



**Global Initiative of Academic Networks (GIAN)
International GIAN Course – 2025**



On

**Industrial Wastewater Management towards Sustainable
and Safe Environment**

April 21-25, 2025

Organized by



**Department of Soil & Water Conservation Engineering
GB Pant University of Agriculture and Technology Pantnagar
Uttarakhand, India-263145**

Course Brochure

Course Coordinator(s):

Dr. Deepak Kumar : Course Coordinator
Dr. H J Shiva Prasad : Course Co-Coordinator/
Local GIAN Coordinator

Industrial Wastewater Management towards Sustainable and Safe Environment

Overview

This course delivers into the crucial realism of industrial wastewater management, with a specific focus on pretreatment as an essential step in ensuring a cleaner and safer environment. It addresses the pressing issue of certain industrial discharges interfering with the operations of publicly owned treatment works (POTW) and Municipal Wastewater Treatment Plants (WWTP). When these discharges are not properly managed, untreated, or inadequately treated wastewater can find its way into our rivers, lakes, and other vital water bodies. The course covers the concept of interference in Municipal WWTP operations, explores the limitations of biological wastewater treatment processes, and the potential adverse consequences for our environment, such as the decline of fish populations and other ecological impacts. Even when toxic pollutants are effectively removed from wastewater, there remains the risk of these pollutants entering sewage sludge, which can ultimately transform into fertilizer for various applications. The course also emphasizes pollution prevention, a practice that focuses on reducing or eliminating waste at its source. This includes modifying production processes, using nontoxic or less-toxic substances, implementing conservation techniques, and reusing materials. Pollution prevention encompasses all aspects of production processes, from raw material usage to waste management, aiming to minimize ecological impacts through innovative approaches and material substitutions.

Through case studies and a comprehensive examination of pollution sources and their effects on the environment, this course provides valuable insights into the field. It also delivers important water quality indicators for surface and groundwater, offering a holistic perspective on pollution prevention and water protection at local, state, and national level.

Objectives:

1. Broad Understanding: Provide participants with a comprehensive view of industrial and municipal wastewater treatment scenarios.
2. Small and Medium Industrial Waste: Highlight the current issues related to the management of small and medium industrial waste.
3. Unified Pretreatment: Present a unified pretreatment process as an effective solution for discharges.
4. Biological Treatment Fundamentals: Expose participants to the fundamentals of the biological treatment process.
5. Collaborative Efforts: Emphasize the advantages of combined efforts between municipalities and industries to manage discharges under regulatory frameworks.
6. Regulation Implementation: Equip participants with the knowledge and skills to implement regulations at the local, state, and national levels to address pollution prevention and protect state water and the environment.

Teaching Faculty

- **Dr. Vijay Kubsad** - Senior Environmental Engineer, Washington State Department of Ecology; Adjunct Professor at Washington State University, USA
- **Dr. Deepak Kumar** - Assistant Professor, Soil & Water Conservation Engg., GBPUAT Pantnagar
- **Dr. H.J Shiva Prasad** –Professor, Department of Civil Engineering, GBPUAT Pantnagar

Lecture Schedule: April 21-25, 2025

The course is divided into lectures, tutorials and hands-on modules as follows:

Lectures

- Lecture 1: Introduction to industrial and municipal growth scenario and treatment methods; ground water-surface water pollutions and their sources
- Lecture 2: Pollutant effects on soil and crops; water quality standards and Guidelines.
- Lecture 3: Current issues of small and medium industrial waste management
- Lecture 4: Production processes—from raw material usage and inventory procedures to waste management and utilities conservation; priority pollutants
- Lecture 5: Issues related to heavy metals in wastewater; its harmful effects on environment; Remediation principles of wastewater having heavy metals
- Lecture 6: Fundamentals of the biological treatment process and importance, Water treatment systems; kinetic and equilibrium approaches; organic and hydraulic loading.
- Lecture 7: Advanced biological treatment process, wastewater reclamation, recycle, zero discharge
- Lecture 8: Process design, chemical management; Ground water pollution; contaminant transport.
- Lecture 9: Combined effort of Municipal and industry to manage the discharge under regulation; local, state and national level regulation
- Lecture 10: Economical approach to small/medium industry discharge solution

Tutorials

- Tutorial 1: Water quality standards; Pollution prevention, case study-1 Solids, slug loading effects on WWTP - Food processing)
- Tutorial 2: Pollution prevention, case study 2: Total dissolved solids removal (Lumber industry)
- Tutorial 3: Various Experimental methods for remediation of heavy metals in industrial water
- Tutorial 4: Water reclamation and land application, case study 3: Winery industry
- Tutorial 5: Pollution prevention, case study 4- PCB removal (Beverage industry)

Evaluation

Participants will be evaluated through Assignments/Quiz. After successful completion of the course, all participants will get participation certificate. GIAN course details are available in national GIAN portal (<https://gian.iith.ac.in/>).

