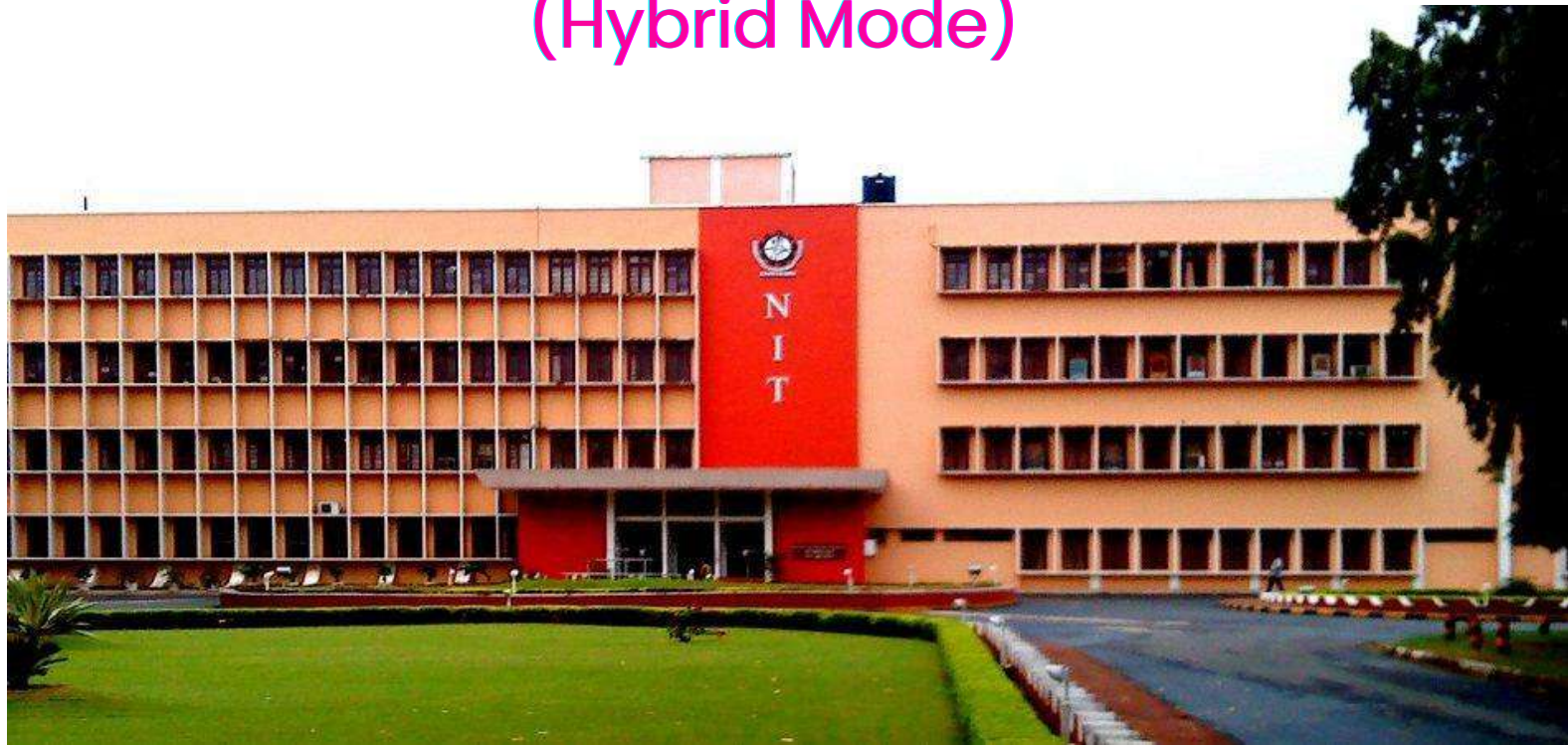


A short term course and workshop on

CONCEPTS TO COMMERCIALIZATION OF FRP COMPOSITES

**8–12 August 2022
(Hybrid Mode)**



BMW i8



Boeing 787



Pedestrian Bridge



Railway

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Metallurgy and
Materials Engineering
Rourkela Chapter



ORGANIZED BY
FRP COMPOSITES LABRATORY
METALLURGICAL & MATERIALS ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY ROURKELA
[HTTPS://WWW.FRPCLABNITRKL.COM/](https://www.frpclabnitrkl.com/)



OBJECTIVES

The course will provide fundamental knowledge, critical engineering applications and cutting-edge global research trends in the evolution of FRP composites. The attendees would get an exposure to focused avenues including mechanical, thermal and chemical behaviour of bulk polymer composite materials for a wide range of applications.

