विज्ञान एवं
प्रौद्योगिकी मंत्रालय
MINISTRY OF
SCIENCE AND TECHNOLOGY

सत्यमेव जयते

विज्ञान एवं प्रौद्योगिकी विभाग
DEPARTMENT OF
SCIENCE & TECHNOLOGY

Scheme Guidelines: India–Netherlands Hydrogen Fellowship Programme

(Human and Technical Capacity-Building Programme)

Under Climate, Energy, and Sustainable Technology

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE & TECHNOLOGY
DEPARTMENT OF SCIENCE & TECHNOLOGY
TECHNOLOGY BHAVAN, NEW MEHRAULI ROAD
NEW DELHI – 110016

1. Introduction

1.1 The Department of Science and Technology (DST), Ministry of Science and Technology, Government of India, initiated the Hydrogen and Fuel Cell (HFC) Programme in 2018 with the primary objective of fostering innovation and making hydrogen-based solutions more affordable and technically viable for future commercial deployment. The programme prioritizes the indigenous development and deployment of the entire value chain in the hydrogen ecosystem, including the demand side management, safety systems, and important regulatory needs, which will throttle the faster deployment of hydrogen in the ecosystem. This includes critical components such as electrolyzers, alternative hydrogen production facilities, the use of renewable energy and grid-based systems to power hydrogen generation, hydrogen storage technologies, various hydrogen carriers and their round-trip efficiencies, and multiple demand-side applications including fuel cells, boilers, furnaces, hydrogen refuelling stations, and hydrogen use in chemical, petrochemical, and pharmaceutical industries. Together, these elements are essential for building a robust hydrogen ecosystem in India. These efforts are being advanced through a combination of national initiatives and international collaborations, enabling joint research and technology co-development in clean hydrogen technologies.

1.2 Mission Innovation (MI) 2.0 is a global platform dedicated to driving a decade of action and investment in research, development, and demonstration to make clean energy affordable, attractive, and accessible to all. Mission Innovation (MI) 2.0 comprises seven missions, with the Department of Science and Technology (DST) serving as the nodal agency for India. Under MI 2.0, the Clean Hydrogen Mission, co-led by Australia, Chile, the European Union, the United Kingdom, and the United States, with India (DST) as a core coalition member, the mission aims to reduce the cost of clean hydrogen to USD 2 per kilogram by 2030. Additionally, MI 2.0 seeks to establish 100 hydrogen valleys worldwide by 2030. Building on this, DST has conceptualized and launched the Hydrogen Valley Innovation Cluster (HVIC) initiative, a programme designed to demonstrate the complete hydrogen value chain from production and storage to distribution and end-use at a small scale through integrated regional clusters. The HVIC has now been integrated into the Ministry of New and Renewable Energy's National Green Hydrogen Mission as a new initiative, while its implementation, monitoring, and supervision continue to be carried out by DST.

1.3 The Netherlands, with its advanced hydrogen infrastructure and strategic connectivity through the Port of Rotterdam, has emerged as a global leader and gateway for hydrogen deployment in Europe and beyond. The Northern Netherlands region, home to Europe's first operational Hydrogen Valley under the flagship HEAVENN project, was recognized as the Hydrogen Valley of the Year (2022) for its pioneering contributions to integrated hydrogen systems. The region also hosts major hydrogen innovation platforms such as the Hydrogen Valley Campus Europe initiative, the Baseload Project, and the Hydrohub Initiative, which support large-scale research, demonstration, and system-integration activities. Rotterdam is simultaneously evolving into one of the world's largest green hydrogen import and distribution hubs, driven by giga-scale electrolyzer plans, international supply corridors, and hydrogen-ready port and pipeline infrastructure. The country also hosts the annual World Hydrogen Summit & Exhibition, the world's largest hydrogen event, bringing together key stakeholders from across the global hydrogen value chain.

2. Rationale and Objectives

2.1 India has set an ambitious goal of achieving energy independence by 2047 through a strategic transition from fossil fuels to clean and sustainable energy systems. This transformation is being pursued by expanding the renewable energy network, electrifying the transport sector through electric and fuel-cell vehicles, and promoting the generation, storage, and utilization of clean hydrogen across diverse sectors. Clean hydrogen is recognized as a critical enabler in India's pathway to net-zero emissions, particularly for hard-to-abate sectors such as steel, cement, and chemicals, where direct electrification remains challenging. With an estimated 2.95 lakh jobs expected to be created in India's hydrogen sector by 2030, it is imperative to develop a highly skilled workforce capable of designing, implementing, operating, and maintaining hydrogen technologies across the value chain. To achieve this, structured capacity-building and international exposure are essential to ensure that India's emerging hydrogen workforce is equipped with globally benchmarked technical knowledge and operational expertise.

Salient features of the Fellowship programme

a. Hydrogen research is rapidly evolving, requiring deep-tech, interdisciplinary solutions to advance current systems and adopt emerging technologies. The fellowship programme offers hands-on training within the Netherlands' hydrogen ecosystems, enabling fellows to gain real-world technical exposure and co-develop next-generation solutions through a focused India–Netherlands research exchange.

b. Enable participants to develop advanced experimental and analytical skills and apply them to India-specific hydrogen challenges, fostering innovation and problem-solving capacity.

c. Successful hydrogen adoption depends on societal acceptance and viable socio-economic models, especially for distributed production and new entrepreneurship opportunities. The fellowship programme supports joint India–Netherlands studies on socio-economic modelling, community acceptance, and inclusive deployment pathways.

d. Scaling hydrogen deployment demands strong regulatory and safety frameworks. The Netherlands' mature permitting, certification, and safety systems offer valuable learning opportunities. Through direct exposure to these practices, fellows will build capabilities to support flexible, harmonised, and safety-aligned regulatory development in India.

e. Promote knowledge transfer and collaborative research, accelerating the adaptation and indigenization of advanced hydrogen technologies suited to India's climatic, industrial, and infrastructural conditions.

f. Encourage fellows to engage in joint research, curriculum development, and technology-transfer activities with the Netherlands partner institutions to strengthen academic and research linkages.

g. Facilitate the integration of international best practices and operational frameworks into Indian academic, research, and industrial hydrogen programs.

h. Strengthen India's human resource and institutional capacity to design, implement, and operate hydrogen technologies, thereby contributing to the creation of a robust, competitive, and sustainable hydrogen economy aligned with national clean energy goals.

i. Learnings from India's and the Netherlands' hydrogen ecosystems will help identify new R&D challenges, which can be jointly addressed through this fellowship platform.

