Renewable energy technologies and their challenges for sustainable development

ABOUT WORKSHOP

The world is shifting towards renewable sources of energy, as fossil fuels are limited in amount, and burning leads to air pollution and global warming. Recent years have seen a lot of research on investigating new ways to extract sustainable and green energy from renewable sources such as the sun, the wind, plants, and water. Each source requires different conversion technologies to optimize power output, such as photovoltaic panels for solar energy and energy conversion systems for wind power. Moreover, hydrogen energy has recently drawn attention from researchers as it is consumed by a fuel cell and produces water. However, intermittency is an inherent property of renewable energy sources, such as variable wind speeds and solar irradiance, and it poses challenges for grid integration. Therefore, an energy storage system is an essential requirement for renewable energy sources. Common energy storage technologies include compressed air energy storage, battery energy storage, hydrogen-based storage, and thermal storage.

India has 424 GW of power generation capacity, including around 180 GW from non-fossil fuels, with another 88 GW in the works. The country has a target of 500 GW of renewable energy capacity by 2030. Therefore, keeping in mind the need to improve green energy generation and storage at an affordable cost, researchers need to work towards innovative solutions. The five-day workshop on "Renewable Energy Technologies and Their Challenges for Sustainable Development" is intended to provide a common platform for students, academicians, and practicing engineers to share their research experiences, practical challenges, and possible solutions in the field of renewable energy.

KEY THEMES

- Renewable energy technologies and sustainable development.
- Solar energy and its challenges.
- Wind energy, energy storage and hands-on modelling.
- Hydrogen energy: production, storage and applications.
- Advanced modelling, simulation and soft computing.
- Ai, and smart control for renewable energy systems.

CONTACT DETAILS

Dr. Anil Chandra Mahato (Convener)
Department of Mechanical Engineering
Contact: +91 9430185578
E-mail: anilmahato@btmesra.ac.in

EMINENT RESOURCE PERSONS

The workshop will be delivered by eminent resource persons from leading institutions, including IITs, NITs, BIT, and industry experts. Some of the invited speakers include:

- **Dr. Mahdi Boukerdja, University of Lille France**
- **Prof. Sanjoy K. Ghoshal, IIT-ISM Dhanbad**
- **Dr. Om Prakash, BIT Sindri, Jharkhand**
- **Dr. S. K. Dhiman, BIT Mesra**

ELIGIBILITY FOR PARTICIPATION

- The proposed workshop is meant to support motivated PG, Ph.D. and UG 4th year level students, who are having a strong willingness to get excellence in their scientific and engineering research pursuits in renewable energy and the associated challenges.
- The applicants must produce a letter of authentication from their Supervisor/Head of the Department/Head of the Institute indicating their association with the institute and "No Objection Certificate (NOC)" for allowing their student to undergo training in the workshop, if selected. There is no dedicated format for the same; however, it must be obtained on the institute/university letter head.
- A certificate regarding successful completion of workshop shall be issued to the participants.

REGISTRATION

- Participants interested to attend this program should register online authentication latest by Monday, 11th Jan 2027 in the below mentioned link: https://forms.gle/B7puofPrZjLSvMHw7
- **Registration free: Rs. 500.00 (not inclusive of Fooding and Lodging)**
- The applications will be screened, and the candidates will be selected on merit basis.
- Only selected candidates will be informed by email; therefore the candidates must provide valid E-mail IDs while doing the online registration.
- The selected candidates need to acknowledge and accept the offer for participating in the workshop through return email, failing which the waitlisted candidates may be called for the workshop.
- Participants will be given accommodation in Institute hostel with catering facilities.

ABOUT BIT MESRA

The Birla Institute of Technology, Mesra, founded in 1955 by the visionary industrialist and philanthropist Mr. B. M. Birla, is one of the oldest institutes of technological education in India. It is located in Ranchi, the capital of Jharkhand, surrounded by scenic forests, mountains and waterfalls. In its more than seven decades of glorious existence, the Institute has been recognized by the University Grants Commission as a Deemed-to-be University under Section 3 of the UGC Act, 1956. It has emerged as one of the top self-financed private engineering institutions, BIT Mesra offers education and research across engineering, science and emerging technological domains, with a strong focus on innovation and modern applications.

Renewable energy technologies and their challenges for sustainable development
(Hybrid Mode)
(18th Jan 2027 – 24th Jan 2027)

ORGANIZING COMMITTEE

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Prof. Indranil Manna
Vice Chancellor
Birla Institute of Technology Mesra

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HOD, Mechanical Engg.
Birla Institute of Technology Mesra

Convener (Event Organizer)
Dr. Anil Chandra Mahato
Assistant Professor, Dept. of ME
Birla Institute of Technology Mesra

Coordinator
Dr. Arkadeb Mukhopadhyay
Assistant Professor, Dept. of ME
Birla Institute of Technology Mesra

Co-Coordinators
Dr. Arun K. Kadian, Dr. Sushanta Ghuku &
Dr. Mukesh Sharma, Dr. S. K. Dhiman (Asst. Professor)
Birla Institute of Technology, Mesra

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Department of Mechanical Engineering
BIRLA INSTITUTE OF TECHNOLOGY
(A Deemed to be University u/s 3 of UGC Act, 1956)
Mesra, Ranchi – 835 215 (India); www.bitmesra.ac.in