

# AMEV23 CLEANER PRODUCTION

## UNIT-1 INTRODUCTION

- 1.1 Sustainable development- Indicators of Sustainability- Sustainability Strategies Barriers to Sustainability- Industrial activities and Environment
- 1.2 Industrialization and sustainable development- Industrial Ecology- Cleaner Production (CP) in Achieving Sustainability
- 1.3 Prevention versus Control of Industrial Pollution- Environmental Policies and Legislations
- 1.4 Regulation to Encourage Pollution Prevention and Cleaner Production
- 1.5 Regulatory versus Market Based Approaches.

## UNIT-2 CLEANER PRODUCTION

- 2.1 Definition- methodology- Historical evolution- Benefits- Promotion- Barriers- Role of Industry, Government and Institutions
- 2.2 Environmental Management Hierarchy- Relation of CP and EMS-
- 2.3 Integrated prevention and pollution limitation
- 2.4 Best Available Technology concept (BAT), Internet information & Other CP Resources.

## UNIT-3 CLEANER PRODUCTION PROJECT DEVELOPMENT & IMPLEMENTATION

- 3.1 Overview of CP - Assessment Steps and Skills - Preparing for the Site, Visit, Information gathering, and Process Flow Diagram Material Balance
- 3.2 CP Option Generation- Technical and Environmental Feasibility analysis- Economic valuation of alternatives- Total Cost Analysis- CP Financing- Establishing a Program
- 3.3 Organizing a Program- Preparing A Program Plan- Measuring Progress-
- 3.4 Pollution Prevention and Cleaner Production Awareness Plan.

## UNIT-4 SUPPORT INSTRUMENTS OF PREVENTION METHODS

- 4.1 Life cycle analysis Elements of LCA- Life Cycle Costing
- 4.2 Eco Labelling- Design for The Environment
- 4.3 International Environmental Standards-
- 4.4 ISO 14001- Environmental audit- Environmental statement.

## UNIT-5 CASE STUDIES

- 5.1 Industrial Applications of CP, LCA, EMS and Environmental Audits.

### Reference Books:

1. World Bank Group „Pollution Prevention and Abatement Handbook – Towards Cleaner Production“, World Bank and UNEP, Washington D. C., 1--8.