

About the Course

This course is likely designed to explore various aspects of sustainable energy generation and storage technologies with a specific focus on hydrogen as an energy carrier. Its aim is to provide participants with knowledge and insights into the technologies, policies, and innovations related to a hydrogen-powered future with minimal carbon emissions. However, for hydrogen to play a substantial role in advancing clean energy transitions, it must find adoption in sectors where its presence is currently minimal, such as transportation, buildings, and power generation. "The Future of Hydrogen" offers a comprehensive and unbiased exploration of hydrogen's current status.

Topics Covered

- Overview of Carbon-Free Energy and its importance
- Hydrogen production from waste water by electrolysis
- Hydrogen production by High-Temperature Water Splitting
- Hydrogen production from waste materials
- Safety Considerations in Hydrogen Production and Storage
- Hydrogen production by Plasma Steam Gasification of Municipal Solid Waste (MSW)
- Safety Considerations in Hydrogen Production and Storage
- Energy Consumption and Optimization in Refrigerated Hydrogen Storage

Eligibility

Faculty members of AICTE approved institutions, Universities, research scholars, PG Scholars, participants from Government, Industry (Bureaucrats/Technicians/Participants from Industry etc.) and Engineers from R&D Labs.

Number of participants is limited to 100. ATAL FDPs are completely free for participants

Selection of the participants will be based on a first come first serve basis and based on their area of research work. The coordinator's decision will be final in the selection of participants.

Details of Registration

Registration has to done only through

<https://atalacademy.aicte-india.org/>

Kindly visit <https://atalacademy.aicteindia.org/FAQs> for more information.

FREE REGISTRATION for all participants

Online Platform

The entire programme will be conducted through online mode. The details of online platform and meeting link will be communicated to the selected candidates through their registered email. Assessment on topics covered will also be done through online mode. Minimum 80% attendance and 60% Marks are required to earn certificate.

AICTE -Training and Learning (ATAL) Academy

The Government of India in association with AICTE launched the ATAL academy in 2018. The Vision of ATAL academy is to empower faculty to achieve goals of Higher Education such as access, equity and quality.



AICTE Training and Learning (ATAL) Academy Online



Faculty Development Programme on "Sustainable Carbon-Free Technologies for Hydrogen Generation and Storage"



24th February 2025 to 01st March 2025



**Organized by
Department of Mechanical Engineering
National Institute of Technology,
Tiruchirappalli**

Thanjavur Road, Tiruchirappalli - 620015

COORDINATOR

Dr. Anand Ramanathan

CO-COORDINATOR

Dr. V. Mariappan

Objectives of Academy

- » To set up an Academy which will plan and help in imparting quality technical education in the country
- » To support technical institutions in fostering research, innovation and entrepreneurship through training
- » To stress upon empowering technical teachers & technicians using Information & Communication Technology
- » To utilize SWAYAM platform and other resource for the delivery of trainings.
- » To provide a variety of opportunities for training and exchange of experiences. Such as workshops, Orientations, learning communities, peer mentoring and other faculty development programmes.
- » To support policy makers for incorporating training as per requirements

About the College

National Institute of Technology, Tiruchirappalli (NITT), is one among the premier Institutions of India and is well known for its high standards in teaching and research. It offers 10 Undergraduate and 23 Postgraduate programmes in the disciplines of Engineering, Science, Architecture and Management. It has been declared as an Institute of National Importance by the Government of India under NIT Act. NITT retained its 1st position amongst its 31 counterparts in the country in the National Institutional Ranking Framework (NIRF) Ranking (Engineering) released by the Union Ministry of Human Resource Development and also found place in top 10 engineering colleges in the country. National Institute of Technology, Tiruchirappalli (NITT) stands out as a hub of academic excellence and innovation, attracting talented students and faculty from across the nation. With a sprawling campus of over 800 acres, NITT is equipped with state-of-the-art infrastructure, cutting-edge laboratories, modern learning facilities, and industry partnerships to address global challenges.

About the Department

The Department of Mechanical Engineering is one among the first three departments established in 1964. With a team of highly qualified faculty members, the department consistently strives to be a globally renowned Department in Mechanical Engineering where the best of teaching, learning and research synergize to fulfil the requirements of industry and society. As a feather in its cap, the department has been ranked between 300 – 450 consecutively for the past three years in the QS world ranking which makes the department unique among all NITs in the country.

Vision

To be a centre of excellence in the field of Mechanical Engineering where the best of teaching, learning and research synergize.

Mission

- Prepare effective and responsible graduate and post graduate engineers for global requirements by providing quality education.
- Constantly strive to improve pedagogical methods employed in delivering academic programs.
- Respond effectively to the needs of the industry and changing world.
- Conduct basic and applied research and to generate intellectual property.
- Provide consultancy to the neighbourhood and cultivate the spirit of entrepreneurship.

