818>
- Malesani, R.; Pivato, A.; Bocchi, S.; Lavagnolo, M. C.; Muraro, S.; Schievano, A. (2021). *Compost Heat Recovery Systems: An alternative to produce renewable heat and promoting ecosystem services*. Environmental Challenges, pp.100131. <https://doi.org/10.1016/j.envc.2021.100131>.

Examination and grading:

Final quiz by moodle

Course details:

The course is offered in person and will be delivered as an active laboratory