Prospective Participants

- Students at all levels (BTech/MSc/MTech/PhD) or Faculty from academic institutions and technical institutions
- Policy and decision-makers, Engineers, Environmental specialists, urban planners, consultants, and developers working in urban water management and water security.

Registration Process & Fees

First, the participants must do the mandatory registration in the Google form link given below. After scrutiny of the registered participants, eligible participants will be notified through email for the registration fee payment. The registration fees (**non-refundable**) for participating in the course are as follows:

Category	Registration Fee		Remarks
		Offline	
Students (Research Scholars/ PG)	INR	500/-	Note: Rs 500/- shall be charged extra for Award of grade.
Faculty/Researchers from Academic/Research Institutions	INR	1000/-	
Participants from Industry, Gov. Engineers, consultants etc	INR	1500/-	
Participants from abroad	USD	\$ 25	

Online Registration Form (for external participants): <https://forms.gle/gXdpiwQQcGSY5W6b6>

No TA, DA will be provided to the participants. Participants have to arrange their own accommodation and food. However, limited shared accommodation may be made available (subject to availability) in the university guesthouse/Hostels on request basis. Payment for accommodation & food is extra as per actuals.

Last Date of Registration: March 31, 2025

You will be notified about the confirmation of registration on **2nd April 2025**; you have to pay the registration fee till **7th April 2025** and have to send the proof of payment through mail or google link shared through the confirmation mail.

About GBPUAT University

G. B. Pant University of Agriculture and Technology, also known as Pantnagar University, is the first agricultural university of India. It was inaugurated by Jawahar Lal Nehru on 17 November 1960 as the "Uttar Pradesh Agricultural University" (UPAU). Later the name was changed to "Govind Ballabh Pant University of Agriculture and Technology" in 1972 in memory of the first Chief Minister of Uttar Pradesh, statesman and Bharat Ratna recipient Pandit Govind Ballabh Pant. The G.B. Pant University is a symbol of successful partnership between India and the United States. The establishment of this university brought about a revolution in agricultural education, research and extension. It paved the way for setting up of 31 other agricultural universities in the country. The University lies in the campus-town of Pantnagar in the district of Udham Singh Nagar, Uttarakhand. The university is regarded as the harbinger of the Green Revolution in India. Please visit: <https://www.gbpuat.ac.in/>

How to reach Pantnagar

The university campus is located at a distance of 250 km from Delhi in Udham Singh Nagar district of Uttarakhand. The nearby towns are Rudrapur (16 km), Haldwani (25 km), Lalkuan (13 km) and Nainital (65 km). Two National Highways- NH 87 and Bareilly- Nainital highway touch the campus. Pantnagar Airport, operated by Airports Authority of India is located in the campus, 2.5 km west of main administrative building. Lalkuan railway station is the nearest railway station. Local rickshaws, auto-rickshaws connect various parts of the campus.



Brief CV of Experts



Dr. Vijay Kubsad is an Adjunct Professor at Washington State University. He has over 30 years of experience in wastewater treatment & engineering, regulation, consultation, teaching, training, and applied research. Dr. Kubsad did his Bachelor of Engineering in Civil at BVB Engineering College Hubli (Karnataka University) and master's in environmental engineering at V.J. Technological Institute (University of Mumbai). He completed his doctorate at IIT Bombay receiving a Ph.D. in Environmental Engineering. He expanded on his studies, did a research fellowship at University of Wollongong, Australia on permeable reactive barriers (PBRs). Dr. Kubsad has a broad range of professional experience with international exposure from India, Australia, Canada, and USA over three decades. His academic experience from teaching to research extends with academic appointments in engineering Colleges and university in India. In the USA, he is working since 2015 at the Washington State Department of Ecology. He is a licensed professional engineer (P.E.) managing US EPA and State industrial pretreatment program and promoting environmental regulatory compliance in the eastern region. He is a Board-Certified Environmental Engineer (BCEE), American Academy of Environmental Engineers. His expertise includes reclaimed water treatment technologies, membraned wastewater, engineered sub- surface design for liner application, Greenhouse gas (GHG)-carbon footprint, inventory, and project management. He has authored numerous research papers, book chapters and delivered talks nationally and internationally at conferences.