3. Fellowship Categories

Sno	Target Group	Duration	Host Institution
1	Doctoral	12 months	University in the Netherlands
2	Postdoctoral	12 months	University in the Netherlands
3	Academic Faculty (Assistant/Associate professor level only)	Up to 12 months	University in the Netherlands

4. Research Themes (Indicative) – relevant to Indian conditions only

(A) Doctoral and Postdoctoral Fellows

1. **Low-Carbon and Clean Hydrogen Production (Resource and Process Optimization)**
   - Conversion of wastewater, agricultural residue, and stubble biomass into hydrogen through electrolysis, reforming, and gasification routes.
   - Carbon capture–integrated hydrogen production systems and improved catalyst utilization for yield enhancement and cost reduction.
   - Development of unitized regenerative fuel cell systems for co-production of power and hydrogen.
   - Development of scalable hydrogen production pathways tailored to India's resource availability, climatic conditions, and infrastructure realities.
   - Alternate methods to produce hydrogen via electro-thermochemical routes (viz. Cu bromide, Ce intermetallic, etc.) and the electro-photochemical route.
   - Development of single-step hydrogen conversion technologies for producing ammonia, Liquified Organic Hydrogen Carriers (LOHCs), methanol, and other emerging hydrogen-derived materials, reducing reliance on high-pressure hydrogen storage and improving overall safety and logistics.
2. **Hydrogen Compression, Storage, Transport, and Distribution**
   - High-TRL solutions such as blending with natural gas, dedicated hydrogen pipelines, and composite high-pressure cylinders.
   - Development of advanced 350, 700, and 1000 bar hydrogen storage systems for bulk storage, transportation, and on-board (automotive) applications, including materials innovation and integration with carbon nanofibre–based supply chains.

- Research on high-pressure cryogenic hydrogen generation, storage, and safe handling systems, with emphasis on thermodynamic optimization, insulation technologies, and operational safety.
- Development of next-generation hydrogen refuelling stations for compressed, cryogenic, and carrier-based hydrogen, with emphasis on design optimization, safety, throughput, reliability, and cost efficiency.
- Low-TRL routes including LOHCs and metal hydrides adapted for India's climatic and supply-chain environments.

3. **Digital Twinning and Simulation for Hydrogen Systems**
   - Development of digital twins for hydrogen generation, storage, and end-use systems to support predictive maintenance, safety validation, and Hydrogen ecosystem optimization.
   - Application of data-driven models and Geographic Information System (GIS) tools for regional hydrogen planning and system visualization.
4. **Hydrogen Utilization Pathways**
   - Application studies in transport, decentralized energy, green industrial fuels (steel, cement, fertilizer, chemicals), and ammonia/methanol-based energy carriers.
   - -Hydrogen combustion for thermal energy applications, including burner design, flame characteristics, emissions control, and retrofitting of existing systems. Additionally, investigation of hydrogen use in chemical process industries for hydrogenation and related reactions, covering reactor design, kinetics, safety, and integration into existing industrial process chains.
   - System-level evaluation of SOFC, PEMFC, DMFC, unitized regenerative fuel cell systems, and hybrid systems.
5. **Techno-Economic and Life-Cycle Studies**
   - Comprehensive techno-economic feasibility analysis, cost curve development, and sensitivity assessment of hydrogen production, storage, transport, and utilization systems under Indian techno-policy and market conditions.
   - India-specific life-cycle assessments (LCA) (with various system boundaries and sensitivity analysis) encompassing component and material recycling, water–energy nexus evaluations, and carbon footprint benchmarking to support sustainable hydrogen deployment and informed policy or investment decisions.
6. **Policy and Regulatory Studies for Hydrogen Economy**
   - Analysis of India's policy landscape for hydrogen production, certification, and trade.
   - Comparative assessment of international best practices (EU, Netherlands) and their applicability to Indian conditions.
   - Development of policy roadmaps, business models, and safety standards for Hydrogen infrastructure in India.
7. **Institutional Capacity-Building and Industry Linkages**
   - Establishment of hydrogen research labs, test facilities, and simulation platforms aligned with DST's HFC programme.
8. **Hydrogen Safety, Standards, and Testing Across the Entire Value Chain**
   - Comprehensive investigation of safety risks, failure modes, and operational vulnerabilities across the full hydrogen value chain from production and storage to transport, dispensing, and end-use under diverse environmental and operating conditions. This necessitates the

establishment of advanced testing facilities, the development of safety protocols, the formulation of standards, and the definition of best practices for safe hydrogen deployment at scale.

9. Socio-economic Impact of the Hydrogen Economy (Next 20 Years)

- Assessment of employment generation, workforce transition pathways, and emerging skills requirements.
- Evaluation of industrial growth prospects, domestic supply-chain development, and hydrogen-enabled manufacturing opportunities.
- Analysis of regional development potential through hydrogen valleys, industrial clusters, business models, and emerging export hubs.
- Impact on national energy security, import substitution, and export opportunities for hydrogen and its derivatives.
- Projections of cost trajectories and long-term competitiveness of hydrogen technologies in Indian markets.
- Identification of policy, regulatory, and institutional frameworks required for sustained and scalable hydrogen adoption.

