Risk and Life Cycle Assessment of Engineered Nanoparticles in the Environment

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Overview

Engineered nanoparticles (ENPs) have found applications in over 3000 consumer products with new applications being identified on a daily basis. Upon use and end of life cycle, ENPs can find their ways into various environmental compartments. Globally, researchers and regulators are faced with unique challenges of detecting ENPs in different environmental matrices such as soils, waters and biota, and poor understanding of the complex interactions that ENPs can have with the various environmental matrices. Efforts are, however, underway to assess the potential risk of different types of ENPs on human health and the environment, but to achieve this would require robust laboratory and filed data on ENP mobility, persistence, speciation, reactivity and toxicity.

This course is aimed at providing an insight into quantifying potential risk associated with ENPs and educate the course participants to identify factors influencing ENP toxicity, their fate and behavior in the aquatic environment, and the methods for life cycle assessment, human health risk assessment, including risk communication and management. The primary objectives of the course are as follows:

i) Exposing participants to the fundamentals of ENPs behavior in different environmental matrices including water and soil;
ii) Understanding the chemistry behind the interaction of ENPs with microbes, characterization techniques to elucidate interactions, and evaluation of toxicity; and
    a. Enhancing the capability of the participants to:
    b. Determine the Concentration of ENPs in Aqueous Environment.
    c. Risk Assessment, Risk Communication and Risk Management
    d. Life Cycle Analysis

Modules	Lectures: 13 hours, Tutorials: 04 hours Duration: 05 days (14-18 March, 2022)
You Should Attend If…	▪ You are a post-graduate student in any of the following Streams (Civil Engg., Environmental Engg., Chemical Engg., Biochemical Engg., Biotechnology) ▪ You are working as a Research Scholar / Engineer / Research Scientist from government organizations including R&D laboratories and private firms ▪ You are a faculty from academic institution/ Researchers (Engg. /Life Sciences) working in any sectors as long as they are interested in Risk and Life Cycle Assessment.
Fee Schedule	Fees for the course: • **Participants outside India: US $300** • **Industry/ Research Organizations: Rs. 5,000** • **Academic Institutions (Faculty): Rs. 2,000** • **Academic Institutions (Students & Ph.D. Scholars): Rs. 1,000** The course will be conducted in **online mode** and the number of participants for the course will be limited to hundred
How to register?	Interested candidates can register on the following link: http://gian.iitkgp.ac.in/GREGN/index The payment can be made through NEFT Transfer to the following account details: Beneficiary Name: Director, NIT Andhra Pradesh; Bank: State Bank of India; Branch: Satyavathi Nagar, Tadepalligudem; Beneficiary Account No.: 34999 496394; MICR Code: 534002105; IFS Code: SBIN0016305.

The Faculty

Dr. Lok R. Pokhrel is an Assistant Professor in the Department of Public Health (BSOM) and the Department of Health Education and Promotion (HHP) at East Carolina University. He is trained as a toxicologist and chemical risk assessor and his research is focused on: sustainable development of Nanotechnology-based products to solve imminent public health concerns including Zika virus disease, microbial resistance, and water quality issue; and understanding environmental health and safety (nano-EHS) of engineered nanomaterials (ENMs) and nano-based products through toxicity and risk analysis.

Prof. Brajesh Kumar Dubey is an Associate Professor at Indian Institute of Technology Kharagpur. His research interests include: Integrated Solid and Hazardous Waste Management, Fate and transport of emerging contaminants (e.g., Nano waste) in environmental systems, Environmental nanotechnology, Environmental risk Assessment, landfill leachate treatment and management and Site remediation.

Dr. Baranidharan S is an Assistant Professor at National Institute of Technology Andhra Pradesh. His research interest includes Fate and Transport of Emerging Contaminants in water and wastewater.

Course Coordinator

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http://nitandhra.ac.in/dept/civil/16914