



# MHRD Scheme on Global Initiative of Academic Networks (GIAN)

Online Course on

## "TREATMENT & VALORIZATION OF WASTES"

September 07 – 12, 2022

Organized by Department of Civil Engineering

Indian Institute of Technology (Indian School of Mines), Dhanbad, India



Last date for registration 31 August, 2022

### Course Overview

This course deals with the problems associated with the generation of industrial wastes and their impact on the environment and public health. The course will focus in the minimization of wastes, reuse and recycling of materials, and waste valorization process and technologies. Urban wastes and the facilities for their treatment will also be included in the course. The concept of sustainability and circular economy will be of major interest in the analysis and design of any waste management system.

The main **objectives** of the course are as follows:

- Understand the problems associated with the wastes and its impact on the environment and health
- Analyze the technical solutions available for the management and treatment of wastes
- Understand the principles of sustainable engineering applied to manage and valorize of wastes
- Design the waste management systems in a context of sustainability and circular economy
- **Life Cycle Assessment via opensource/commercial** software in the **Tutorial/Practical** Class

### Faculty



**Prof. Claudio Comeselle** is an Associate Professor at the University of Vigo, Spain. He has over 25 years of teaching and research

experience with focus on (i) treatment and valorization of industrial wastes and (ii) advanced treatment processes for industrial effluents. He has published 2 books, 7 book chapters, more than 70 journal publications and presented 26 papers in teaching innovation conferences. He is co-author of the book "*Sustainable Engineering: Drivers, Metrics, Tools, and Applications*". His areas of expertise, which includes: engineering solutions for industrial effluents, wastes and recycled materials; and valorization. His research is leading to practical solutions to the real-world problems.



**Dr. Sarat Kumar Das** is a professor and head of the department of Civil Engineering at the Indian Institute of Technology (ISM)

Dhanbad, India. He has about 30 years of experience in Civil and Geotechnical Engineering both in the fronts of academia and industry. His research interests include Sustainable and Geoenvironmental Engineering, Waste utilization, and Biogeotechnics. His work on wastes utilization mainly focused on industrial wastes such as bauxite residue, fly ash, coal mine over burden, ferrochrome slag. He has published 7 book chapters, one patent (granted) and more than 70 journal publications. He is Editorial Board member of two international Journals and reviewed for 60+ journals.

### Who should attend ????

- **Students** at all levels (B. Tech. / M. Tech. / Ph.D.) or faculty from academic institutions
- **Executives, engineers and scientist** and **working professionals** from Industries and R & D Laboratory
- **Policy planners** and **Officials** from regulatory authorities like Housing and Urban bodies, Central and state pollution control board and other R&D laboratories

### Course Registration

- Visit <http://www.gian.iitkgp.ac.in/GREGN/index>
- Register by paying Rs 500/- (those who have already been registered, need not pay again)
- Opt the course (Course ID: 191058C02) registration tab and save.
- Inform to the course coordinator by e-mail.
- Course coordinator will confirm your attendance and you must pay the course fee.

Abroad (Faculty/Researchers/ Professional): 100USD

Abroad (Other students): 50USD

Industry: Rs. 5000/-

Academic (Faculty/Researcher): Rs. 2000/-

Academic Institutions (Students): Rs. 500/-

By NEFT (Account holder name: The Registrar, Indian Institute of Technology (ISM) Dhanbad: Account No. 0986101009746; IFSC Code: CNRB0000986; Bank: CANARA BANK; Branch Name: Saraidhela Dhanbad) OR by sending a demand draft in favour of "Registrar, IIT(ISM) Dhanbad" payable at Dhanbad - 826004. OR you may use our following online payment option of Canara Bank to deposit the course fees on or before August 31, 2022. [https://eps.eshiksa.net/DirectFeesv3/IIT\\_Dhanbad/index](https://eps.eshiksa.net/DirectFeesv3/IIT_Dhanbad/index)

The above fee is towards participation in the course, and the course material. Participants are encouraged to use their personal computers.