(B) Faculty Fellowship (Assistant/Associate professor level only)

1. **Skilling / Reskilling Development, Training, and Curriculum Design**
   - Creation of India-specific teaching modules, laboratory courses, and multidisciplinary curricula integrating hydrogen engineering, safety, and techno-economics.
2. **Digital and Simulation Tools for Hydrogen Valley Design**
   - Development and application of digital twins, GIS-based simulation, and system modeling for Hydrogen value chain mapping and optimization in Indian regions.
3. **Hydrogen Safety, Codes, and Standards for India**
   - Contextualization and formulation of safety protocols, certification procedures, and operational standards suited to Indian climatic, industrial, and regulatory frameworks.
4. **Policy, Regulatory, and Institutional Framework Studies**
   - Policy analysis and institutional framework development to support DST HFC initiative and regional hydrogen value chains.
   - Comparative study of investment mechanisms, incentive models, and industry engagement strategies.
   - Development of India-appropriate business models, operational frameworks, and performance benchmarks.
5. **Institutional Capacity-Building and Industry Linkages**
   - Establishment of hydrogen research labs, test facilities, and simulation platforms aligned with DST's HFC programme.
   - Frameworks for academia–industry collaboration, technology standardization, and skill ecosystem development.

5. Eligibility Criteria

General

- Applicants must be Indian nationals.
- Working in the field of engineering science, basic science, social and humanities, economics and finance, public policy, and safety engineering.
- Experience in hydrogen energy technology will be advantageous.
- Applicant must have a Master's degree / PhD /Postdoctoral (in science, technology) from a recognized University/Institute.

(A.1) Doctoral Fellows

- Applicants must be registered as Ph.D. scholars in a recognized Indian university or research institution (parent institute) at the time of application.
- The applicant must provide a recommendation letter from the Ph.D. supervisor, which should comment on the applicant's research, justify the need for the fellowship, and clearly mention the Ph.D. registration date and thesis topic.
- The fellowship is intended for Ph.D. students to conduct research essential to their dissertations/thesis. Therefore, the expected Ph.D. thesis submission date should be at least 8 months after the fellowship end date.
- Applicants currently holding any fellowship or grant providing similar international research or support shall not be eligible to apply.
- Doctoral Fellows shall continue to receive their existing fellowship or stipend in India from CSIR/UGC/institutional/SERB or other sources, as applicable. The DST fellowship provided under this Programme is exclusively for subsistence and research support during the stay in the Netherlands and does not replace or duplicate the fellow's existing fellowship in India. Fellows shall not undertake any paid employment, teaching assignments, consultancy, or receive any salary or honorarium from the host institution abroad.
- Prior to submission of the application against the Call for Proposals (CfP), the applicant must obtain a conditional admission or acceptance letter from the host institution (in the Netherlands) confirming their willingness to host the fellow for the stated duration and research theme.
- The Indian parent institution must provide a No-Objection Certificate (NOC), stating that the applicant is permitted to undertake the fellowship for the approved duration while retaining their registration status in India.
- The fellow shall not accept any other employment abroad during or immediately after the fellowship and must complete the doctoral work at the parent institute.
- The Indian parent institution shall provide, on its official letterhead duly signed by the Head of Institution, an undertaking to furnish all Utilization Certificates (UCs), Statements of Expenditure

(SoE), and any other financial or administrative documents required by the Scheme Implementation Agency (SIA) or DST for audit and compliance purposes.

- Department of Science and Technology shall provide 80% of the fellowship on a monthly basis, while the Indian parent institution shall provide the 20% fellowship amount to the applicant, if selected as a fellow. The parent institute must furnish an undertaking on official letterhead, duly signed by the Head of Institution, confirming the same. SIA shall reimburse the amount after submission of the completion report and approval by the DST–National Expert Advisory Committee (NEAC).
- Institutions may also recruit and register new Ph.D. scholars specifically for undertaking research in the research themes identified under this programme. Such recruitment must follow the institution's approved admission procedures, and candidates must possess the necessary basic qualifications and demonstrate aptitude for work in hydrogen science and technology. Once formally registered, these scholars shall be eligible to apply, provided they meet all other eligibility conditions. This provision is included to ensure the availability of suitably prepared scholars, as hydrogen research domains are emerging and may not align with the current topics of already-registered students.

(A.2) Postdoctoral Fellows

- The applicant must have a Ph.D. degree within the past four years from a recognized Indian university or research institution.
- The applicant must be registered as a Postdoctoral fellow in a recognized Indian university or research institution at the time of application.
- The applicant must submit a Statement of Purpose describing their completed/ongoing research activities, explaining the importance and expected impact of their work, and providing a clear justification for the fellowship.
- The applicant must have a publication in a reputed journal.
- Postdoctoral Fellows shall continue to receive their existing fellowship or stipend in India from CSIR/UGC/institutional/SERB or other sources, as applicable. The DST fellowship provided under this Programme is exclusively for subsistence and research support during the stay in the Netherlands and does not replace or duplicate the fellow's existing fellowship in India. Fellows shall not undertake any paid employment, teaching assignments, consultancy, or receive any salary or honorarium from the host institution abroad.
- Applicants currently holding any fellowship or grant providing similar international research or support shall not be eligible to apply.
- Prior to submission of the application against the CfP, the applicant must obtain a conditional admission or acceptance letter from the proposed host institution confirming their willingness to host the fellow for the stated duration and research theme.
- The Indian parent institution must provide an NOC, stating that the applicant is permitted to undertake the fellowship for the approved duration while retaining their registration status in India.
- The fellow shall not accept any other employment abroad during or immediately after the fellowship and must complete the postdoctoral work at the parent institute.

