



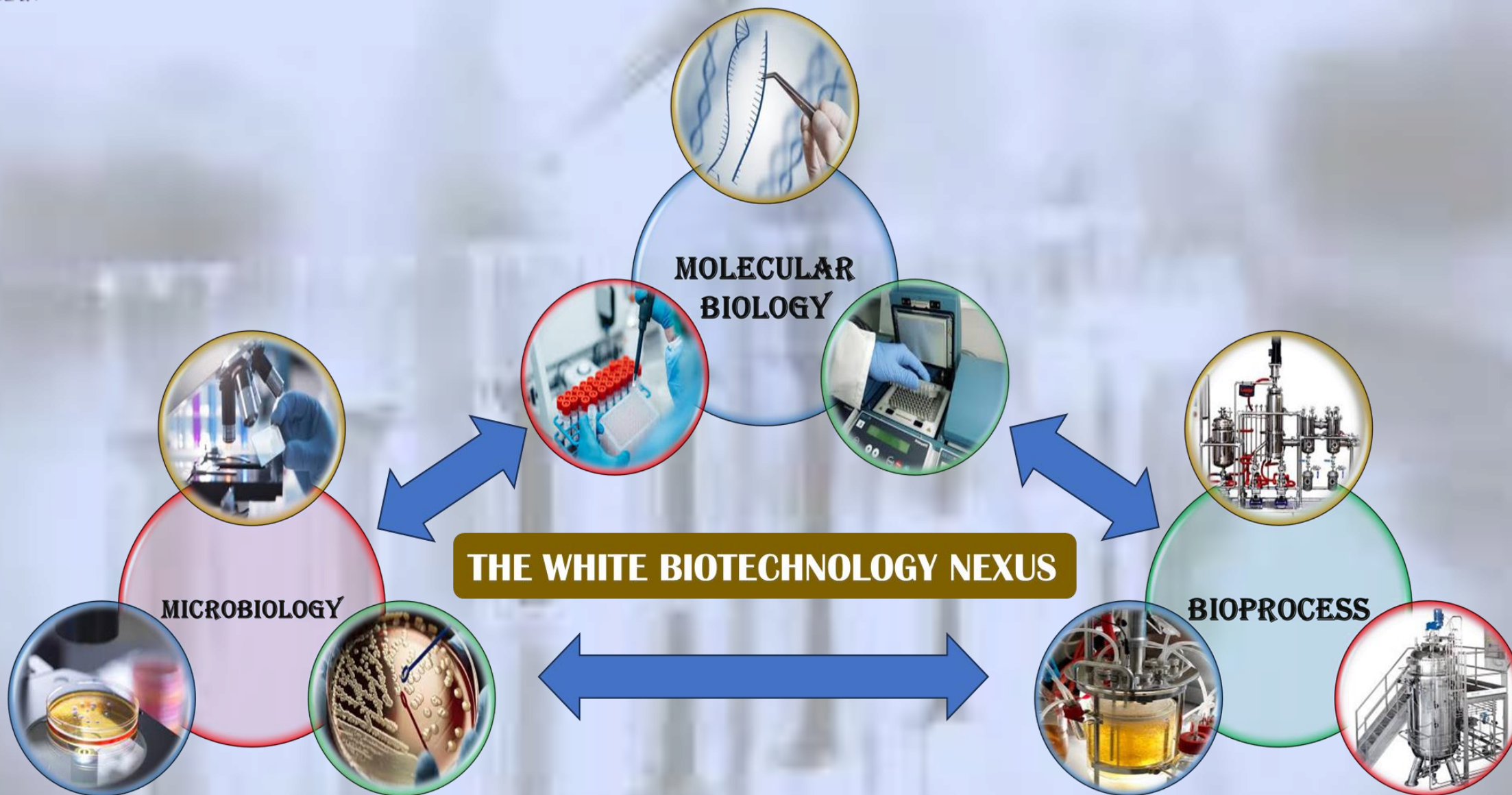
A Hands-on Training cum Workshop on

Basic Techniques in Bioprocess and Molecular Biology

12th January – 16th January, 2024



Organized by: Department of Biotechnology and Medical Engineering, NIT Rourkela



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About the workshop:

The field of Biotechnology is considered one of the oldest branches of science which incorporates research areas including but not limited to bioprocess engineering, genetic engineering, microbiology, bioinformatics, bioremediation, etc. Among these areas, bioprocess engineering and molecular biology have gained interest in the past few decades due to their vast applications in the fields of biopharmaceuticals, medical and clinical biotechnology, and industrial biotechnology.

