



HYDROAID 2009 – DISTANCE LEARNING ON SANITATION

TECHNICAL COURSE ON WASTEWATER TREATMENT AND DISPOSAL OF URBAN SOLID WASTE

CALL FOR APPLICATION

Ministry of Foreign Affairs



Ente Acque della Sardegna

BACKGROUND

Established in Turin in 2001, Hydroaid is a non-profit association which involves local and regional authorities, renowned banks and academic institutions of Italy, and is co-financed by the Italian Ministry of Foreign Affairs.

Hydroaid's main objective is training engineers and managers of emerging and/or developing countries in the management of the urban water resources and sanitation services, in order to safeguard environmental sustainability.

In 7 years of activity, approximately 200 participants from 57 different countries have graduated in Hydroaid training programs.

FEATURES AND PURPOSES OF HYDROAID'S DISTANCE LEARNING PROGRAM ON SANITATION

The E-learning distance course will be delivered by Hydroaid on:

April 6th through May 31st 2009

The course is aimed at providing practical and technical tools for the management of environmental issues at urban scale. It constitutes a refresh and a technical in-depth investigation about specific topics related to sanitation issues.

The course is open to all the former participants of Hydroaid courses, plus 10 new participants (for these ones, after ascertaining all the requirements recalled in the "Call for application" and after selection).

The official language of the didactic material is **English**.

A tutor will be available on the on-line delivering platform to monitor the activities of all the participants and to answer your questions.

A technical assistance forum will be available on the delivering platform to provide information about the use of the platform itself.

The course will provide the essential elements for the design, sizing, management and maintenance of plants involved in the 2 fields (corresponding to the 2 main subjects of the training program), namely:

1. Wastewater treatment and reuse (about 15 - 20 hours of individual study, developed in 3 weeks);
2. Treatment and disposal of the urban solid waste (about 20 - 25 hours of individual study, developed in 4 weeks).

Application is mandatory to both subjects of the course

The 2 subjects are divided into different pedagogic units, each focused on one specific topic, as detailed below. Every unit contains essential theoretical information, operating diagrams, practical descriptions and images with reference to real case studies, applicative solved examples to exercise your own design skills.

Didactic material is available for all the users who will apply to the course after the selection: it can be downloaded and used in compliance with the copyright conditions explained in the application form.

1. Wastewater treatment and reuse

This subject will provide methods and technical issues related to integrated water services, treatment and reuse of water, with particular reference to urban areas, as well as an introduction to methods for the management and start-up of wastewater plants.

The aim is providing technical and practical tools for design, sizing, management and maintenance of plants used for wastewater treatment and water reuse in industrial, agricultural and domestic purposes.

The contents of subject 1 “**Wastewater treatment and reuse**” are divided into the pedagogic units below, each one corresponding to a specific topic, namely:

U1 Features of the effluents;

U2 Wastewater treatment plants (with in-depth analysis on plant management);

U3 Wastewater reuse.

U1

Features of the effluents are introduced on a physical, biological and chemical point of view. This module will also deal with the polluting agents inside waste water in urban areas, both from domestic uses and from different kinds of industries.

Methods to estimate the quantity and features of the effluents, as well to determine the Biochemical Oxygen Demand (BOD) will be described in detail.

U2

Most significant data for design of wastewater treatment plants are introduced and examined at urban scale. This unit also explains practical methods, operating diagrams, real case studies and applicative solved examples with reference to plants for:

- Primary treatments:
 - Screening
 - Silt traps
 - Equalization tanks
 - Primary sedimentation
 - Floatation
- Secondary treatments:
 - Trickling beds
 - Activated sludge systems
 - Sludge blanket systems (UASB)
 - Biodisks
 - Secondary sedimentation
- Tertiary treatments:
 - Chlorination
- Small systems: Imhoff tanks.

An in-depth analysis about plant management develops practical considerations about centralization level of collecting and treatment systems, and explains strategies for the start-up of the wastewater treatment plants.

U3

This unit describes technical methods, operating diagrams, real case studies and applicative solved examples with reference to wastewater reuse in the following fields:

- Industrial reuse (as cooling water and process water)
- Agricultural reuse
- Domestic reuse of stormwater
- Domestic reuse of wastewater

2. Treatment and disposal of the urban solid waste

This subject will provide methods and technical tools related to the issues of the urban solid waste, waste treatment and disposal, with particular reference to urban areas, as well as an introduction to methods for the localization of landfills.

The goal of this subject is to provide technical and practical tools for design, sizing, management and maintenance of plants used for urban solid waste treatment, separation and final disposal in landfills, in order to minimize the environmental impact.

The contents of subject 2 “**Treatment and disposal of the urban solid waste**” are divided into the pedagogic units below, each of them corresponding to a specific topic, namely:

U1 Features of the urban solid waste;

U2 Solid waste disposal: landfills (with in-depth analysis on the issue of landfill site selection);

U3 Waste separation downstream and at the source;

U4 Composting.

U1

Features of the urban solid wastes are introduced, as well as the main international waste classification. Estimation methods about quantity and features of waste are described and documented by real case studies with applicative solved examples.

U2

This unit deals with landfills for urban solid waste: it takes into exam the essential parameters for their sizing and design, illustrates operating diagrams, real case studies and applicative solved examples in landfill design.