- The Indian parent institution shall provide, on its official letterhead duly signed by the Head of Institution, an undertaking to furnish all UCs, SoE, and any other financial or administrative documents required by the SIA or DST for audit and compliance purposes.
- Department of Science and Technology shall provide 80% of the fellowship on a monthly basis, while the Indian parent institution shall provide the 20% fellowship amount to the applicant, if selected as a fellow. The parent institute must furnish an undertaking on official letterhead, duly signed by the Head of Institution, confirming the same. SIA shall reimburse the amount after submission of the completion report and approval by the DST–National Expert Advisory Committee (NEAC).
- Institutions may also recruit and register new Postdoctoral scholars specifically for undertaking research in the research themes identified under this programme. Such recruitment must follow the institution's approved admission procedures, and candidates must possess the necessary basic qualifications and demonstrated aptitude for work in hydrogen science and technology. Once formally registered, these scholars shall be eligible to apply, provided they meet all other eligibility conditions. This provision is included to ensure the availability of suitably prepared scholars, as hydrogen research domains are emerging and may not align with the current topics of already-registered students.

(B) Faculty Fellowship (Assistant/Associate professor level only)

- The applicant must be a **full-time, regular faculty member** (Assistant Professor or Associate Professor level) at a recognized Indian university or R&D institution.
- The applicant must be **actively engaged in teaching and/or research related to hydrogen technologies**, energy systems, or allied interdisciplinary fields relevant to the research themes identified under this programme.
- Prior to submission of the application against the CfP, the applicant must obtain a conditional admission or acceptance letter from the host institution confirming their willingness to host the faculty for the stated duration and research theme
- The Indian parent institution must provide an NOC, stating that the applicant is permitted to undertake the fellowship for the approved duration while retaining their employment status in India.
- Faculty Fellows shall continue to draw their regular salary from their parent institution in India. The overseas fellowship is solely for subsistence and research support during the stay abroad. Faculty Fellows shall not receive any salary, honorarium, consultancy fee, or contractual payment from the host institution in the Netherlands
- The faculty shall not accept any other full-time academic or research position abroad during or immediately after the fellowship and must continue their employment work at the parent institute.
- The Indian parent institution shall provide, on its official letterhead duly signed by the Head of Institution, an undertaking to furnish all UCs, SoE, and any other financial or administrative documents required by the SIA or DST for audit and compliance purposes.
- For faculty fellows, DST shall provide at least fifty percent (50%) of the sanctioned fellowship amount. The remaining portion shall be provided by the Indian parent institution or the host

institution, which must submit an undertaking on official letterhead confirming its financial commitment. No reimbursement of this portion shall be made by DST.

Note: 1. These fellowships are intended for predoctoral-level research. Applicants must be registered Ph.D. scholars in the early or mid-stage of their doctoral programme at the time of application. Applicants who have already been awarded a Ph.D. degree, or who are within eight (8) months of their expected Ph.D. thesis submission date, shall **NOT** be eligible.

2. The above-stated criteria and requirements, DST reserves the right to request additional documents or clarifications at any stage, as deemed necessary.

3. An individual who has already availed the India–Netherlands Hydrogen Fellowship under any category (Doctoral, Postdoctoral, or Faculty) shall not be eligible to apply again under any category in subsequent CfPs, *unless explicitly permitted by DST through a formal notification or amendment to the Scheme Guidelines or CfP*.

6. Selection Process

After the applicant must obtain a conditional admission or acceptance letter from the host institution (in the Netherlands) confirming their willingness to host the fellow for the stated duration and research theme.

Two-Tier Selection System

a. Tier I – Preliminary Evaluation

- The **NEAC** shall conduct an **offline evaluation** of all submitted applications based on, but not limited to, the following parameters:
  - Submission is as per CfP.
  - Quality and clarity of the research proposal and proposed approach.
  - Relevance of the topic to India's hydrogen ecosystem.
  - Strength and preparedness of the applicant, parent institution, and proposed host institution.
  - Potential for skill development, indigenization, and technology adaptation.
  - Completeness and authenticity of the documents submitted.

b. Tier II – Presentation and Interaction

- Shortlisted applicants from Tier I shall be invited to **defend their proposed research topic and solution approach** before the NEAC. This stage may include a **technical interaction round** to assess (indicative):

- Depth of subject knowledge and research methodology
- Practical feasibility and innovation potential of the proposed work; and
- Its contribution to indigenization (Atmanirbhar Bharat potential) and applicability within India's Hydrogen framework.

Note: The selected applicants will be recommended for a fellowship to DST by the DST-NEAC. The final decision regarding the award of the fellowship shall rest solely with DST and will be subject to its discretion and the availability of funds.

7. Funding Mechanism

- The fellowship shall be governed by the funding norms and administrative procedures prescribed under the Climate, Energy and Sustainable Technology (CEST) Division funding guidelines, issued in accordance with the Department of Science and Technology (DST) rules and policies. It shall be implemented under the thematic area 'Hydrogen and Fuel Cell (HFC) Technologies' and the stream 'Establishment of Centres of Excellence (CoEs) / Hubs', or any restructured, renamed, or successor divisions, thematic areas, or programme streams notified by DST from time to time.
- Fellowship duration for each category will be as per clause 3.
- DST fellowship shall be provided in accordance with the prevailing monthly cost-of-living norms prescribed by the Immigration and Naturalisation Service (IND), Government of the Netherlands.
- DST will serve as the primary funding agency providing a fellowship for all selected fellows, while the host institute may offer an additional top-up to the fellows.
- Bench fees for Ph.D. and Post-Doctoral Fellows may be either levied or waived by the host institution. If levied, such costs shall be managed by the fellow within the fellowship support provided, and no extra amount shall be provided for the same by DST.
- DST will provide a single lump-sum grant to cover visa processing, round-trip economy-class travel, and relocation expenses for selected Ph.D. and Post-Doctoral fellows. This lump-sum support shall NOT be provided to faculty and may instead be borne by the parent institution or host institute or by the faculty themselves.
- The following disbursement structure shall apply:
  - Eighty percent (80%) of the total sanctioned amount shall be released as a monthly fellowship for the duration of the fellowship programme.
  - The remaining twenty percent (20%) shall be placed in reimbursement mode, to be claimed by the fellow's parent institute after submission of the completion report and approval by the DST–NEAC.
  - This structure aims to ensure credibility, completion of deliverables, and compliance with reporting requirements.
- The fellowship and lump sum amount provided shall be exclusively earmarked for the fellowship and should not be diverted to any other purpose.