SCOPE / THEME

The emergence of FRP composites in structural and super-structural applications will be covered broadly. The significant topics would be environmental durability of FRP composites and estimation of the reliability through experimentations, characterizations, and multiscale simulations. Various dimensions of FRP composites in terms of fundamental background, material selection, interface engineering, prospects and challenges ahead of these materials to evolve as an alternate structural material in modern India will be discussed by eminent academic and industrial personnel.

ABOUT NIT ROURKELA

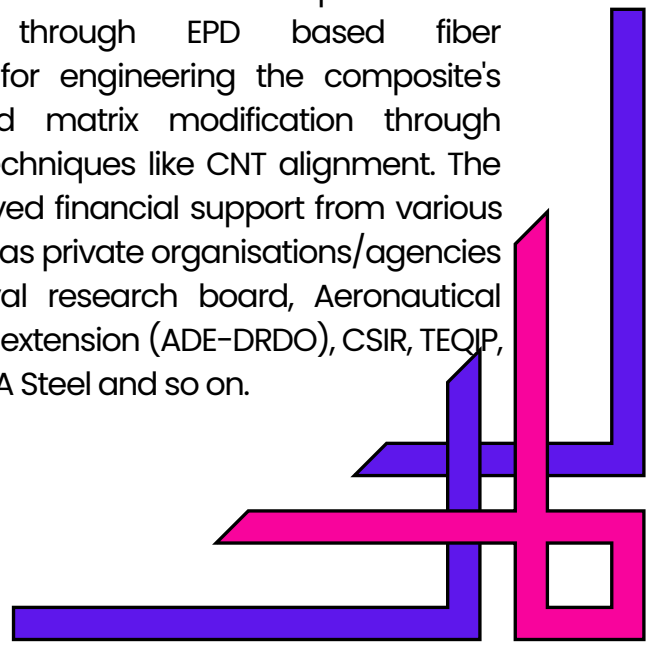
NITR is a centrally funded institute of higher learning for engineering, science and technology located in the steel city of Rourkela, Odisha, India. As per the Times Higher Education World University Rankings of 2022, NIT Rourkela has a position between 801-1000 in the world and 271-280 in Asia. NIT Rourkela is presently ranked the 3rd best NIT and 20th nationwide (including IITs) by the NIRF.

ABOUT METALLURGICAL & MATERIALS ENGINEERING DEPARTMENT

The Metallurgical and Materials Engineering Department of NIT Rourkela has earned expertise and reputation for conventional fields like study of blast furnace, fracture mechanics, advanced materials like polymer composite, nanomaterials, thin film etc. To support these it possesses high-end equipment like UTM, XRD, SEM, DSC, FTIR, Surface profilometer etc. The major emphasis of the Department right at this moment spread over from characterization of slag to nano-materials.

ABOUT FRPC LAB

FRP Composite Lab was set up about three decades back to explore the cutting-edge research in the field of polymer Composite Materials. With time the domain of research is continuously expanding both in terms of experimental design and numerical simulation in order to cater to the current industrial requirements and to be in line with global research on structural FRP composites. At present the lab deals with development and alteration of composite materials for high end applications such as naval, aerospace, construction and defence applications. Present interests of the lab lie in development of multicomponent composites such as fiber metal laminate as well as nanophased FRP composites through EPD based fiber modification for engineering the composite's interface and matrix modification through specialised techniques like CNT alignment. The lab has received financial support from various public as well as private organisations/agencies such as Naval research board, Aeronautical development extension (ADE-DRDO), CSIR, TEQIP, SERB, DST, TATA Steel and so on.



