

G795 WASTEWATER TREATMENT

DESCRIPTION

Wastewater Treatment (G795) is a 6 ECTS course included in the Chemical Engineering Degree and scheduled in the second semester of the fourth course. It is aimed to:

- Understand the current situation of demand and water availability.
- Conceptualize conventional wastewater treatment processes
- Conceptualize process of obtaining reclaimed water and desalinated water.
- Discriminate alternatives for water reclamation and desalination using sustainability criteria.

Approximately half of the scheduled time will be devoted to the development and acquisition of practical skills in laboratory working with bench scale set-ups related to wastewater treatment processes and physicochemical procedures for the characterization of wastewater.

Regarding the course program, the course 2013-2014, has included the following topics:

1. **WATER RESOURCES:** Water cycle, characteristics and distribution of water resources, sustainable management of water resources.
2. **TECHNOLOGIES FOR WASTE-WATER TREATMENT:** wastewater generation; wastewater treatment systems; physical treatment systems; chemical treatment systems, biological treatment systems.
3. **NEW SOURCES OF WATER:** Regeneration of treated water: sources; characteristics and uses; Sustainable management of regeneration wastewater. Desalination of sea water. Desalination of brackish water. Features and uses of desalinated water. Sustainable management of water desalination.
4. **TECHNOLOGIES FOR THE DEVELOPMENT OF NEW WATER SOURCES:** Technologies for the production of reclaimed water: tertiary treatment in waste water treatment plants (WWTP). Industrial treatment and re-utilization of waste-water. Technologies for the production of desalinated water: Technologies for desalination of seawater. Technologies for brackish water desalination. Zero discharge. Treatment and recovery of the concentrates.