



PLASTIC WASTE MANAGEMENT

PROF. BRAJESH KUMAR DUBEY

Department of Civil Engineering
IIT Kharagpur

PRE-REQUISITES : Basic Environmental Science, Basic Differential Equations, Basic Chemistry

INTENDED AUDIENCE : Civil and Chemical Engineering BTech programs, Environmental Engineering and Environmental Science Masters and Doctoral Programs

INDUSTRIES APPLICABLE TO : AECOM, Ramky, Environmental Resource Management (ERM), SENES/ARCADIS. Waste Management related companies, Govt. Agencies

COURSE OUTLINE :

This course will focus on:1. Introduction of Plastic pollution as a global problem today.2. What is Plastic Waste? The Magnitude of the problem on global scale and in Indian context. Plastic in Ocean and impact on sea life and economy.3. What is the nature and complexity of this problem and what could be the best way to manage the plastic waste and how to mitigate the risk from plastic waste.4. Plastic Waste Management Rules 2016, Recent Plastic Bans and the use of Extended Producer Responsibilities (EPR) concepts in managing Plastic waste in India.5. Best Practices of Managing Plastic Waste from around the World including use of Plastic waste in road (experience from Indian context and other countries)6. Way forward – how to manage this waste stream applying state of the art technologies

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, Life Cycle Analysis and Environmental Risk Assessment among other courses for nearly a decade. He has taught at several universities in USA, Canada, New Zealand, China and India. He has also conducted training programs in the Integrated Waste Management areas including that for Electronics Waste. 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: Plastics – What it is? Types, Uses and Global Statistics

Week 2: Plastic Waste – Sources, Production, Global and Indian Context

Week 3: Plastic Waste Management Rules 2016 (India) and Global Rules and Regulations

Week 4: Plastic Bans including China Sword Policy implication on global plastic waste management

Week 5: Impact of Plastics on Marine Life, Effect on Wildlife, Human Health and Environment

Week 6: Plastic Waste Management Practices – Use of Plastic waste in roads, issues and challenges

Week 7: Possible Alternate Materials to Plastics –Greener Alternatives

Week 8: Plastics Resource Recovery and Circular Economy.