National Institute of Technology Raipur

Department of Physics & Centre for Nanoscience and Sustainable Energy Technology (CeNSET)

One-Week National Level Short-Term Training Programme (STTP) in Online Mode on

"Green Energy Conversion and Storage: From Fundamentals to Advanced Materials"

December 14-18, 2026

About Course

Objectives of Training Programme: This STTP introduces green energy conversion and storage, spanning core principles to advanced materials. Participants explore solar, wind, hydrogen, batteries, supercapacitors, and nanogenerator technologies, alongside characterization methods and computational tools. Designed for faculty, researchers, and graduate students, the programme blends foundational theory with hands-on insights into advanced energy materials design.

About CEC

Continuing Education Cell (CEC) , NIT Raipur aims to update skills, broaden knowledge, enhance qualifications, foster personal growth, and promote National and International technological advancement through training and expertise.

About NIT Raipur

National Institute of Technology Raipur (An Autonomous institute of National Importance) fully funded by the Govt. of India. NIT Raipur is located in Raipur, the Capital City of Chhattisgarh State and spread over an area of approx. 100 acres. NIT Raipur is ranked 70th in engineering category in India by the NIRF, and it is the highest ranked engineering college in Chhattisgarh. Presently NIT Raipur offers 12 undergraduate, 14 Postgraduate (including M.Sc., M.C.A and M.Tech. in Applied Geology) and 18 Ph.D. programs. The institute offers facilities for research and also undertakes R & D activities, provides testing, consultancy and other extension services including continuing education to the industry through the Industry Institute Interaction cell and the placement of the student through the Department of Training & Placement. More details about NIT Raipur are at: http://www.nitrr.ac.in.

About Department of Physics

The **Department of Physics** came in existencesince 1956. The department provides an outstanding research environment and offers academic program leading to the award of PG/Ph.D. degree. Apart from this, the Department of Physics provides the core physics foundation for every undergraduate and postgraduate programme across Engineering and Computer Science Applications. Its faculty design and deliver rigorous coursework spanning mechanics, electromagnetism, quantum and modern physics, thermodynamics, and materials science, equipping students with the conceptual and experimental grounding essential to their core curricula.

About CeNSET

CeNSET (Centre for Nanoscience and Sustainable Energy Technology) is a new centre of excellence advancing nanomaterials, energy harvesting, storage, and conversion research through interdisciplinary innovation, translational technologies, and industry collaboration.

Eligibility for Participation

Participation is open to faculty, research scholars, UG/PG students of Science and Engineering, and professionals from R&D, industry, or academia seeking foundational knowledge in relevant mathematical, scientific, or engineering concepts.

For Registration

For More Details Click

Course Outline

- **Fundamentals of Green Energy Conversion:** Global energy scenario and core principles of conversion and storage.
- **Solar Energy Conversion:** Photovoltaic materials, technology, and efficiency characterization.
- **Biofuel Cells and Sensors:** Enzymatic and microbial fuel cells for energy generation and biosensing applications.
- **Hydrogen and Fuel Cell Technologies:** Production, storage, and electrode/membrane materials.
- **Batteries and Supercapacitors:** Li-ion, solid-state batteries, and electrode materials for storage.
- **Piezoelectric and Triboelectric Nanogenerators:** Mechanical energy harvesting principles and device design.
- **Advanced Materials for Energy Storage:** Nanomaterials, 2D materials, and composites for next-gen devices..
- **Hands-on Sessions & Industry Interaction:** Lab demonstrations, expert talks, and project presentations.

Features of Course

The course features integration of green energy conversion, advanced materials, and machine learning with Python-based modeling. It emphasizes hands-on training, materials characterization, and real-world applications in solar, wind, hydrogen, and energy-storage technologies, fostering innovation, sustainable design, and data-driven materials discovery

Important Dates

Registration Last Date:	**08th December 2026**
List of shortlisted Candidates:	**10th December 2026**
Course Start Date:	**14th December 2026**
Course End Date:	**18st December 2026**

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Chief Patron

Prof. N.V. Ramana Rao, Director, NITRR

Patron

Dr. Subhojit Ghosh, Chairman (CEC), NITRR

Chairman

Dr. S. M. Saini, HOD (Physics), NITRR
Dr. J. Satya Eeswari, HOD (CeNSET)

Co-ordinators & Contacts

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Speakers

Subject experts of the course may be from re-nowned institutes and Industries.

Account Details

Account No.	:	**38027633250**
Name	:	**Director, NIT Raipur**
Bank Name	:	**State Bank of India**
Bank Branch	:	**NIT Branch**
IFSC Code	:	**SBIN0002852**
MICR Code	:	492002004
Swift Code	:	SBININBB646
PAN Card Number	:	AAAJN0643G
GSTIN Number	:	22AAAJN0643G1ZN

OR

Scan the QR Code for fee payment

Note: Applicants must upload the proof of fee payment via Google Form. Please note that the registration fee is non-refundable.

Fee Details

Category	Fee (Rupees)
NITRR Students	**₹354 /-** (Inc. 18% GST)
External Students/ NITRR Staff	**₹ 590 /-** (Inc. 18% GST)
Industry Delegates/Faculty	**₹1180 /-** (Inc. 18% GST)

Registration Process

The payment must be done through ONLINE mode in the given account details. After payment, participant is required to fill the following Google form:

Click Google Form:
https://docs.google.com/forms/d/e/1FAIpQLScut6aqspMen8CibTI4rkU5zxEN2c2CnwAmW-JK5AkWgQxsCg/viewform

Or
Scan Google Form