- Any expenses incurred before the sanction order shall not be reimbursed.

7.1 Host Institution In-Kind Contribution and Publication Support

- The foreign host institution(s) participating under this Programme may extend in-kind contributions, including but not limited to: access to laboratories, research facilities, instrumentation, computational resources, academic supervision, and institutional support services.
- Open-access publication charges (APCs) or similar fees arising from jointly produced research outputs may be borne by the host institution as part of its in-kind support. DST shall not bear any publication fees or article-processing charges under this Scheme unless explicitly provided for in future amendments.

8. Governance Structure

- Scheme Guidelines and Call for Proposals (CfP)
  - The approved Scheme Guidelines shall serve as the primary reference document for issuing the CfP by DST. The CfP will outline eligibility criteria, submission formats, research topics, and funding mechanisms, etc, in alignment with these guidelines.
- Scheme Implementing Agency (SIA)
  - DST will nominate a SIA responsible for the overall coordination and implementation of the scheme.
  - The SIA shall be responsible for the following, but not limited to:
    - Manage the CfP process, including receipt, compilation, and preliminary scrutiny of all applications.
    - Ensure compliance of all submissions with the scheme guidelines and CfP requirements.
    - The SIA shall compile all eligible submissions in a standardized format and submit them to DST - National Expert Advisory Committee for evaluation and recommendation.
    - Collation of SoE, UC, and any other relevant documents.
    - Maintain all project-related documentation and data repositories.
    - Organise selection and review (closing) meeting.
- National Expert Advisory Committee (NEAC)
  - The NEAC members will be nominated by Secretary - DST, may include domain experts, representatives from partner academic, research institutes, and other stakeholders, as deemed appropriate.
  - The NEAC will be chaired by a Subject Matter Expert nominated by Secretary - DST.
  - The NEAC shall evaluate and recommend proposals (fellows) received under the scheme.
  - Scientist 'G' DST, will serve as Observer of the fellow selection process.
  - Scientist 'F' DST, will serve as the NEAC Member Secretary.
- Financial Management and Reporting
  - DST will release the total sanctioned funds to the SIA for onward disbursement and scheme implementation.
- SIA shall follow the norms under clause 8 - Scheme Implementing Agency (SIA).

- The SIA shall be entitled to an administrative fee of up to 1% of the total scheme funding, which shall be provided separately.
- The SIA shall collect and consolidate all UCs, SoEs, and other financial or administrative documents required for audit and compliance purposes.
- The SIA shall ensure the timely submission of all requisite reports and financial statements to DST.

9. Fellowship completion and review

Upon completion of the fellowship, the Fellow shall submit a Fellowship Completion Report (FCR), duly endorsed by the host institution and the Indian parent institution, to the DST–NEAC through the SIA. The SIA may arrange a presentation or interaction, as required, for review of the fellowship outcomes. Upon satisfactory evaluation and approval of the FCR by the DST–NEAC, the Indian parent institution may submit the claim for reimbursement of the remaining twenty percent (20%) of the fellowship amount, along with the required UC, SoE, and other supporting documents, to the SIA for processing

10. Expected Outcomes

- **Advancement of Hydrogen Technologies:**

  Fellows are expected to contribute to the development, optimization, or validation of innovative hydrogen production, storage, distribution, or utilization technologies with potential for scalability and commercial application.
- **Capacity Building and Skill Development:**

  The fellowship should enhance national capacity in hydrogen energy research through the development of technical skills, mentorship of students or junior researchers, and collaboration with academic, industrial, or policy stakeholders.
- **Knowledge Generation and Dissemination:**

  Fellows should produce new scientific or technical knowledge that advances understanding of hydrogen systems, such as materials for hydrogen storage, fuel cell efficiency, or green hydrogen production pathways, and share findings through workshops, technical reports, or open-access repositories.
- **Technology Demonstration and Validation:**

  Where applicable, fellows may develop laboratory-scale or pilot-scale demonstrations that validate research findings or assess the feasibility of hydrogen technologies in real-world conditions.
- **Contribution to DST HFC Goals:**

  Outcomes should align with and support the objectives of the DST's HFC programme, contributing to India's transition toward clean and sustainable energy systems.

- **Collaboration and Networking:**

  Fellows are expected to engage in interdisciplinary collaboration across institutions and with international partners to strengthen the national hydrogen research ecosystem and promote technology transfer.
- **Policy and Strategic Inputs:**

  Research findings may inform evidence-based policy recommendations, techno-economic assessments, or strategic roadmaps for accelerating hydrogen deployment in India.
- **Societal and Environmental Impact:**

  The fellowship should generate insights or solutions that contribute to reducing carbon emissions, improving energy security, and supporting sustainable economic development through hydrogen-based technologies.

11. Non-Compliance, Termination, and Disciplinary Action

- If the fellow, parent institution, or host institution is found to violate the Scheme Guidelines, CfP conditions, improperly utilizes the fund, fails/refuses to submit the UC/SoE/other requested documents, fails/refuses to submit/present the outcomes report, or any terms and conditions of the award, doesn't complete the duration of fellowship, violates the terms under clause 5, host institute raises concern on the credibility of fellows work; DST reserves the right to:
  - Terminate the fellowship with immediate effect.
  - Withhold or recover any unutilized or inappropriately utilized funds.
  - Confiscate or restrict access to any data, reports, or materials generated under the fellowship; and
  - Debar the concerned fellow/faculty, parent institution, and/or host institution from applying to any future DST CfPs or funding programmes.
- The decision of DST in such matters shall be final and binding, and no claims for reinstatement or reconsideration shall be entertained.