The field of bioprocess engineering deals with the design and development of the production processes of biological products like biopharmaceuticals, beverages, industrial enzymes, biofuels, biopolymers, etc.

Molecular Biology includes the study of nucleic acids and other macromolecules like proteins and their application in different fields, specifically in the field of clinical and medical biotechnology.

The current workshop will provide insightful knowledge on the basic techniques used in the field of biotechnology, specifically in bioprocess technology and molecular biology through the guest lectures. Also, hands-on training on the basic techniques used in microbiology, bioprocess technology, and molecular biology would be provided to all the participants.

About NIT Rourkela

NIT Rourkela is one of the premier national-level institutions for technical education in the country and is funded by the Government of India. The government of India has elevated the Regional Engineering College, Rourkela to a deemed university under the name of National Institute of Technology, Rourkela.

The main objective of the Institute is to produce quality Engineers and Scientists at Graduate and Post-Graduate levels in various branches of Engineering and Science. The Institute is managed by the Board of Governors of the National Institute of Technology (Rourkela) Society and is vested with a significant degree of administrative and financial autonomy. The government of India has recognized the Institute as a premier institution of repute and has developed it as a center of excellence under plan funding. The Institute has been modernized by two foreign collaborative funding agencies i.e. the Material theme in the Materials and Metallurgical Engineering department under the Indo-U.K. REC project and the Computer Science and Electronics streams under the World Bank cum Swiss Development Corporation IMPACT project.

Vision

To become an internationally acclaimed institution of higher learning that will serve as a source of knowledge and expertise for the society and be a preferred destination for undergraduate and graduate studies.

Venue

Department of Biotechnology and Medical Engineering

The Department of Biotechnology and Medical Engineering was established in 2007 with the objective of providing a multidisciplinary research and teaching program in Biotechnology and Medical Engineering that advances a fundamental understanding of how biological systems operate and develops effective biology-based technologies for applications across a wide spectrum of societal needs including innovations in diagnosis, therapy of human diseases, design of novel biomaterials, biomedical devices, and in solving environmental hazard. The faculty members have diverse research interests and they conduct both basic and applied research in diverse areas like Cell & Molecular Engineering, Tissue Engineering & Biomaterials, Bioprocess Engineering, Environmental & Plant Biotechnology, Biomechanics & Bio Transport Engineering, Medical Electronics & Instrumentation, etc. The innovative educational programs created by the department integrates all level of biological and Medical Sciences with a quantitative, systems-oriented engineering analysis and synthesis approach that helps to make our undergraduate and graduate students capable to manage industrial and academic problems at professional levels.