SPEAKERS



Dr. Debashish Bhattacharjee
Vice President, Technology
and New Materials Business,
Tata Steel.



Dr. Gangadhara Prusty
Professor, UNSW Australia
Director, ARC TCAMAC



Dr. Chandra Sekher Yerramalli
Professor, IIT Bombay



Dr. Suryasarathi Bose
Associate Professor
IISc Bangalore



Dr. Tanmay Bhattacharyya
Chief Khapoli Project,
T&NMB, Tata Steel



Sanjeev Kumar Biswas, Chief
M&S and Supplychain
Composites, Tata Steel



Dr Subrata Mukherjee
Head Advanced Materials &
Characterization Research Group
R&D TATA Steel limited



Dr. Bhanu Pratap Singh
Senior Principal Scientist
CSIR-NPL, New Delhi



Dr. Sunil Kumar Ramamoorthy
Senior Lecturer, Univ. of Boras,
Sweden



Dr. Bankim Chandra Ray
Professor HAG, NIT Rourkela



Dr. Rajesh Kumar Prusty
Assistant Professor, NIT Rourkela



Dr Dinesh Kumar Rathore
Assistant Professor,
MITS Gwalior



Dr. Kishore Kumar Mahato
Asst. Professor, VIT Vellore



Dr. Pavan Kumar Gangineni
Manager, SAIL - RSP



Mr. Abhijeet Anand
Scientist, DRDO

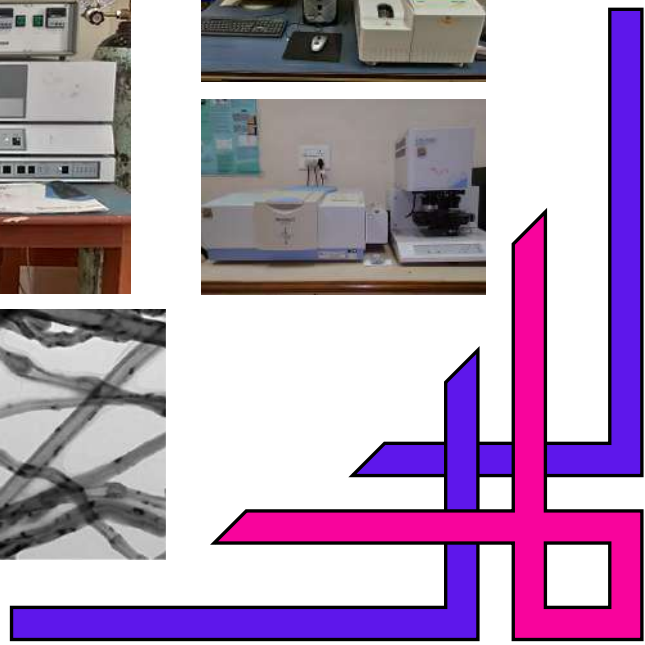
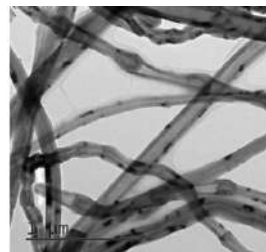
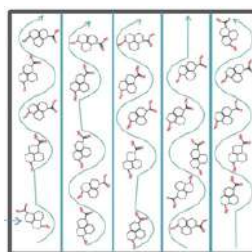
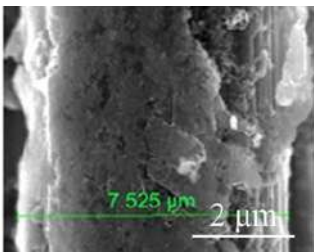
TOPICS TO BE COVERED

- Challenges with New Materials legacy emphasizing FRP Composites
- FRP composites: An alternative structural material
- Resource recovery from polymer composites
- Electrical, rheological and morphological studies of polymer nanocomposites
- FRP composites: Fundamental theoretical concepts
- Graphene an emerging nanofiller for reinforcing FRP Composites
- Dispersion and alignment of CNTs in FRP Composites
- High strain rate analysis of composite materials
- Characterization techniques and international standards for FRP Composites
- Life cycle analysis on FRP Composites
- An overview of hybrid FRP Composites and FML
- Processing and Performance of carbon fibers and their composites
- Computational modeling on mechanical the behavior of FRP composites
- FRP Composites for ballistic applications
- Interphase engineering in carbon fiber/polymer composites by nanofillers
- Issues with commercialization of Composites
- Thermal ageing and cycling effects in FRP Composites
- Trash to Treasure: An uphill task to mitigate FRP Composite wastes