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### Schedule

Day 1	Inaugural Section 12.30-1.00(IST)/9.00-9.30 (CET)	
	Lecture-1 14:00-15:00(IST) 10.30-11.30 (CET)	Generation of waste. Types and Classification of wastes Dr. Claudio Cameselle
	Lecture-2 15:00-16:00(IST) 11:30-12:30 (CET)	Management of wastes Dr. Claudio Cameselle
	Tutorial-1 17:00-19:00(IST) 13:30-15:30 (CET)	Overview on Generation and impact of Industrial wastes in India Prof. Sarat Kumar Das
Day 2	Lecture-3 10:30-12:00(IST) 7:00-8:30 (CET)	Characterization of Industrial wastes in India- Case studies Prof. Sarat Kumar Das
	Lecture-4 12:30-13:30(IST) 9:00-10:00 (CET)	Hazardous waste: Codification and labeling Dr. Claudio Cameselle
	Lecture-5 14:30-15:30(IST) 11:00-12:00 (CET)	Management and treatment of hazardous wastes Dr. Claudio Cameselle
	Tutorial-2 17:00-19:00(IST) 13:30-15:30 (CET)	Characterization methods of industrial wastes Dr. Claudio Cameselle
Day 3	Lecture-6 10:30-12:00(IST) 7:00-8:30 (CET)	Characterization of Industrial wastes as a geomaterial Prof. Sarat Kumar Das
	Lecture-7 12:30-13:30(IST) 9:00-10:00 (CET)	Recycling of materials Dr. Claudio Cameselle

Day 3	Lecture-8 14:30-15:30(IST) 11:00-12:00 (CET)	Analysis of material cycle: Industrial Ecology Dr. Claudio Cameselle
	Lecture-9 15:30-16:30(IST) 12:00-13:00 (CET)	Physicochemical treatment of waste Dr. Claudio Cameselle
Day 4	Lecture-10 14:00-15:30(IST) 10:30-12:00 (CET)	Life cycle analysis of Industrial wastes Dr. Claudio Cameselle
	Lecture-11 16:30-18:00(IST) 13:00-14:30 (CET)	Ecological footprint and carbon footprint Dr. Claudio Cameselle
	Tutorial-3 18:30-20:30(IST) 15:00-17:00 (CET)	Life cycle analysis: Examples Dr. Claudio Cameselle
Day 5- 11 September (Sunday)-Holiday		
Day 6	Lecture-12 13:00-14:00(IST) 9:30-10:30 (CET)	Valorization of the inorganic fraction Dr. Claudio Cameselle
	Lecture-13 14:00-15:00(IST) 10:30-11:30 (CET)	Valorization of the organic fraction Dr. Claudio Cameselle
	Lecture-14 16:30-17:30(IST) 13:00-14:00 (CET)	Review of the Course Dr. Claudio Cameselle
	Tutorial-4 18:30-20:30(IST) 15:00-17:00 (CET)	Final Examination Prof. Sarat Kumar Das

### Important

- Participants for the course will be selected on first come first served basis.
- Number of participants for the course will be limited to eighty.
- All registered participants must fill this form: <https://forms.gle/JV98k2LvMgzGdF2A7> or Scan
- This is an online course. Nonetheless all participants will be provided physical certificates.



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### Patron

Prof. Rajiv Shekhar (Director) Indian Institute of Technology (ISM), Dhanbad.

### Co-Patron

Prof. Sarat Kumar Das, Head of the Department, Department of Civil Engineering Indian Institute of Technology (ISM), Dhanbad.

### Course Coordinator

Prof. Sarat Kumar Das  
Professor, Department of Civil Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad-826004, INDIA.

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### Local GIAN Coordinator

Prof. Ravi Kumar Gangwar  
Associate Dean (Sponsored Research), Indian Institute of Technology (Indian School of Mines), Dhanbad-826004, INDIA.

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