

Introduction

As concerns about climate change, carbon footprints, and energy production continue to grow, it's crucial to address common misconceptions surrounding these issues. This course on **energy, carbon management, and environmental impact** aims to clarify these concepts by providing an in-depth understanding of various energy production methods, their environmental impacts, waste management challenges, and global sustainability efforts.

As the push for a low-carbon future intensifies, it is essential for organizations to ensure their teams are informed and updated. This course integrates aspects of environmental science and explores the role of energy in environmental contexts.

Is Carbon Bad for the Environment?

This course acknowledges that excessive carbon emissions are detrimental to the environment, accelerating climate change and global warming. A key focus is on carbon management and the role of activated carbon in reducing emissions, which is crucial for a sustainable future.

The course also serves as an industry-focused training program, equipping participants with the knowledge to navigate the complexities of the energy sector, including economic factors, environmental impacts, and advancements in energy technologies.

Targeted Groups

- Energy Managers
- Facilities Managers
- Environmental Managers
- Environmental Representatives

Course Objectives

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

- Understand various types of energy production, their benefits, drawbacks, cost comparisons, and the recommendations of the **Intergovernmental Panel on Climate Change (IPCC)**.
- Discuss sustainability, energy economics, and how they relate to environmental issues and sustainable energy practices.
- Gain insights into carbon management, the benefits of energy efficiency for both the environment and society, and the relationship between carbon management and environmental sustainability.
- Learn how to calculate carbon footprints.
- Explore the significance of climate change and the importance of global collaboration in addressing

environmental challenges.

- Understand the critical issues of waste management and water availability.
- Learn about zero waste and the advantages of an integrated waste management system.

Targeted Competencies

Upon completion, participants will gain competencies in:

- Risk reduction strategies
- Understanding the psychological benefits of individual contributions to environmental goals (aligned with the **United Nations Environmental Programme** recommendations)
- Knowledge of integrated waste management systems
- Familiarity with **ISO 18001** standards for environmental management

Course Content

Unit 1: Types of Energy and Their Relationships with the Environment

- Definitions and basic concepts of energy production
- Overview of various energy sources used for electricity production and their environmental pros and cons
- Understanding fossil fuels (oil, natural gas, coal), including Canadian oil sands and Gulf Coast oil
- Exploring geothermal energy

Unit 2: Forms of Energy Used for Electrical Production

- Nuclear energy
- Hydroelectric power
- Biomass energy
- Combined cycle systems
- Wind energy
- Fuel cells
- Electrochemical (battery) systems
- Emerging technologies in energy production

Unit 3: Carbon Footprints

- Understanding carbon footprints associated with different energy sources used in electricity production
- How carbon footprints impact an organization's **KPIs** (Key Performance Indicators)

- Identifying environmental risks, health, and safety issues
- Learning how to calculate carbon footprints
- Introduction to **ISO 18001** for environmental management

Unit 4: Greenhouse Gases (GHGs)

- Identifying different greenhouse gases and their impact on the environment
- Understanding sustainability challenges related to GHG emissions
- Overview of international environmental treaties addressing GHGs
- Water availability and water banking as part of environmental sustainability

Unit 5: Climate Change

- Defining climate change and its significance, especially for Gulf Coast countries
 - Understanding the role of waste management systems in combating climate change
 - Exploring waste disposal methods and the zero waste concept
 - Environmental ethics and how they relate to corporate responsibility
 - Moving towards a low-carbon future (carbon negative)
 - Generic recommendations for cost-effective “greening” of a company
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