For Further details Contact

Dr. Anand Ramanathan

Professor

Department of Mechanical Engineering,
National Institute of Technology,
Tiruchirappalli – 620015
E-Mail: anandachu@nitt.edu
Mobile: +91 9444838909



Dr. V. Mariappan

Associate Professor

Department of Mechanical Engineering,
National Institute of Technology,
Tiruchirappalli – 620015
E-Mail: vmari@nitt.edu
Mobile: +91 9894471094



Resource Persons

Dr. Senthilarasu Sundaram

Professor, Teesside University, United Kingdom

Dr. Gowtham Mohan

Assistant Professor, University of Houston, USA

Mr. Zarir Sholapurwala

Chairman & Managing Director,
Zeonics Systech Defence & Aerospace Engineers Pvt Ltd

Mr. Parthasarathy Arumugam

Technical Director Head,
B-Sustain Energy Projects Private Limited

Mr. Arun

Managing Director, Contura Solar Private (India) Ltd.

Mr. Venkatasubramanian Sivan

Managing Director, VA Exergy Technologies India Pvt Ltd.

Mr. Laxmikant Banjarey

Founder, H₂ Carbon Zero, Delhi

Mr. Abhijit Kumar

Manager Utility (O & M), Adani Group, Gujarat

Dr. Karthikeyan P

Professor, PSG College of Technology, Coimbatore

Dr. Muthukumar P

Professor, Indian Institute of Technology, Tirupati

Dr. N. Samsudeen

Associate Professor,
National Institute of Technology, Tiruchirappalli

ATAL Online FDP “Sustainable Carbon-Free Technologies for Hydrogen Generation and Storage”

Inaugural Session on February 24, 2025 – 6:00 PM to 6:30 PM

Overview of Carbon-Free Energy and its importance

Day 1: 6:30 PM to 8:00 PM

Dr. Senthilarasu Sundaram,
Professor,
Teesside University, United Kingdom



Hydrogen production from waste water by electrolysis

Day 1: 8:00 PM to 9:30 PM

Mr. Zarir Sholapurwala
Chairman & Managing Director,
Zeonics Systech Defence & Aerospace Engineers



Hydrogen production from waste materials

Day 2: 6:00 PM to 7:30 PM

Dr. R. Anand
Professor,
National Institute of Technology, Tiruchirappalli



Hydrogen production by High Temperature Water Splitting

Day 2: 7:30 PM to 9:00 PM

Dr. Gowtham Mohan
Assistant Professor,
University of Houston, USA



Hydrogen production by Plasma Steam Gasification of Municipal Solid Waste(MSW)

Day 3: 6:00 PM to 7:30 PM

Mr. Parthasarathy Arumugam
Technical Director Head,
B-Sustain Energy Projects Private Limited.



Safety Considerations in Hydrogen Production and Storage

Day 3: 7:30 PM to 9:00 PM

Dr. Karthikeyan P
Professor,
PSG College of Technology, Coimbatore.



ATAL Online FDP “Sustainable Carbon-Free Technologies for Hydrogen Generation and Storage”

Energy Consumption and Optimization in Refrigerated Hydrogen Storage

Day 4: 6:00 PM to 7:30 PM

Dr. V. Mariappan
Associate Professor,
National Institute of Technology, Tiruchirappalli



Challenges and opportunities of ammonia as a hydrogen carrier

Day 4: 7:30 PM to 9:00 PM

Mr. Laxmikant Banjarey
Founder,
H₂ Carbon Zero, Delhi



Solar Thermochemical Hydrogen Production

Day 5: 6:00 PM to 7:30 PM

Mr. Arun
Managing Director,
Contura Solar Private (India)Ltd.
Tiruchirappalli



Hydrogen Storage and Purification

Day 5: 7:30 PM to 9:00 PM

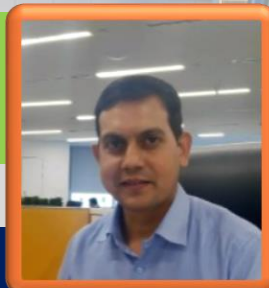
Dr. Muthukumar P
Professor,
Indian Institute of Technology, Tirupati



Thermal Management in Cryogenic Hydrogen Storage for Long Term Efficiency

Day 6: 2:00 PM to 3:30 PM

Mr. Abhijit Kumar
Manager Utility (O&M),
Adani Group, Gujarat



Key challenges faced by hydrogen generation

Day 6: 3:30 PM to 5:00 PM

Mr. Venkatasubramanian Sivan
Managing Director,
VA Exergy Technologies India Pvt. Ltd.



ATAL Online FDP “Sustainable Carbon-Free Technologies for Hydrogen Generation and Storage”

