



Important dates

Workshop date: October 27th – 31st, 2026

Registration opening date: August 31, 2026

Registration closing date: October 20, 2026

Abstract submission opening date: Aug 31, 2026

Abstract submission closing date: Oct 8, 2026

Notification of acceptance: October 10, 2026

Venue: Gargi Auditorium, IIT Kharagpur Campus,
West Bengal, India



Program venue



Host details

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About the workshop

The aim of this five-day workshop is to provide participants with a comprehensive understanding of metabolic and process-scale engineering of algae for sustainable bioproduction. The workshop will cover synthetic biology, systems biology, genome-scale metabolic modelling, metabolic engineering, and metabolic flux analysis. Hands-on tutorials will introduce computational tools for metabolic modelling and flux analysis. Machine learning-based approaches for bioprocess modelling and optimization will also be discussed. Life cycle assessment will be introduced to evaluate the sustainability of algal bioprocesses and biorefineries. The programme will equip students, faculty, and researchers with multidisciplinary skills for developing efficient and sustainable algal bioproduction processes.



Target audience

Academicians, research scholars, UG, PG students, faculty members / professionals & industry personnel working in the concerned / allied discipline.

Registration URL:

<https://erp.iitkgp.ac.in/CEP/courses.htm>

to apply ONLINE.



Abstract submission URL:

<https://forms.gle/cTgzsguHa6VKgkzb9>

Abstract submission template :

<https://tinyurl.com/wrsbar>

The abstract will be accepted only after the registration is complete.

Accommodation will be provided on payment and first-come-first-serve basis



Registration Fee

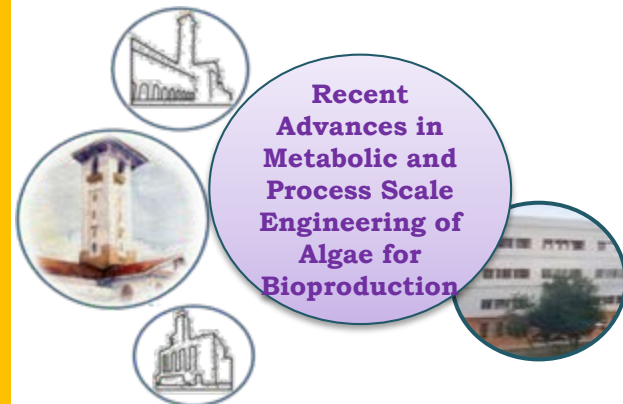
Category

UG/PG/Ph.D. : ₹1,500

Postdoc/Faculty : ₹3,000

Industry Professionals : ₹5,000

NATIONAL WORKSHOP

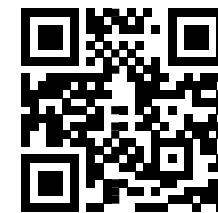


**Recent
Advances in
Metabolic and
Process Scale
Engineering of
Algae for
Bioproduction**

October 27th – 31st, 2026



**Registration
Link**



**Abstract Submission
Link**



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**School of Energy Science and Engineering
IIT Kharagpur**



About IIT Kharagpur

Indian Institute of Technology Kharagpur (IIT Kharagpur) is India's first Indian Institute of Technology and one of the country's premier institutions for education, research, innovation, and technological advancement. Established in 1951 at the historic Hijli Detention Camp in Kharagpur, West Bengal, IIT Kharagpur is an Institute of National Importance and an Institute of Eminence, with a strong legacy of multidisciplinary education and research.

Spanning approximately 2,100 acres, the Institute offers programmes across engineering and technology, sciences, biotechnology, architecture, management, law, humanities, and medical science and technology. Its vibrant research ecosystem encompasses emerging areas such as biotechnology, energy and sustainability, artificial intelligence, advanced materials, healthcare, and environmental science.

Through interdisciplinary research, academic-industry partnerships, and national and international collaborations, IIT Kharagpur continues to address complex societal and global challenges and advance cutting-edge research and innovation. As the Institute commemorates its Platinum Jubilee in 2026, it celebrates 75 years of excellence in education, research, innovation, and nation-building, while looking ahead to new frontiers of knowledge and technological advancement.



Key resource persons



Prof. Pramod P Wangikar
Professor,
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Indian Institute of Technology Bombay



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International Centre for Genetic
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Organizing team

Workshop Coordinator



Dr. Amit Ghosh
Associate Professor,
School Energy Science & Engineering,
Indian Institute of Technology Kharagpur



Workshop outline

Microalgae are emerging as promising sustainable cell factories for producing value-added products, including biofuels, biochemicals, pharmaceuticals, pigments, nutraceuticals, and other high-value biomolecules. Advances in metabolic engineering, omics-based approaches, metabolic flux analysis, and genome-scale modelling are helping to understand and engineer microalgal metabolism for improved bioproduction. Process engineering approaches are enabling efficient cultivation and scale-up, while machine learning is providing new opportunities for bioprocess modelling, prediction, and optimization. The integration of these approaches with life cycle assessment can further support the development of efficient and sustainable algal biorefineries for industrial-scale production.

This five-day workshop will bring together leading researchers and experts to discuss recent advances in algal biotechnology. The program will cover genome-scale modelling, metabolic engineering of photosynthetic microbes, genome editing tools, metabolic flux analysis, process-scale engineering, machine learning-based bioprocess optimization, and life cycle assessment. These topics will be explored through expert lectures, hands-on tutorials, and interactive discussions, fostering interdisciplinary research and sustainable algal bioproduction.

Talk content

- Reconstruction of Genome-scale metabolic model for Algae
- Metabolic engineering of Photosynthetic microbes
- Genome editing tools in microalgae
- Process scale engineering of microalgae
- Metabolic Flux Analysis of Photosynthetic microbes
- Machine learning based bioprocess optimization
- Life Cycle Assessment