12. Early Return / Discontinuation by the Fellow

If a fellow is required to return to India before completion of the fellowship duration due to, but not limited to, health reasons, family emergencies, or substantiated concerns regarding the working environment at the host institution, etc, they must immediately notify the SIA and DST in writing through the parent institution. Early discontinuation shall be permitted only with prior written approval from DST. Financial support shall be settled strictly on a pro-rata basis, and any unspent or excess funds shall be returned to DST through the parent institution. DST shall not bear or reimburse any additional expenses arising from early return, including return travel, relocation, visa changes, accommodation, or any other personal or logistical costs; such expenses shall be the responsibility of the fellow or parent institution. In all cases of early return, the fellow must submit all completed, partially completed, or collated research work, data, reports, and any other outputs generated

under the fellowship to DST through the SIA. DST reserves the right to verify the reasons submitted and to determine the eligibility of the fellow for future DST programmes.

13. Guidelines for Safeguarding of Intellectual Property

DST shall issue the necessary guidelines for the safeguard of any Intellectual Property Rights (IPR), such as publications, patents, registered designs, or trademarks, generated through research or activities carried out under the India–Netherlands Hydrogen Fellowship Programme (during the fellowship duration). The guidelines shall clearly define the ownership, acknowledgment, and sharing mechanisms between the fellow, the parent institution, and the host institution.

These IPR guidelines may also form a part of the CfP to be issued by the implementing agency to ensure uniform compliance across all fellowship categories.

14. Ambiguity

If there is any ambiguity in the interpretation of any content within this document, the decision made by the DST will be considered final.

15. Power to Amend Guidelines

DST may make the necessary amendments in the scheme guidelines, as and when required, with the approval of the Hon'ble Minister, Science and Technology.

****

Contacts: Any inquiries to this call should be directed to: (Include subject: India-Netherlands Fellowship Program DST)

Dr. Ranjith Krishna Pai
Scientist 'F'/ Senior Director
Program Officer – Hydrogen and Fuel Cell /Hydrogen Valley Innovation Cluster
The Climate, Energy, and Sustainable Technology (CEST) division
Old S&T Block, Room No: 16B
Department of Science and Technology (DST)
Ministry of Science and Technology, Govt. of India
Technology Bhavan, New Mehrauli Road
New Delhi-110016
Ph: 011-26590475
E-mail: ranjith.krishnapai@gov.in

विज्ञान एवं
प्रौद्योगिकी मंत्रालय
MINISTRY OF
SCIENCE AND TECHNOLOGY
विज्ञान एवं प्रौद्योगिकी विभाग
DEPARTMENT OF
SCIENCE & TECHNOLOGY

सत्यमेव जयते

GENERAL INFORMATION AND FORMAT

FOR SUBMISSION OF FELLOWSHIPS FOR FINANCIAL ASSISTANCE

For

India – Netherlands Hydrogen Fellowship Programme

Call Under

Climate, Energy, and Sustainable Technology Division

University of Groningen Last Date of Submission: 23 March 2026
Last Date of Submission: 29 May, 2026

Applicants who have received conditional approval from University of Groningen are eligible to apply through the online mode (https://onlinedst.gov.in/login.aspx) NO HARDCOPY

GOVERNMENT OF INDIA
MINISTRY OF SCIENCE & TECHNOLOGY
DEPARTMENT OF SCIENCE & TECHNOLOGY
TECHNOLOGY BHAVAN, NEW MEHRAULI ROAD
NEW DELHI – 110016

GENERAL INFORMATION

The Department of Science and Technology (DST) is pleased to announce the India–Netherlands Hydrogen Fellowship Programme for Human and Technical Capacity Building. Building on DST's Hydrogen and Fuel Cell (HFC) initiatives, this programme aims to strengthen the skilled workforce and technical expertise required to support the development and implementation of India's emerging hydrogen economy.

2. Need for this Call

At COP26 in Glasgow (2021), India announced the *Panchamrit* strategy, committing to:

1. 500 GW of non-fossil energy capacity by 2030,
2. meeting 50% of energy requirements from renewable energy by 2030,
3. reducing projected carbon emissions by 1 billion tonnes by 2030,
4. lowering the carbon intensity of the economy by 45% by 2030 (relative to 2005), and
5. achieving net-zero emissions by 2070.

In parallel, India has set a goal of achieving energy independence by 2047, enabling a transition from fossil fuels to clean and sustainable energy systems. Meeting these national commitments requires rapid decarbonisation across the transport, chemical, steel, and power sectors while ensuring long-term energy security. Owing to its high energy density and versatility across production, storage, transport, and end-use, hydrogen is a critical enabler of this transformation.

To realize this potential, India must develop a highly skilled workforce capable of designing, implementing, operating, and maintaining hydrogen technologies across the full value chain. Structured capacity-building and international exposure are crucial for equipping India's emerging hydrogen workforce with globally benchmarked technical knowledge and operational expertise.
Successful skill development will also accelerate indigenisation, technology development, and commercialisation of hydrogen systems, enabling domestically developed solutions that directly contribute to the vision of Atmanirbhar Bharat.

This Call therefore seeks to support advanced training, collaborative research, and human resource development through engagement with leading hydrogen research ecosystems in the Netherlands, strengthening India's readiness for a hydrogen-based economy.

3. Netherlands – Hydrogen Preparedness and University of Groningen

The Netherlands is widely recognised as a European leader in hydrogen deployment, supported by advanced infrastructure, strong policy frameworks, and close integration with industrial and port ecosystems. The Port of Rotterdam, Europe's largest, is rapidly evolving into a major global hub for green hydrogen import, processing, and distribution, enabled by large-scale electrolyser projects, international supply corridors, and hydrogen-ready transport infrastructure.

The Northern Netherlands hosts Europe's first operational Hydrogen Valley and several innovation platforms that enable end-to-end development across production, storage, transport, and industrial

applications. These capabilities provide a mature, real-world environment for hydrogen R&D, demonstration, and systems engineering.