LAB DEMONSTRATIONS TO BE COVERED

- Demonstrations and hands on training on the various available Mechanical, Thermal, chemical, visco-elastic characterisation techniques
- Fabrication of laminated FRP Composites through hand layup/VARTM technique
- Tensile and Flexural Testing of fabricated FRP Composites
- Thermal analysis of FRP composites using DSC
- Viscoelastic analysis of FRP composites using DMA

[Interaction sessions and Higher study opportunities FRP Composites](#)



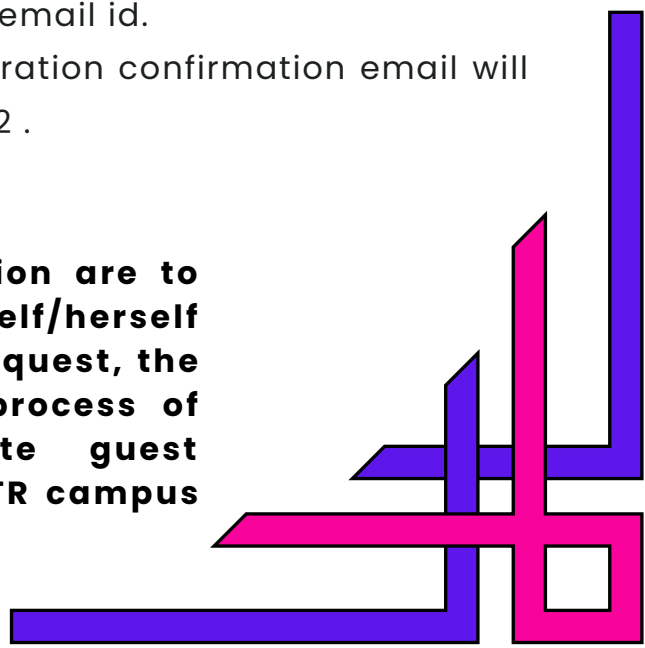
WHO MAY BENEFIT/REGISTER

- **Research scholars** of Mechanical/ Metallurgy and Materials/ Civil/ Aerospace Engineering and similar disciplines
- **Faculty members** associated with Mechanical/ Metallurgy and Materials/ Civil/ Aerospace Engineering and similar disciplines
- **Industrial engineers and managerial personnel** who are associated with the development of composite structures for various applications

REGISTRATION PROCESS

- Interested persons will have to submit the filled in application form with all required fields at our website <https://www.frpclabnitrkl.com/registration-page>. The last date of application submission is 10th July 2022.
- The maximum number of allowed participants will be limited to 30 (offline). Applications will be shortlisted based on “first come first serve” basis as well as academic, research and Industrial credentials. Intimation to the shortlisted candidates will be provided through email by 15th July 2022.
- Shortlisted applicants then should pay the appropriate registration fee as per their category and type of attendance (online or offline) to the bank account as provided in the "Payment Details" section by 20th July 2022. Acknowledgment of payment along with transaction details then should be sent through email to the event email id.
- Upon receiving the payment, a final registration confirmation email will be sent to the participant by 25th July 2022 .

***The expenses towards accommodation are to be borne by the participant himself/herself during the workshop. However upon request, the organizing team will facilitate the process of accommodation either at institute guest house/hostel or hotels outside the NITR campus based on availability and choice.**



REGISTRATION FEE*#

	Offline participation (in ₹)	Online participation (in ₹)
Research scholars	500	250
Faculty members	1000	500
Industrial engineers and managerial personnel:	2000	1000

***The above registration fee is excluding 18% GST**

#This registration fee includes access to all the lectures, demonstrations, experimental work, interactions, course materials and small refreshments.

