

## Environment

### Treatments of solid wastes

#### IDENTIFICATION

CODE : GEN-3-S2-EC-TDS  
ECTS : 2.0

#### HOURS

|                           |        |
|---------------------------|--------|
| Lectures :                | 23.0 h |
| Seminars :                | 6.0 h  |
| Laboratory :              | 0.0 h  |
| Project :                 | 0.0 h  |
| Teacher-student contact : | 29.0 h |
| Personal work :           | 20.0 h |
| Total :                   | 49.0 h |

#### ASSESSMENT METHOD

Written test with no documents allowed, consisting in various questions relative to the different courses.

It is highly recommended to follow all of these four courses.

#### TEACHING AIDS

pdf files of ppt slides

#### TEACHING LANGUAGE

French

#### CONTACT

M. GAUTIER Mathieu  
mathieu.gautier@insa-lyon.fr

#### AIMS

##### OBJECTIVES :

The course aims to provide students with a good overview of the management strategies and technologies of solid waste , including other types of granular porous solid medium / such as sediment and soils.

The scientific principles underlying the techniques are also discussed , as well as criteria to define the most appropriate strategies based on their characteristics and objectives.

Finally , environmental impact issues are presented as well as scientific principles that allow to understand them [ emissions, transfer and fate of contaminants in soils ] .

##### SKILLS referred :

Students must acquire a good knowledge of the technologies available for waste treatment . They must also be able to mobilize this knowledge to develop management strategies , and to approach the evaluation of associated environmental benefits and impacts.

#### CONTENT

The course consists of the following parts:

- Systemic approach of waste management options: landfilling and "disposal", material recovery, energy recovery;
- Regulatory background and waste catalog
- Landfilling of solid waste
- Use of waste as secondary raw materials
- Thermochemical treatments
- Biological treatment of non-hazardous organic waste
- Soil pollution, transfer and fate of pollutants

#### BIBLIOGRAPHY

- MUSTIN, J. [1985]. Le compost : gestion de la matière organique Editions F. Dubusc.  
- SOLAGRO [2000]. La méthanisation des déchets ménagers et assimilés à Recycler les déchets organiques et valoriser leur potentiel énergétique. Editions SOLAGRO, 2000. 32 p.  
- R. Gourdon [2001] Traitement biologique des déchets. Techniques de l'Ingénieur, Volume G [environnement], N° 2060, 16 pages.

#### PRE-REQUISITE

French scientific Bac + 2 level [or equivalent] in chemistry and physics.

More generally, common knowledge in engineering science of french bac 2 level or equivalent