

Overview

Water is one of the most important entities for all aspects of life. About 97.5% of all water is existed in oceans, and only < 1% of remaining freshwater is accessible for human usage. It is essential to provide sufficient water quantity and good water quality for drinking, agricultural production, industrial processes, medicines synthesis, hygiene, and sanitation. However, the world has been facing a water crisis with both quantity and quality due to the continuous population growth, industrialization, poor water management, illegal discharging of wastewater, climate change, and global warming. Industrial production and human activity have contaminated water resources with toxic chemicals and emerging pollutants. It is time to develop innovative green technology for water and wastewater treatment in order to make the process environmental-friendly along with efficient recovery of resources.

Environmental nanotechnology is a newly developed environmentally benign technology for water and wastewater treatment, which can use small amounts of nanomaterials such as photocatalysts and adsorbents to enhance atomic efficiency as well as to improve the catalytic degradation efficiency. Now the use of environmental nanotechnology for improving the water quality of treated water and wastewater has become one of the major problem-solving strategies for the removal of recalcitrant chemicals and pharmaceutical and personal care products (PPCPs). Various types of nanomaterials including metal/metal oxide nanoparticles, different dimensional of carbon-based materials, titanium oxide nanomaterials, and mesoporous materials, namely TiO₂, carbon, and titanium nanotubes, quantum dots, zerovalent metals and core-shell nanoparticles can be applied to the environmental treatments. It is essential that water and wastewater treatment plants in India can develop their own specified nanomaterials to promote an efficient treatment strategy for achieving excellence in treatment performance to provide sufficient quantity of potable water as well as to recover the treated water body for further usage.

Global Initiative on Academic Network (GIAN)



सत्यमेव जयते

Government of India
Ministry of Human Resource
Development

Nanotechnology in Water and Wastewater Treatment (NWWT)



Conducted by -
School of Infrastructure
IIT Bhubaneswar
April 4 - April 9, 2022

Objectives of the course

- Exposing participants to the fundamentals of Environmental Technology for Water and Wastewater Treatment
- Building in confidence and capability amongst the participants in the application of environmental nanotechnology in terms of water and wastewater treatment framework
- Providing exposure to practical problems in water and wastewater treatment plant and their solutions using environmentally benign nanomaterials with tunable and controllable physicochemical properties
- Enhancing the capability of the participants to identify, control, and remove recalcitrant chemicals and PPCPs in engineered nanotechnology systems for the treatment and recovery of water and wastewater.

Who can attend?

- Environmental executives, engineers and researchers from manufacturing, service and government organizations including R&D laboratories
- Student at all levels (BTech/MSc/MTech/PhD) or Faculty from reputed academic institutions and technical institutions

Last date to register: March 31, 2022

TOPICS COVERED

Introduction to environmental nanotechnology, application and implementation of nanotechnology to the environment, fabrication and synthesis of nanomaterials, phase reactions between nanomaterials and contaminants, titanium-based nanomaterials and their photocatalytic activity, carbon-based nanomaterials and their applications, synthesis of porous materials, etc.,

Tutorials: Demonstration and Problem solving with examples.

Duration: 5 days (April 4-8, 2022)

Mode of Lecture : Online

Date of Examination: April 9, 2022

Registration Details

REGISTRATION FEE:

Participants outside India: USD 200

Industry/Research Organizations: INR 5,000

Faculty: INR 2,000

Students and Ph.D. scholars: INR 1,000

LINK FOR REGISTRATION:

<http://gian.iitkgp.ac.in/GREGN/index>

BANK DETAILS:

A/C Name: CEP, IIT Bhubaneswar

A/C No: 24282010001960

IFSC Code: CNRB0017282

Bank Name : Canara Bank

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PROF. RUEY-AN DOONG



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Director of Center for Energy and
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