e-Certificate Course on Solid Waste Management

- **Title of the Course:** Introduction to Solid Waste Management

- **About the Course:**

  The problems affiliated with solid waste management (SWM) in today's sprawling civilized and urbanized society are intricate because of the quantity and varied nature of wastes, the funding restriction for public disposal, interference of technology (energy and raw materials), and complex infrastructure development network in urban cities. As a result, if SWM is to achieve in consummate approach, the fundamentals aspects need to be identified. Thus, there is dire need to group the activities from the generation to the disposal point. The six different functional elements (generation, handing and separations, storage and processing at source, collection, the transformation of wastes, transfer and transport, and final disposal) for the engineering comparison and treatment need to be understood in detail. The understanding of the functional element is important because it helps in evaluating the impacts of projected changes and technological developments. Solid waste management is an essential part of every society, but it is also one of the most neglected one. An in-depth understanding of the subject is required to tackle the current solid waste management crisis effectively. This course attempts to familiarize various steps involved in solid waste management. This course not only familiarizes you with the steps involved in SWM but also delves into the emerging concept of the circular economy and innovations in SWM.

- **Learning Objectives:**

  - Identify and describe the sources, types, and composition of Municipal Solid Waste (MSW) in India.
  - Understand the significance of SWM in the context of Sustainable Development Goals (SDGs).
  - Recognize the challenges and issues inherent to Solid Waste Management.
  - Comprehend the concept of Integrated Solid Waste Management (ISWM).
  - Trace the historical progress of SWM in India and its evolution over time.
  - Familiarize themselves with SWM policies, programs, and regulations in India.
  - Gain insights into the value chain of solid waste management, including waste generation, segregation, storage, collection, and transportation.
  - Explore processing and treatment technologies for waste management.
  - Understand various waste disposal technologies.
  - Grasp the financial aspects of solid waste management, including capital and operational expenditures and cost recovery mechanisms.
  - Differentiate between circular and linear economy concepts and their application in SWM
  - Investigate innovation technologies across the SWM value chain.

- **Course Structure:** Beginner Module (BM) - The self-paced e-certificate course cover the following key themes and topics:

  Module 1: Solid Waste Management Overview

  - Introduction to Municipal Solid Waste
  - Examining the Sources, Types, and Composition of MSW in India
  - Historical Progress and Evolution of SWM Policies in India
  - Legislative Framework
  - Functional Elements of Solid Waste Management
  - Challenges in waste management
  - Establishing the Connections Between SWM, Climate Change, and Marine Litter
  - Understanding the Significance of SWM in the Context of Sustainable Development Goals (SDGs)
  - Concept of Integrated Solid Waste Management

  Module 2: Solid Waste Management Chain I

  - Comprehending the Sequential Phases within the Solid Waste Management Chain
  - Evaluating Appropriate Approaches for MSW Collection, Transportation, and Transfer
  - Exploring the Processes and Associated Costs Across Different Stages, from Collection to Disposal
  - Gaining Insight into the Financial, Technical, and Operational Aspects of SWM Technologies

  Module 3: Solid Waste Management Chain II

  - Gaining a Deeper Understanding of the Steps within the Solid Waste Management Chain
  - Investigating Suitable Methods for MSW Treatment, Recycling, and Disposal
  - Examining the Processes and Costs Involved at Various Stages, from Collection to Disposal
  - Grasping Key Challenges in Operating and Maintaining Treatment and Disposal Facilities
  - Recognizing the Value of Products Derived from Treatment and the Significance of Proper Disposal
  - Acquiring Insights into the Financial, Technical, and Operational Capacities of SWM Technologies

  Module 4: Financial Aspects of Solid Waste Management

  - Exploring the Financial Considerations Surrounding Various SWM Technologies
  - Delving into Capital and Operational Expenditures (capex and opex) and Mechanisms for Cost Recovery
  - Investigating a Range of Funding Mechanisms for Initiating SWM Projects

Module 5: Policies, Institutions, and the Informal Sector

- Understanding How Policies and Legal Frameworks Foster Favourable Conditions for Economic Activities and Employment Opportunities
- Appreciating the Role of Institutions and Collaborative Coordination in Enhancing Service Delivery and Financial Performance in the SWM Sector

Module 6: Circular Economy and Innovations in the SWM Sector

- Exploring Cutting-Edge Technological Advancements and the Evolving Roles of Informal Workers and Women in the SWM Sector
- Embracing a Paradigm Shift Where Waste is Regarded as a Resource Requiring Management, Not Mere Disposal

- **Who is the Course For/ Intended Audience:** Intended Audience:
  This course is designed for a wide range of individuals, including students, professionals, policymakers, and anyone interested in addressing environmental sustainability and waste management challenges. There are no specific prerequisites, and the course caters to learners at various levels of expertise.

- **Duration and Time Commitment:** It is a self-paced learning course. The completion of course can take up to 2-3 week depending upon the dedicated by participants.

- **Additional Resources:** Links and references for external resource material will be mentioned in the module itself.