The analysis focuses on the following parameters:

- Quantities and characteristics of the solid waste
- Features of the physical site
- Geotechnical and hydrological data
- Climate Data
- Waste Transport System
- Operational Procedures
- Final Site Use
- Complementary project documentation
- The production of leachate
- Biogas

An in-depth analysis on landfill localization develops practical issues in order to select the appropriate sites to minimize the environmental impact of landfills.

U3

Technical design methodologies, operating diagrams, real case studies and applicative solved examples are focused on waste separation downstream and at the source, with different kinds of plant:

- Plants for dimensional reduction
- Plants for dimensional separation
- Plants for gravimetric separation
- Magnetic and hydrostatic separators
- Separation at the source: separate collection

This will also provide practical tools for the sizing and implementation of recycling plants for:

- Secondary raw materials
- Glass
- Plastic materials
- Paper
- Aluminum

U4

This unit provides technical methodologies and management information on composting and anaerobic digestion, with descriptions of operating diagrams, real case studies and applicative solved examples. Particular in-depth analyses are focused on the following types of composting plants:

- Composting in bulks with turning of the biomass
- Composting in static aerated bulks
- Composting in bioreactors

As related to anaerobic digestion, the main topics are:

- Operative parameters for design
- Types of anaerobic digesters
- Technical and environmental issues related to the production of biogas

This unit ends with a comparison of technical and environmental issues between the two kinds of biological treatments analyzed.

MINIMUM TECHNOLOGICAL REQUIREMENTS

Before starting to fill the application form, **you must make sure that the PC you will use to attend to this E-learning course has the following minimum requirements. This is a mandatory condition for the attendance to the course.**

Internet connection

A necessary requirement for the attendance to the course is the availability of a PC, with Internet connection (at least 56 kb).

Hardware requirements

Operating system

The E-learning platform used for the delivery of the training program “Integrated Management of Sanitation” is multi-platform, which requires from the user the availability of a browser. Compatibility is ensured with all the main operating systems such as: Windows, Linux and Macintosh.

Browser

Compatibility is ensured with:

- Internet Explorer 6 or superior
- Mozilla Firefox 3 or superior

We recommend the use of Mozilla Firefox, which results to be optimum for access and surfing through the system. Firefox can be downloaded free of charge from the web and is compatible to all the main Operating Systems.

You can download Firefox from this link: <http://www.mozilla-europe.org/it/firefox/>

Video resolution

1024x768

Software Requirements

The access to the E-learning platform does require the installation of any additional plug-in.

For the correct display of the contents of the course area, the following plug-ins are to be downloaded, if not present:

- Adobe Acrobat to consult the material in PDF format.

Adobe Acrobat can be downloaded from this link: <http://get.adobe.com/it/reader/>

HOW TO APPLY

Applications on-line

Applications are open on **March 9th through March 25th 2009**

It is mandatory to fill the on-line application form reported on website www.hydroaid.it:

<http://www.hydroaid.it/ElearningSanitation>.

Strictly follow the on-line instructions and fill the application form carefully.

Before starting to fill the application form, you must verify that the PC you will use to attend this course has all the minimum necessary requirements explained in the previous paragraph.

Besides, only if you are NOT a former participant to Hydroaid courses, you must scan the following documents (choose to create pdf or jpg files):

- Identity document (only if you are NOT a former participant to Hydroaid courses - mandatory)
- Copy of the highest education certificate obtained (only if you are NOT a former participant to Hydroaid courses - mandatory).
- Curriculum Vitae (only if you are NOT a former participant to Hydroaid courses - not mandatory).

Remember to attach these documents to the on-line application form (just follow the on-line procedure).

When the on- line application form is filled and ready:

- 1- Print a copy of it and sign it with your hand signature (e-signature is not allowed);
- 2- Follow the on-line instructions to automatically send the on-line application form;
- 3- Upload the required documents described above to Hydroaid on-line (only if you are NOT a former participant to Hydroaid courses);
- 4- It's mandatory to send the application form with your hand signature to Hydroaid by e-mail (training@hydroaid.it) or by fax (+39-011-5693690).

Final deadline for submission: March 25th 2009

The application form with your hand signature must be sent by regular mail (training@hydroaid.it) or fax to Hydroaid (+39-011-5693690). It is to reach us no later than March 25th 2009.

SELECTION CRITERIA

The applicants who cannot guarantee the minimum technical requirements of their PC and Internet connection explained above will not be selected because they would be prevented from regular connection and use of the didactic material.

The candidates who express interest to attend to the course and who send all the required documentation not later than March 25th 2009 shall be considered by HYDROAID:

- this E-learning course is open without selection to all the interested former participants of Hydroaid past courses,
- the other applicants will be selected on the basis of merit criteria (10 new participants will be selected to attend to this course).
In this case, evaluation will be based on the application forms filled by the candidates, documents provided, curriculum vitae and experience in the sanitation sector.
Top priority shall be given to those who work in public or private institutions involved in the sanitation sector and to those who have the best knowledge of English language.
Women's applications are more than welcome and will be taken into due consideration.

Hydroaid shall inform the candidates as soon as the selection is completed (April 3rd 2009).

CERTIFICATE OF ATTENDANCE

A certificate of attendance will be issued at the end of the course on the basis of attendance to at least 80% of the activities and of the correct answers to at least 60% of the questions asked in the final test.

The final test shall contain 10 questions concerning the most significant topics dealt with in the pedagogic material.

The certificate will be sent by regular mail. For this reason it is fundamental that you provide your correct home address.

For further information, please contact:

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