



ELECTRONIC WASTE MANAGEMENT – ISSUES AND CHALLENGES

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PRE-REQUISITES : Environmental Sciences, Introduction to Environmental Engineering

INTENDED AUDIENCE : Disciplines of Engineering, Science, Humanities and Management

INDUSTRIES APPLICABLE TO : E Parisaraa, Ecoreco Recycling, Earth Sense, Attero Recycling, EWRI, WEEE Recycle, J. S. Pigments Limited. In addition ULBs across the country will be interested in this course, so as professionals from SPCB and CPCB.

COURSE OUTLINE :

This course will discuss the overall scenario of E-Waste management in India in comparison with other countries around the globe. At first, the present scenario of E-Waste management in India (mostly informal) will be discussed along the role of various stakeholders. Then, the effects of recycling and management of Electronic Waste on human health, environment and society will also be presented. This will be followed by the risk assessment owing to pollutants released from E-Waste recycling in soil, air and water. The possible option of extraction of Rare-Earth Minerals will also be discussed in this course. The E-Waste management Rules of India and around the World will be compared. Finally a Life-Cycle Analysis approach will be employed for a possible sustainable solution of E-Waste Management for cutting the ill-effects of informal recycling. The topics will include: Composition of E-Waste and its generation rates across the world; The various processes of informal E-Waste management and its ill-effects on health and society; Formal Metal extraction processes from E-Waste; Life-Cycle-Analysis (LCA) and sustainable engineering from electrical and electronics industry perspectives. The existing E-Waste Management rules in India and comparison with other countries around the world, the Extended Producer Responsibility (EPR) and other take-back system. A major focus of this course will be the role of E-Waste management within the various initiatives of the Govt. of India including: Swachh Bharat Mission, Smart Cities as well as Make in India. The challenges of E-Waste management for smart cities will also be discussed taking few case studies from various developing nation around the globe. This will be followed by overview of the Electronic Waste (E-Waste) management issues in India in general and for the smart cities in particular. The new rules such as Extended Producer Responsibility (EPR) with respect E-Waste Management will also be covered in these course.

ABOUT INSTRUCTOR :

Prof. Brajesh Kr. Dubey has his Bachelors Degree in Civil Engineering (Hons) from Indian Institute of Technology (IIT) Kharagpur, India and PhD in Environmental Engineering Sciences, University of Florida, Gainesville, Florida, USA. He is presently Associate Professor (Integrated Waste Management and Sustainable Engineering) in the Division of Environmental Engineering and Management at Indian Institute of Technology (IIT), Kharagpur, India. Dr. Dubey has more than 17 years of research, teaching, training and industrial outreach experience in the areas of Integrated Solid and Hazardous Waste Management, and Sustainable Engineering and Application of Life Cycle Assessment techniques. He also works in the area of Life Cycle Analysis and Sustainable Engineering. He has been teaching courses in the area of Solid Waste Management, Hazardous Waste Management. Dr. Dubey has authored/co-authored more than 200 publications in his area of expertise and have presented at several national and international conferences. He has worked as Waste Management Expert for UN agencies and World Bank.

COURSE PLAN :

Week 1: Overview of the course

Week 2: Exposure pathway of pollutants emitted from Recycling of E-Waste

Week 3: E-Waste Management Rules of India (2011 and 2016 Rules)

Week 4: E-waste Management: Case Studies and Unique Initiatives from around the World