About IIT Kharagpur

Kharagpur - a dusty town tucked away in the eastern corner of India, famous until 1950 as home to the longest railway platform in the world - became the nursery where the seed of the IIT system was planted in 1951. IIT Kharagpur started its journey in the old Hijli Detention Camp in Eastern India, where some of the country's great freedom fighters toiled and sacrificed their lives for India's independence. Spurred by the success of IIT Kharagpur, four younger IITs sprouted around the country in the two following decades, and from these five came thousands of IITians, the brand ambassadors of modern India. It was the success of this one institution at Kharagpur that wrote India's technological odyssey.

The Institute takes pride in its relentless effort to provide the best platform for both education as well as research in the areas of science and technology, infrastructure designs, entrepreneurship, law, management, and medical science and technology. IITKGP is not just the place to study technology; it is the place where students are taught to dream about the future of technology and beam across disciplines, making differences enough to change the world.

Program Features/ Structure

Classroom lectures – **70%**

Tutorial, Case study and Activity – **30%**

Program Schedule and Venue

1 week, 25th – 29th November 2019 (9:30 AM – 6 PM)

IIT Kharagpur – School of Environmental Science and Engineering

Program Fee

Refundable upon completion of course:
Teacher from AICTE institutions: Rs. 1000/- **(Please send a bank draft payable to IIT Kharagpur by courier to the Head of School)**
Non-refundable:
Teacher from non-AICTE institutions: Rs. 5,000/-
Industry Person: Rs. 12,000/-
Outside Students : Rs. 4,000/-
IIT Kharagpur Students : Rs. 2000/-
(Please add 18% GST)
(Inclusive of refreshments and course kit)

Who will benefit (Eligibility)

M.Tech /M.Sc /Ph.D for the AICTE Institutions. Relaxable for student and industry/govt. organizations participants.

Last date of Registration

31st October 2019

Accommodation

Limited shared accommodations will be available on first come first serve basis for registered participants in Visveswaraya Guest at standard applicable rates.

How to Apply

Use the link: **https://erp.iitkgp.ac.in/CEP/courses.htm** to apply ONLINE.

Signup → Login → Profile Fillup → Choose a Program → Apply Now

Payment if applicable is to be done **ONLINE** after getting short listed for the program.

Contact Us

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AICTE QIP

QUALITY IMPROVEMENT PROGRAMME

Indian Institute of Technology Kharagpur

2019

WASTE-TO-WEALTH

Paradigm, Practice and Potential

1 Week

25th to 29th November, 2019

Background

Generation of wastes of different kinds and its accelerated growth have been an undesirable but unavoidable outcome of all kinds of human activities. In the face of rapidly declining natural resources on one hand and increased consumption on the other, there has been an intensive global effort to reduce the generation of waste as well as to derive as much useful materials from the wastes. Wastes generally include solid wastes of all kinds, most of it being municipal solid wastes (MSW) and wastewater and other types of liquid wastes. According to a World Bank report published, current global generation of MSW is 2 billion tons per annum that is projected to increase by 70% by the middle of this century. UN World Development Report, 2017 estimates that out of total water withdrawal, 56% is released directly into the environment as wastewater. In our country, the generation of MSW is about 62 million tons a year from urban areas. The estimated sewage generation is about 100,000 MLD, of which less than one-third is treated before discharge. The scenario is already grim and effective steps should be taken and suitable technologies have to be deployed before the problem goes out of our hand.

About the Course

Both solid wastes, as well as wastewater, have the potential of generation of the enormous amount of useful resources. In fact, the 'Green' rhetoric which is of universal acceptance and used now places utmost importance to the efforts of recovery of useful materials and leading to zero waste in the limit. Segregation at source, recycling, composting, generation of energy through thermal or biological route have created a new paradigm in the concept of waste-to-wealth. Alternately, wastewater is considered as an enormous source of bioenergy, fertilizer (phosphorus, nitrogen), cellulose, biopolymer as well as refreshed water greatly reducing the burden on natural resources. The proposed AICTE-QIP short term course will be devoted to review the paradigm, current practices, global as well as in our country, the new R&D initiatives in these directions and the concept of circular economy in this context. Special emphasis will be laid on the Indian scenario and policies. Besides current and evolving practices, the participants will be exposed to the R&D needs and directions.

What you will learn

Course Outline

Huge quantities of solid and liquid waste generated at present and its accelerated growth have led to global initiatives to recover as much valuables as possible from the wastes. Recycling of plastics and metals, generation of energy from the biodegradables as well as combustibles, recovery of valuables from wastewater and also generation of energy from suspended and dissolved organics, generation of bio-electricity are a few of the areas that have attracted global attention. The objective of this course is to present the recent developments, achievements, policies as well as research opportunities in the above areas especially in the Indian context.

Resource persons will include IIT Kharagpur faculties and experts and professionals from relevant industries.

Course Content

- Waste – Characteristics, Types and Generation
- Solid Waste Management – Creation of Resource
- Recent Trends in Composting
- Recycling and Reuse – Plastics, Metals and Other Useful Materials
- Waste-to-Energy – The Recent Advances
- Transition from Wastewater Treatment Plant (WWTP) to Water Resource Recovery Facility (WRRF)
- Sustainability of Waste-to-Wealth Technologies
- Application of the Principles of Circular Economy

Course Coordinators

Dr. M. M. Ghangrekar

Prof. Ghangrekar has spearheaded various research projects and acted as an industrial consultant for the past 25 years. He has been the Principle Investigator for various DST, DBT and EU funded research projects and has published over 150 peer reviewed journal papers and 200 conference papers as of today. He has been identified as one of the top five publishers in the field of microbial fuel cell as par as Scopus database. He has guided thirteen doctoral students and twelve students are currently working under his guidance.

Dr. B. K. Dutta

Prof. Dutta is currently a visiting professor of School of Environmental Science and Engineering, IIT Kharagpur and had taught in India, USA, Canada, Malaysia and UAE. He had also worked at NIST, Boulder, Colorado, Stevens Institute of Technology, New Jersey and USEPA, Cincinnati, Ohio and is a former Chairman of West Bengal Pollution Control Board. He has authored three books, holds several international patents, supervised twelve doctoral students and three doctoral students are currently working under his guidance.