Within this ecosystem, the University of Groningen plays a central academic and research role through interdisciplinary hydrogen programmes and strong linkages with Hydrogen Valley initiatives. Under this Call, all fellows will be hosted at the University of Groningen, gaining access to cutting-edge research facilities and live hydrogen deployment projects.

The University of Groningen will offer Joint (Double) Ph.D. and Joint (Double) Postdoctoral positions to eligible fellows in collaboration with its partner institutions under the existing Memorandum of Understanding.

4. Scope of Call

The Call aims to strengthen India's preparedness for large-scale hydrogen deployment by developing skilled human resources, research capability, and institutional readiness. The scope includes:

1. Providing Indian hydrogen researchers and academicians with first-hand exposure to the implementation, operation, and management of hydrogen technologies across production, storage, transport, and end-use systems.
2. Enabling the learning and adaptation of international best practices, technical standards, and safety frameworks to support India's emerging hydrogen infrastructure.
3. Supporting the development of academic curricula, specialised training modules, and test facilities that will accelerate the reskilling and upskilling of India's workforce for the hydrogen transition.
4. Fostering collaborative research and long-term partnerships with leading Dutch hydrogen ecosystems to accelerate India's technology adoption, localisation, and system-level integration.
5. Strengthening India's capabilities in designing, validating, and deploying hydrogen supply-chain elements—including electrolyser systems, storage solutions, refuelling infrastructure, and industrial-use pathways.
6. Enhancing India's institutional capacity to undertake techno-economic assessments, safety analyses, and regulatory alignment required for hydrogen infrastructure roll-out.
7. Facilitating the indigenisation and commercial readiness of hydrogen technologies by exposing Indian researchers to advanced R&D facilities, industry clusters, and integrated hydrogen deployment models in the Netherlands.

5. Research Topics

Table 1: Doctoral / Post doctoral Fellows

S. No.	Research Theme	Brief Elaboration	University of Groningen (submit your area interest)
1	Mapping of hydrogen vs electricity energy flows	Comparative analysis of hydrogen pathways vs electric pathways across production, storage, and mobility sectors	dstfellowships.groningen@rug.nl
2	Socio-techno-economics of hydrogen production	Cost, regulatory landscape, deployment barriers for electrolyser and reforming-based	

		H_2 production	
3	Socio-techno-economics of hydrogen storage	Economic, safety, and regulatory aspects of compressed, LOHC, and solid-state hydrogen storage …	
4	Socio-techno-economics of hydrogen transport	Pipeline vs trailer transport, blending models, logistics, and regulatory compliance	
5	Socio-techno-economics of hydrogen utilization	Policy, safety, and cost aspects of fuel cells, industrial burners, refuelling stations	
6	Hydrogen export & port economics	Techno-economic and policy considerations for green hydrogen export through ports	
7	Hydrogen inequity & societal impacts	Hydrogen adoption impacts on social equity, affordability, and regional development	
8	Regulatory frameworks for hydrogen applications	Standards for mobility, blending, industrial applications, and permitting pathways	
9	Advanced electrolyser testing stations	High-end electrolysers: degradation, diagnostics, performance evaluation	
10	Reforming-based hydrogen testing stations	Testing of methane/biogas reforming systems for high-efficiency H_2 generation	
11	Agrowaste-to-hydrogen demonstrator	Conversion of agricultural residues to H_2; design + field deployment of demo systems	
12	SOFC/SOEC/rSOC degradation	Long-term degradation mechanisms and performance decay modelling in ceramic cells	
13	SOFC/SOEC/rSOC – new materials	Material innovations for electrodes, electrolytes, and interconnects for reversible cells	
14	SOFC/SOEC/rSOC – new cell types & applications	Novel cell designs and applications, such as hybrid cycles, grid integration, and sector coupling	
15	Hydrogen-Compatible Materials and Fracture Mechanics for H_2 / H-CNG Infrastructure	Development and testing of hydrogen-compatible steels, polymers and composite materials for pipelines, storage vessels and refuelling components, including fracture mechanics, hydrogen embrittlement, fatigue, crack	

		propagation and long-term integrity under pure hydrogen and H-CNG operating conditions relevant to Indian and Dutch infrastructure.	
16	Cradle-to-Gate LCA of Green Hydrogen Production Routes	Evaluation of PEM/alkaline/SOEC/rSoC pathways under Indian energy mixes; benchmarking with Dutch datasets.	
17	LCA of Hydrogen Storage & Refuelling Systems	Comparative environmental impacts of compressed, LOHC and cryogenic storage; refuelling station infrastructure LCA.	
18	Comparative LCA: Fuel Cell vs Battery Electric Mobility	Life-cycle emissions and resource use for buses/urban fleets under Indian duty cycles; sensitivity for 2030 grids.	
19	LCA of Hydrogen Carriers for Transport & Port Operations	Ammonia, methanol, LOHC pathways; port handling emissions and India–EU corridor comparisons.	
20	Integrated LCA–TEA Modelling of Full Hydrogen Value Chains	Multi-sector modelling connecting production–storage–transport–use; India 2047 vs EU 2050 scenarios.	
21	Component & System-Level LCA of SOEC/SOFC/rSOC Technologies	Manufacturing, degradation, material hotspots, and end-of-life modelling using Dutch datasets and India adaptations.	
22	Port-Centric LCA for Hydrogen Export/Import Corridors	Rotterdam-style liquefaction, shipping, carrier handling and terminal operations; adaptation for Indian ports.	
23	Consequential/Hybrid LCA for Industrial Hydrogen Transition	Steel, ammonia, refineries; marginal emissions modelling, rebound effects, and sector-coupling pathways.	
24	Digital Twin for Hydrogen Systems – Forecasting, Predictive Maintenance and Cost Optimisation	Development of digital twins for hydrogen production, storage, transport and utilisation systems that run in parallel with real assets, enabling real-time forecasting of hydrogen output, efficiency and degradation, predictive maintenance of electrolysers, compressors and SOEC/rSOC stacks, utilization units (FC etc), BoP and continuous tracking and	

		optimisation of operating expenditure (electricity, water, maintenance, downtime) and hydrogen production cost under Indian conditions.	
25	Hybrid Physical–Digital Twins for Integrated Hydrogen Networks	Creation of hybrid physical–digital twins that combine sensor data, physics-based models and techno-economic parameters to simulate hydrogen networks in real time, allowing optimisation of hydrogen flows, storage and utilisation while minimising system-level OPEX, energy losses and emissions, and supporting investment and scale-up decisions for large-scale hydrogen deployment	

Doctoral and Postdoctoral fellows may work on the same research themes at different technical depths, enabling vertically integrated research teams.