Resource Person



Prof. Soham
Chattopadhyay
BIT Mesra



Prof. J. Satya Eswari
NIT Raipur



Prof. Oindrilla
Mukherjee
NIT Durgapur



Dr. Kanhaiya Kumar
CSIR, Jammu



Prof. Sourav Maity
NIT Andhra Pradesh

Course Instructor



Prof. Angana Sarkar
NIT Rourkela



Prof. Kasturi Dutta
NIT Rourkela



Prof. Amrita Singh
NIT Rourkela

Organizing Committee

Patron

Prof. Umamaheshwar Rao
Director, NIT Rourkela

Chair Person

Prof. Kunal Pal

Coordinator

Prof. Angana Sarkar

Member: Departmental Organizing Committee

Prof. Krishna Pramanik
Prof. A. Thirugnanam
Prof. Amit Biswas
Prof. Subhankar Paul
Prof. Devendra Verma
Prof. Bibhukalyan Prasad Nayak
Prof. Nandini Sarkar
Prof. Nivedita Patra
Prof. Balasubramanian P
Prof. Anju R. Babu
Prof. Kasturi Dutta
Prof. Sivaraman J.
Prof. Ravi Kant Avvari
Prof. Bala Chakravarthy Neelapu
Prof. Earu Banoth
Prof. Lohit Kumar Srinivas Gujjala
Prof. Mirza Khalid Baig
Prof. Prasoon Kumar
Prof. Amrita Singh
Prof. Anamika Singh

Member: Student organizing committee

Debapriya Sarkar
Kasturi Poddar
Pritam Bajirao Patil
Kumari Guddi
Renupama Bhoi
Suha Ibrahim
Puja Dokania
Arpita Patro
Ritwik Banerjee
Debarka Roy
Sreshtha Jadhav
Shubham Abhishek Tripathy
Shatabdi Beuria

Intended Attendees

Participation in the workshop is open to all students pursuing bachelor's or master's degrees in Biology/Biotechnology/Zoology/Botany in Indian universities/institutes.

Registration fees

THERE IS NO REGISTRATION FEE FOR THE WORKSHOP

Venue for Lectures

Seminar Hall, Department of Biotechnology
and Medical Engineering

Lunch Break: 12.00 PM to 02.00 PM

Tea: 8.30 AM

Schedule of Workshop

Day 1: 12th January 2024

10 AM – 10.30 AM

Venue: Seminar Hall, BM Department

Inauguration and brief introduction of the workshop

11.00 AM – 12.00 PM

Resource Person talk by

Dr. Kanhaiya Kumar on the topic

“A comparative study of *Streptomyces* sp. superhost empty strain and its derivative expressing antibiotic biosynthetic gene cluster at bioprocess and metabolite levels”

3.30 PM – 05.30 PM

Venue: Seminar Hall, BM Department

Poster presentation competition

Day 2: 13th January 2024

09.30 AM – 10.30 AM

Expert Talk by Prof. Angana Sarkar on

“Basic techniques for isolation of industry-relevant microorganisms.”

11.00 AM – 12.00 PM

Resource Person Talk by

Prof. Oindrilla Mukherjee on topic “Basic immunological techniques in microbiology”

02.00 PM – 05.00 PM

Venue: EMG Laboratory (Room No. 304)

Hands-on training on different techniques of isolation of industry-relevant microorganisms.

Day 3: 14th January 2024

09.30 AM – 10.30 AM

Expert Talk by Prof. Amrita Singh on

“In vitro amplification of genetic material and its confirmation”

11.00 AM – 12.00 PM

Resource Person talk by

Prof. Sourav Maity on the topic “Exploring Microscopic Frontiers: Cutting-Edge Techniques in Microbiology”

02.00 PM – 05.00 PM

Venue: EMG Laboratory (Room Non. 304)

Hands-on training on the **Polymerase Chain Reaction (PCR)** and **Gel Electrophoresis (GE)** techniques

Day 4: 15th January 2024

09.30 AM – 10.30 AM

Expert Talk by Prof. Kasturi Dutta on “Bioreactor: types, handling and operation.”

11.00 AM – 12.00 PM

Resource Person Talk by

Prof. Soham Chattopadhyay on the topic “Purification of proteins using Gel Filtration Chromatography”

02.00 PM – 05.00 PM

Demonstration of the bioreactor handling and operation

Day 5: 16th January 2024

09.30 AM – 10.30 AM

Resource Person Talk by

Prof. J. Satya Eswari on the topic “Industrial products: bioprocesses with examples at lab scale”

11.00 AM – 12.00 PM

Venue: Seminar Hall, BM Department
Valedictory Function

Lunch Break: 12.00 PM to 02.00 PM. Tea: 8.30 AM ; Snacks: 5.00 PM