



INTRODUCTION TO ENVIRONMENTAL ENGINEERING AND SCIENCE -FUNDAMENTALS AND SUSTAINABILITY CONCEPTS

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TYPE OF COURSE : Rerun | Core | UG**COURSE DURATION** : 12 weeks (24 Jan' 22 - 15 Apr' 22)**EXAM DATE** : 24 Apr 2022**PRE-REQUISITES** : Basic High School Math, Physics and Chemistry**INTENDED AUDIENCE** : Students of all UG Programs**INDUSTRIES APPLICABLE TO** : AECOM, Ramky, Environmental Resource Management (ERM), SENES/ARCADIS, L&T, Tata-Projects, and all companies involved in any construction projects in the country.**COURSE OUTLINE :**

The objective of this online course is to provide an overview of the environmental issues that the working professionals should be aware of as per the directive of the Honourable Supreme Court of India. The course will cover basic concepts of ecology, water pollution, water and wastewater quality and treatment, solid and hazardous waste management, soil and noise pollution, sustainability concepts including Environmental Impact Assessment, Life Cycle Assessment, Waste Minimization, Circular Economy and Sustainable Development Issues.

ABOUT INSTRUCTOR :

Prof. Brajesh Kr. Dubey obtained 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. Working in the area of Life Cycle Analysis and Sustainable Engineering, he teaches courses in Solid Waste Management, Hazardous Waste Management, Life Cycle Analysis and Environmental Risk Assessment.

COURSE PLAN :**Week 1:** Sustainability Concepts – Innovations and Challenges**Week 2:** Environmental Measurements from Different Disciplines**Week 3:** Ecology, Population & Environmental Chemistry**Week 4:** Physical Process in Environment**Week 5:** Environmental Biological Concepts**Week 6:** Environmental Risk Assessments with Concepts of EIA and LCA**Week 7:** Water – Quantity and Quality**Week 8:** Water Treatment Basics**Week 9:** Basics of Wastewater Collection, Treatment & Resource Recovery**Week 10:** Basics of Solid Waste, Soil and Noise Pollution**Week 11:** Basics of Air Pollution Issues – Global and Local**Week 12:** Case Studies and Course Wrap-up