PAYMENT DETAILS

After confirmation e-mail, the registration fee has to be paid (on or before 15 July 2022) through an online bank transfer to the following bank account, and the proof for the same to be provided to the course coordinator.

Bank account number: 10138951784

Account name: CONTINUING EDUCATION NIT ROURKELA

IFS Code: SBIN0002109

Name of Bank: State Bank of India

Bank Branch Address: NIT Campus, Rourkela, Odisha 769008 (India)

MICR No: 769002007

SWIFT Code: SBININBB137

IMPORTANT DATES

Last date for online submission of application: 10th July 2022

Confirmation mail to the shortlisted candidates: 15th July 2022

Payment of registration fee: 20th July 2022

Final confirmation email to the participants: 25th July 2022

Actual event: 8 - 12 August 2022

HOW TO REACH NIT ROURKELA

Major airports in the proximity of Rourkela are Jharsuguda, Ranchi, Bhubaneswar, Kolkata and Raipur.

Rourkela is well connected to many important Indian cities as the Howrah-Mumbai line and Ranchi-Bhubaneswar line passes through this city.

Rourkela is well connected by State Highway no. 10 and National Highway no. 143. These highways connect the cities like Ranchi, Raipur, Sambalpur, Bhubaneswar etc. with Rourkela.

Rourkela railway station is situated 7 km away from the NIT campus. Autos/taxis are available round the clock there. Local transport facility is also available from nearby state and private bus terminus.

NEARBY TOURIST ATTRACTIONS



Hanuman Vatika



Khandadhar waterFall



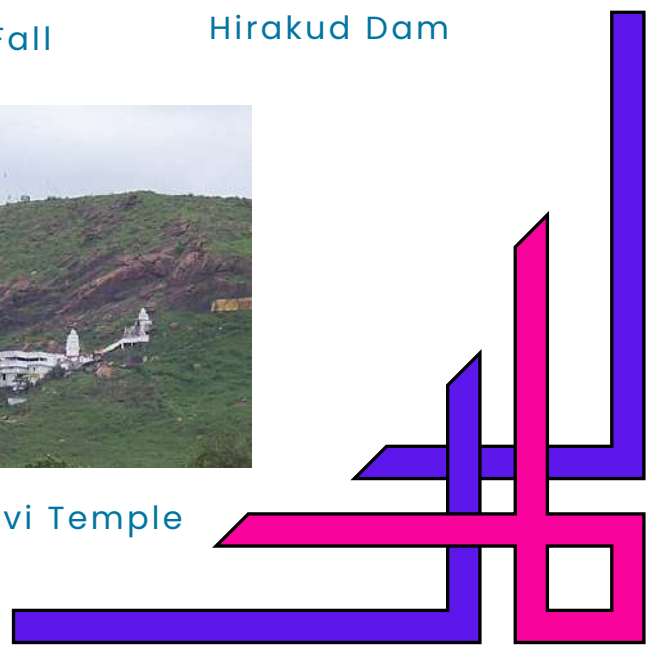
Hirakud Dam



Vedavyas Temple and sangam
of Sankha and Koel rivers



Vaishno Devi Temple



ORGANIZING COMMITTEE

Coordinator

Dr. Rajesh Kumar Prusty,
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Department of Metallurgical and Materials Engineering,
National Institute of Technology, Rourkela, Odisha
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nitrkl.rajeshprusty@gmail.com
Phone: 9861133420
Website: <https://www.frpclabnitrkl.com/>

Advisor

Dr. Bankim Chandra Ray,
FRP Composite Laboratory,
Department of Metallurgical and Materials Engineering,
National Institute of Technology, Rourkela, Odisha

Technical Assistant

Mr. Rajesh Patnaik

Laboratory Volunteers

- Srinivasu Dasari, PhD Scholar
- BNVS Ganesh Gupta K, PhD Scholar
- Abhinav Omprakash Fulmali, PhD Scholar
- Shubham, PhD Scholar
- Satyaroop Patnaik, Project Scholar
- Archit Kumar, MTech Scholar
- Maheep Kumar Upadhyay, MTech Scholar

SPONSORS



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