



Online short course **Solid Waste Management and Engineering**

See http://www.unesco-ihe.org/education/short_courses/online_courses

The aim of the Online Course in Solid Waste Management and Engineering (SWM&E) is to enlighten the state of the art in technology, organizational and legislative developments and practices of handling solid wastes world-wide. The financial burdens and benefits as well as solutions are discussed in detail.

The material presented will help participants to make informed decisions in their professional activities; it will assist them in defining and implementing integrated solutions to the challenges posed by solid wastes in urban environment. The course will support participants to establish a solid waste management (SWM) system that is capable of functioning not only in situations where sufficient resources are available but also under the more challenging conditions usually prevailing in (large) cities in low-income countries.



Upon completion of the online course, the participants will be able to:

- Quantify and characterize MSW in a country and to understand properties commonly associated with MSW.
- Describe the tasks and logistics of MSW collection, to analyze collection systems, and to become familiar with the principals and theory behind the use of transfer stations
- Describe the components of a landfill and processes which take place in a landfill
- Do the basic design calculations associated with landfills
- Describe the most common waste processing techniques and their application areas
- Identify concepts of reduction, reuse and recycle
- Develop a strategy to deal with special wastes, a.o. hazardous and health care waste

Why take this online course?

- You can follow the course from anywhere with an internet connection, with ample opportunities for interactions with teachers and fellow participants
- You will connect with International Solid Waste experts and get access to up-to-date knowledge and expertise
- UNESCO-IHE has 50 years experience with education of professionals and three years experience with delivering online courses (we have 13,000 alumni worldwide)

Target audience

The course is designed for mid-career professionals who work in low-income countries or countries in transition, and deal with planning, promoting, designing, operating or managing solid waste systems for people in urban, peri-urban, slum or rural areas. Participants are typically employed by government departments, private companies, NGOs, universities, research institutions, aid agencies or international bodies such as WHO or UNICEF.

Course schedule

Participants complete the course in part-time, distance learning mode over a period of 16 weeks with a total workload of 128 hours (equivalent to 3 weeks full-time). They spend about 8 hours per week on this course by reading, listening to voice recordings, watching video clips, participating in asynchronous discussions, obtaining advice and guidance from the teacher and working on assignments. After successful completion, participants will receive a certificate issued by UNESCO-IHE.

Course content

During the online course, the following chapters will be discussed:

1. Introduction to Solid Waste Management
2. Solid Waste Characterization: Quantity and Quality
Generation of waste per capita and region; composition of waste; small scale industry waste in domestic waste; organic agricultural waste (some specific cases as examples); industrial waste
3. Waste Collection & Transport
Mixed collection or Separation at Source; Logistics; Transfer stations; Machine park planning; Sub-contractors
4. Treatment Technologies
Treatment based on type of waste; Anaerobic Digestion; Composting; Recycling of plastics, batteries, e-waste; Incineration
5. Financial, Social and Institutional aspects
Costs of collection, separation, management; Equipment costs; Policy; Legislative aspects; Local Regulations; Law Enforcement; Global Organizations involved in SWM; Gender Issues; Health and SWM
6. Landfilling
Present and Desired Composition; Planning (Site selection and EIA); Design; Biology; Leachate production and collection; Covering; Redesigning an existing dumpsite; Operational and maintenance aspects; Capacity Building of operators; methane production; Safety issues & public health; Post-closure phase
7. Cleaner Productions: Reduce, Reuse, Recycle
8. Hazardous, Healthcare and other Special Waste

Benefits of E-Learning:

- You can follow the course at any location with an internet connection
- The I-Learning Environment provides you with training materials and with a communication platform with teachers and fellow participants
- The course allows you to directly apply your new knowledge and skills in your daily work

Fee and entry requirements

The course fee is 550 Euro, which includes access to the course materials as well as individual guidance and mentoring during the 16 weeks of the course. The maximum number of participants is 25, and the deadline for registration is 1 March 2008. A limited number of scholarships for people from developing countries is available. The course language is English. A reliable and reasonably fast (ideally 512 kbps) internet connection is necessary. The material is also provided on a DVD.

More information and registration

For more information, visit UNESCO-IHE's website

(www.unesco-ihe.org/education/short_courses/online_courses)

For specific questions, please send an email to m.ronteltap@unesco-ihe.org