Microbial Fuel Cells &
Electrolysis Technologies for
Hydrogen Production

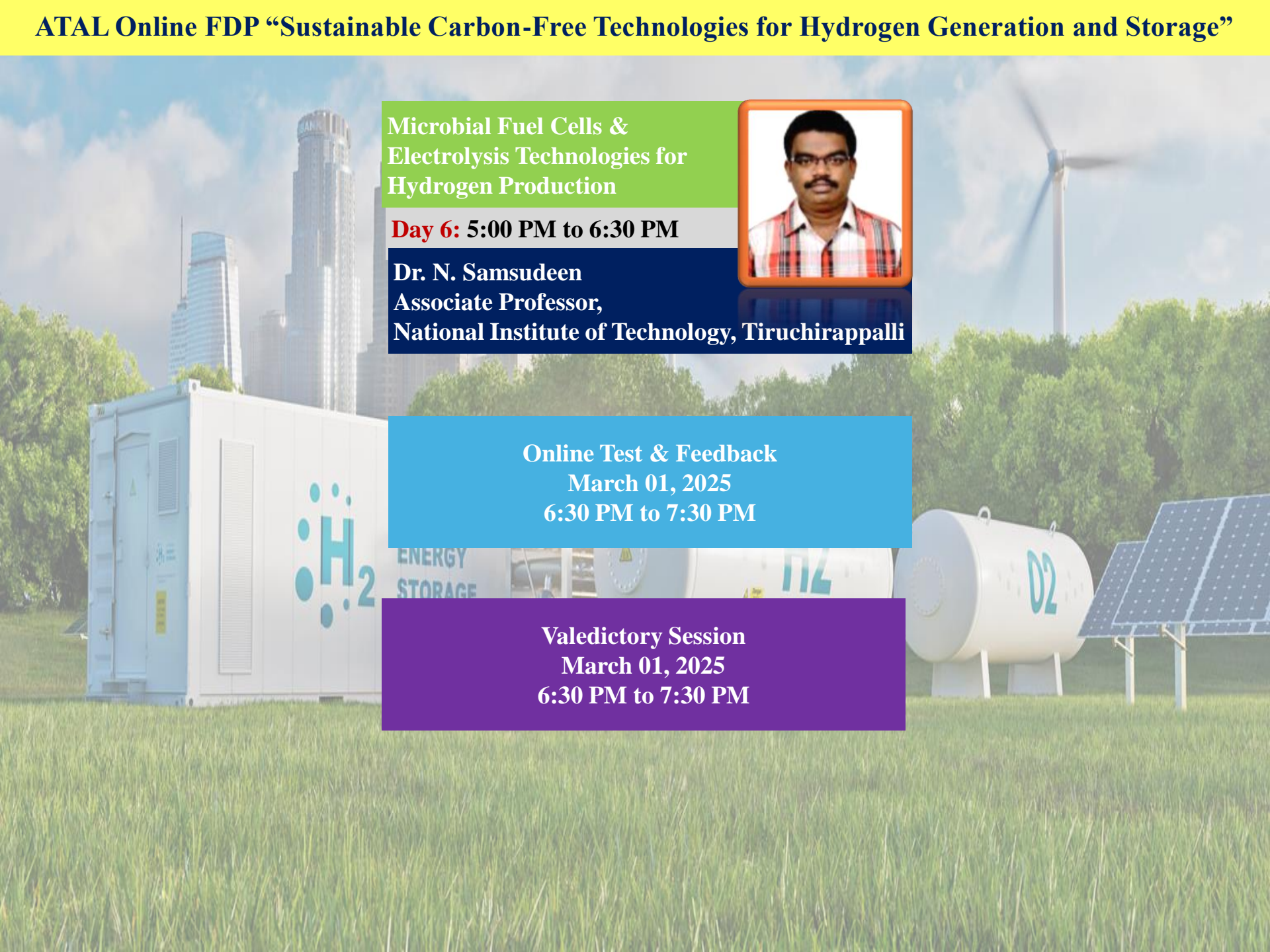


Day 6: 5:00 PM to 6:30 PM

Dr. N. Samsudeen
Associate Professor,
National Institute of Technology, Tiruchirappalli

Online Test & Feedback
March 01, 2025
6:30 PM to 7:30 PM

Valedictory Session
March 01, 2025
6:30 PM to 7:30 PM



How to Register

1. Log in to the **ATAL Academy Portal** at <https://atalacademy.aicte-india.org/>.
 - If you are not already registered, first sign up at <https://atalacademy.aicte-india.org/signup>.
 - Choose the role as a **Participant** during signup and complete your profile details.
2. After logging in, navigate to the FDP tab.
3. Use the following filters:
 - Type: ATAL
 - Month: February
 - Thrust Area: Mechanical
 - Mode: Online
4. Press Ctrl + F and search for the application number 1730806224 to locate our FDP.
5. Click the '+' button to apply

Note: Please obtain the NOC from the relevant authority (HOD/Principal/Dean) of your institute, with their signature and seal. The NOC format is provided on the next page. You will be able to apply only after uploading the NOC.

- For any queries, feel free to call ☎ 95857 33389 (Lakshmanan, Junior Research Fellow, NIT, Tiruchirappalli).

Letter Head

Participant NOC Format

Subject: NOC for Attending ATAL FDP

Ref No. _____

Date: _____

To Whomsoever It May Concern

This letter is to express No Objection on Mr./Mrs./Ms./Dr. < Participant name > in attending the six days ATAL FDP on “**Sustainable Carbon-Free Technologies for Hydrogen Generation and Storage**” through online mode conducted at National Institute of Technology Tiruchirappalli from 24th February 2025 – 01st March 2025.

This certificate is issued as per requirement of AICTE for successful conduction of ATAL Faculty Development Program.

Yours Sincerely,

(Sign & Stamp)

HoI/Competent Authority

Institute Name and Address