COURSE DETAIL

DESIGN OF WATER SANITATION AND TREATMENT PLANTS
Country Italy
Host Institution University of Bologna
Program(s) University of Bologna
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Engineering Civil Engineering
UCEAP Course Number 180
UCEAP Course Suffix
UCEAP Official Title DESIGN OF WATER SANITATION AND TREATMENT PLANTS
UCEAP Transcript Title WATER SANITN&TRTMNT
UCEAP Quarter Units 6.00
UCEAP Semester Units 4.00

Course Description

This course is part of the Laurea Magistrale program. The course is intended for advanced level students only. Enrollment is by consent of the instructor. The course focuses on designing wastewater treatment plants and other sanitary engineering works. The course requires a good understanding of Hydraulic and Chemistry base subjects as a prerequisite. The course exercises focus on analysis and discussion of treatment plants and natural treatment systems in their preliminary, definitive, and executive projects. Students are encouraged to design their own treatment system. The course consists of three parts. Part one of the course discusses a general introduction to the following treatment techniques: Activated sludge provided of denitrification with internal carbon source. Submerged aerated biofiltration. Granular settling. Mass settling. Lamellar settling. Oxynitrification by pure oxygen, by micro bubbles and by high efficiency air diffusers. SBR plants. Chemical and UV disinfection. Anaerobic sludge digestion. Composting of sludge and urban waste organic fraction Mitigation of olfactory emissions by biofiltration. Part two of the course discusses a detailed analysis of all text and drawings elaborates of the following projects: Preliminary project of a large-activated sludge urban wastewater treatment plant working in steady state and provided of predentrification phases. Definitive project of a medium urban wastewater treatment plant based on submerged aerated biofilters. Executive project of a small wastewater treatment plant using bio disk techniques. Price list. Metric-Calculation. Amount calculation. Special tender dossier. Contract. Works direction. Accounting. Part three of the course discusses a detailed analysis of the following preliminary and definitive full-scale projects for natural treatment and finishing systems: Aerobic lagoon system. Optional lagoon system. FWS phytotreatment with or without recirculation. Onsite SFS phytotreatment systems applied to small communities. Biofilter applied to mitigate emissions from solid waste pre-treatment plants.

Language(s) of Instruction
Italian

Host Institution Course Number

73287

Host Institution Course Title
PROGETTO DI OPERE DI INGEGNERIA SANITARIA M (LM)

Host Institution Course Details
http://www.unibo.it/en/teaching/course-unit-catalogue/course-unit/2021/405301

Host Institution Campus
BOLOGNA

Host Institution Faculty
ENGINEERING

Host Institution Degree
LM in Environmental engineering

Host Institution Department
ENVIRONMENTAL ENGINEERING

Course Last Reviewed
2021-2022

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