Dr H J Shiva Prasad is presently with the Department of Civil Engineering, College of Technology, Govind Ballabh Pant University of Agriculture and Technology, Pantnagar of Uttarakhand State, India (A Government of Uttarakhand State University) as Professor of Civil Engineering. He has been assigned additional duties as Director, International Affairs of the university. He got more than thirty seven (37) years of teaching and industrial experience at different institutions/universities/organisations. He has more than fifty three publications of National and International Journals / Conferences to his credit. He has organised thirty (30) training / workshop programmes for the faculty of engineering colleges, field engineers funded by DST, AICTE-ISTE, Science Academies, TEQIP WORLD BANK project etc and attended more than fifty (50) workshops, training programmes organized by Science Academy, DST, DOE, AICTE, ISTE, ICH, and NORAD. He was an elected member of council of management of Indian Water Works Association (IWWA) during 1997-98 and worked as Secretary cum treasurer of ISTE Chapter, College of Technology, GBPUA&T Pantnagar for six years. He is a life member of professional bodies like International Association of Hydrological Sciences (IAHS), Indian Society for Hydraulics (ISH), Indian Water Works Association (IWWA), Indian Water Resources Society (IWRS), Indian Association of Hydrologists (IAH), Indian Society for Technical Education (ISTE). He has visited WSU at Sydney, Griffith, QUT and UQ universities at Brisbane in Australia also.



Dr. Deepak Kumar is currently working as an Assistant Professor in Department of Soil and Water Conservation Engineering, GB Pant University of Agriculture & Technology (GBPUA&T), Pantnagar, India. His specific research interests focus on groundwater remediation principles, soil and water conservation methods, wastewater treatment and remote sensing technologies. He holds a Ph.D. in Civil Engineering with emphasis on Water Resource Engineering from IIT Delhi; M. Tech in Agricultural Systems and Management from IIT Kharagpur, India. Dr. Kumar has also worked as Adjunct Fellow at School of Engineering, Design and Built Environment, Western Sydney University Australia. He has publications in peer reviewed journals like Journal of Contaminant Hydrology, Neurocomputing, Journal of Irrigation and Drainage Engineering, Water Resource Management, Journal of Water and Land Development, Journal of the Geological Society of India etc. He is an active member of Institute of Engineers, American Geophysical Union, European Geosciences Union, IEEE Geoscience and Remote Sensing Society (GRSS), Indian Society of Remote Sensing, International Association of Hydrogeologists, International Water Association (IWA), Indian Association of Hydrologists etc. He has delivered invited lectures in various engineering, research institutions, and technical associations like Western Sydney University, Australia; DoH IIT Roorkee; Graphic Era Deemed to be University, Uttarakhand; Invertis University, U.P India; Assam University, Silchar etc.

Contact Details:

Course Coordinator

Dr. Deepak Kumar

Assistant Professor

Department of SWCE

College of Technology, GBPUAT

Email- deepakkumar.swce@gbpuat-tech.ac.in; WhatsApp- 7817889836

Course Co-Coordinator/ Local GIAN Coordinator

Prof. H.J Shiva Prasad

Professor

Department of Civil Engineering

College of Technology, GBPUAT

Email- ia@gbpuat.ac.in or ia.gbpuat@gmail.com; WhatsApp No- +91 8449859593



शिक्षा मंत्रालय
MINISTRY OF
EDUCATION

Global Initiative of Academic Networks (GIAN) International GIAN Course – 2025



on Industrial Wastewater Management towards Sustainable and Safe Environment

21st- 25th April 2025

International Expert:

Dr. Vijay Kubsad

Senior Environmental Engineer,
Washington State Department of Ecology, USA
Adjunct Professor at Washington State University, USA

Scan to register



Last Date of Registration: March 31, 2025
Confirmation of Participation: April 2, 2025
Payment of registration fee- Till April 7, 2025

<https://forms.gle/gXdpjwQQcGSY5W6b6>

Course Coordinator:

Dr. Deepak Kumar

Email- deepakkumar.swce@gbpuat-tech.ac.in
WhatsApp- 7817889836

Local GIAN Coordinator:

Prof. H.J Shiva Prasad

Email- ia@gbpuat.ac.in
or ia.gbpuat@gmail.com;
WhatsApp No/Telegram- +91 8449859593

Organized by :

Department of Soil & water
Conservation Engineering,
College of Technology
GBPUAT Pantnagar (www.gbpuat.ac.in)
Uttarakhand, India

Category	Registration Fee		Remarks
	INR	USD	
Students (Research Scholars/ PG)	500/-		Note: Rs 500/- shall be charged extra for Award of grade.
Faculty/Researchers from Academic/Research Institutions	1000/-		
Participants from Industry, Gov. Engineers, consultants etc	1500/-		
Participants from abroad		\$ 25	