Advanced Solid Waste Management and Landfill Operations Training Course



21 - 25 Dec 2026

Rome

5800 € (Per Person)

Ref: #ENV3962_102360

Course Introduction / Overview:

This comprehensive training course provides an in-depth exploration of the principles and practices of modern solid waste management and landfill operations. In an era of increasing environmental awareness and regulatory scrutiny, the effective management of waste is paramount for public health and ecological sustainability. This program is designed to equip participants with the critical knowledge and skills needed to navigate the complexities of waste collection, treatment, and disposal. Drawing upon foundational concepts from leading experts like George Tchobanoglous, whose work in "Integrated Solid Waste Management: Engineering Principles and Management Issues" has shaped the industry, this course covers the entire lifecycle of waste. Participants will delve into everything from waste characterization and regulatory frameworks to the technical specifics of landfill design, leachate management, and gas collection systems. BIG BEN Training Center has structured this course to bridge the gap between theoretical knowledge and practical application, ensuring that attendees can implement efficient, compliant, and sustainable waste management strategies within their organizations. The curriculum addresses both current best practices and emerging trends, such as waste-to-energy technologies and circular economy principles, preparing professionals for the future of the industry.

Target Audience / This training course is suitable for:

- Environmental Engineers and Scientists.
- Waste Management Officers and Consultants.
- Landfill Managers, Supervisors, and Operators.
- Municipal and Public Works Directors.
- Civil Engineers and Project Managers.
- Regulatory Compliance and Enforcement Officers.
- Environmental Health and Safety (EHS) Professionals.
- Urban Planners and Policy Makers.
- Professionals in environmental consulting firms.
- Operations managers in industrial facilities.

Target Sectors and Industries:

- Waste Management and Recycling Companies.
- Municipalities and Local Government Authorities.
- Environmental Protection and Regulatory Agencies.
- Engineering and Environmental Consulting Firms.
- Construction and Demolition Sector.
- Manufacturing and Industrial Operations.
- Energy and Utilities Sector.
- Real Estate and Land Development.
- Public Health Organizations.

Target Organizations Departments:

- Operations and Site Management.
- Environmental, Health, and Safety (EHS).
- Engineering and Technical Services.
- Public Works and Utilities.
- Urban and Regional Planning.
- Regulatory Affairs and Compliance.
- Sustainability and Corporate Social Responsibility (CSR).
- Facilities Management.
- Project Management.

Course Offerings:

By the end of this course, the participants will have able to:

- Develop an Integrated Solid Waste Management (ISWM) plan.
- Conduct waste characterization studies to inform management strategies.
- Evaluate and select appropriate sites for landfill development based on regulatory and geotechnical criteria.
- Design key landfill components, including liner systems, leachate collection, and gas management systems.
- Implement best practices for daily landfill operations, including waste placement and compaction.
- Establish robust environmental monitoring programs for air, water, and soil quality.
- Analyze the principles of waste-to-energy, recycling, and composting technologies.
- Formulate strategies for landfill closure and long-term post-closure care.
- Ensure full compliance with local and international environmental regulations.
- Integrate circular economy principles into waste management planning.

Course Methodology:

The training methodology at BIG BEN Training Center is designed to foster a dynamic and engaging learning environment that prioritizes practical application and skill mastery. This course moves beyond traditional lectures by incorporating a blend of interactive learning techniques. Participants will engage in detailed case study analyses of real-world landfill projects, dissecting both successes and failures to extract valuable lessons. Collaborative group workshops will encourage teamwork and problem-solving, allowing attendees to tackle complex scenarios related to landfill design, operational challenges, and regulatory compliance. Expert-led sessions will provide deep insights into technical subjects, supplemented by interactive Q&A segments to address specific queries. The course heavily emphasizes practical exercises, where participants will work on tasks such as developing a preliminary landfill cell design or creating an environmental monitoring plan. Continuous feedback from the instructor ensures that learning is reinforced and concepts are clearly understood. This hands-on, participant-centered approach guarantees that attendees leave not just with theoretical knowledge, but with the confidence and competence to apply sustainable waste management practices in their professional roles.

Course Agenda (Course Units):

Unit One: Fundamentals of Integrated Solid Waste Management

- Introduction to Solid Waste Management Principles.
- Waste Generation Rates and Composition Analysis.
- Waste Characterization and Classification.
- The Hierarchy of Waste Management.
- Principles of Integrated Solid Waste Management (ISWM).
- Global and Local Regulatory Frameworks and Policies.
- Public Health and Environmental Impacts of Improper Waste Disposal.

Unit Two: Landfill Site Selection and Engineering Design

- Criteria for Landfill Site Selection.
- Geotechnical and Hydrogeological Investigations.
- Fundamentals of Landfill Design and Layout.
- Design of Landfill Liner and Capping Systems.
- Leachate Generation, Management, and Treatment Systems.
- Landfill Gas (LFG) Generation, Collection, and Utilization.
- Design of Surface Water Management Systems.

Unit Three: Modern Landfill Operations and Monitoring

- Best Practices in Daily Landfill Operations.
- Waste Reception, Screening, and Placement Techniques.
- Achieving Optimal Waste Compaction.
- Environmental Monitoring Programs for Landfills (Water, Gas, and Stability).
- Health and Safety Protocols for Landfill Personnel.
- Equipment Selection and Maintenance for Landfill Operations.
- Record Keeping, Reporting, and Data Management.

Unit Four: Resource Recovery and Waste Treatment Technologies

- Principles of Material Recovery Facilities (MRFs).
- Composting and Anaerobic Digestion Technologies.
- Waste-to-Energy (WTE) Systems and Incineration.
- Introduction to Bioreactor Landfills.
- Management of Special and Hazardous Wastes.
- Exploring the Circular Economy in Waste Management.
- Innovations in Waste Sorting and Processing Technology.

Unit Five: Landfill Closure, Post-Closure Care, and Future Trends

- The Process of Landfill Closure and Capping.
- Long-Term Post-Closure Care and Monitoring Requirements.
- Landfill Remediation and Rehabilitation Techniques.
- Financial Assurance for Closure and Post-Closure Care.
- The Concept of Landfill Mining and Resource Reclamation.
- Sustainable Landfilling and the Future of Waste Disposal.
- Course Review, Final Assessment, and Action Planning.

FAQ:

Qualifications required for registering to this course?

There are no requirements.

How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

Something to think about:

Considering the principles of a circular economy, how might the concept of a 'final disposal' landfill be completely redesigned or even eliminated in future urban planning?

What unique qualities does this course offer compared to other courses?

This course distinguishes itself by providing a holistic, lifecycle approach to waste management, seamlessly integrating high-level policy and engineering theory with the practical realities of day-to-day landfill operations. While many programs focus narrowly on either design or operations, this curriculum bridges that critical gap, ensuring participants understand how design decisions impact long-term management and how operational data can inform future engineering. We move beyond mere compliance, challenging participants to think critically about sustainability and the future of waste. The content is deeply rooted in established academic principles, such as those championed by George Tchobanoglous, but is delivered with a focus on contemporary challenges and innovative solutions like bioreactor landfills and landfill mining. Unlike courses that may offer a purely theoretical overview, this training emphasizes actionable strategies and problem-solving through extensive use of case studies from diverse global contexts. The focus is not just on managing waste as a liability, but on reconceptualizing it as a resource within a circular economy, equipping professionals with a forward-thinking perspective that is essential for leadership in the modern environmental sector.