Table 2: Faculty Fellows (Curriculum, Facility Development & India-Relevant Translation)

S. No.	Theme	Purpose for India (Based on Topics)	University of Groningen (submit your area interest)
1	Development of hydrogen curriculum & academic modules	Convert research themes into teaching syllabi, lab modules, and workforce skilling programmes	dstfellowships.groningen@rug.nl
2	Establishment of hydrogen testing facilities	Translate advanced testing station concepts (electrolysers, reformers, SOFC/SOEC) into Indian academic labs	
3	Standards, regulation & safety frameworks	Adapt NL best practices for safety, blending regulations, mobility, storage & port operations	
4	India–Netherlands collaborative research framework	Build long-term Indo–NL networks for industry-linked hydrogen R&D	
5	Hydrogen export infrastructure planning	Apply port-based hydrogen export learnings (Rotterdam model) to Indian ports	
6	Socio-economic transition & policy studies	Equity, affordability, policy frameworks, and sector transition planning	

7	Development of LCA Curriculum & Training Modules for Hydrogen Systems	Creation of academic courses, laboratory modules, and workforce skilling content on attributional, consequential, and hybrid LCA methods using Indo–NL datasets.	
8	Establishment of LCA & TEA Modelling Facilities in Indian Institutions	Designing India-relevant LCA modelling labs; adapting Dutch tools/datasets (ecoinvent, ELCD, regional LCI data) for Indian hydrogen value-chain studies.	
9	LCA Frameworks for National Hydrogen Standards & Policy	Developing LCA-based guidelines, environmental benchmarks, and sustainability indicators to support Indian regulatory and certification frameworks (green H_2 definitions, GH2 emissions).	
10	Port-Based LCA Methodologies for Hydrogen Import/Export Corridor	Translating Rotterdam port LCA methods (liquefaction, shipping, carrier handling, storage) to Indian port contexts for long-term hydrogen export planning.	

6. Number and duration of Fellowships Positions

Table 3: Categories

Sno	Category	Number of Positions	Duration	Host Institution
1	Doctoral	10	Up to 12 months	University of Groningen
2	Postdoctoral	5	12 months	University of Groningen
3	Faculty	5	12 months	University of Groningen

Note: The numbers/duration indicated in this Call for Proposals are indicative. DST may revise the number of fellowship positions at any stage, depending on the merit of the applications received and/or the availability of funds.

7. Fellowship amount

Table 4: Fellowship

Sno	Category	Amount (Euro) per month	Funding Agency	Add on (Euro) per month
1	Doctoral	1500	DST	375 (University of Groningen)
2	Postdoctoral	2000	DST	Nil

3	Faculty	1000	DST	Nil

7.1 The minimum subsistence requirement under the Dutch Immigration and Naturalisation Service (IND) is €1,875 per month.

7.2 The University of Groningen will not levy any bench fees for fellows supported under this Programme.
7.3 Selected fellows will be awarded a Joint (Double) Doctoral Degree or Joint (Double) Postdoctoral Certification by the University of Groningen and the Indian parent institution, in accordance with the applicable joint degree or joint supervision regulations of the University of Groningen and the respective Indian university. Fellows under such arrangements shall be jointly supervised by faculty from both institutions and shall be required to defend their thesis or postdoctoral work before the academic committees of both institutions, as prescribed under the relevant joint (double) degree or supervision framework. Doctoral candidates selected under the Joint (Double) Ph.D. track shall receive an additional non-contractual subsistence top-up of €375 per month from the University of Groningen. Indian universities that do not currently have a joint (double) degree or joint supervision MoU with the University of Groningen may enter into such an agreement at the time of selection or thereafter, subject to the internal approvals of both institutions and mutual consent.

7.4 Faculty Fellows shall be provided a fellowship only to the extent specified in Table 5. Any shortfall between the fellowship amount provided under this Programme and the minimum monthly subsistence requirement prescribed by the Dutch Immigration and Naturalisation Service (IND) shall be met by the Indian parent institution and/or the University of Groningen. The Indian parent institution shall furnish an undertaking confirming that the required subsistence level will be maintained for the full duration of the fellowship. DST shall not bear any financial liability beyond the fellowship amount specified in Table 4.

8. Funding Mechanism

Funds disbursement will be through a Scheme Implementing Agency, to be nominated by DST. To receive and manage DST funds under this Programme, the Indian parent institute must have an active PFMS account.

DST will provide a one-time lump-sum grant to Doctoral and Postdoctoral Fellows to cover visa, travel, health insurance, and relocation expenses, among others. This lump-sum support shall NOT be provided to Faculty Fellows and may instead be borne by (jointly/independently) the parent or host institution or by the faculty themselves.

Doctoral, Postdoctoral, and Faculty Fellows shall continue to draw their existing fellowship or salary from their parent institution in India. The overseas fellowship provided under this Programme is exclusively for subsistence and research support during the stay in the Netherlands.

Table 5: Funding milestone

Sno	Milestone	Fund
1	Sanction order receipt	One-time lump sum amount
2	The fellow submits a copy of the visa, travel tickets, and	Commencement of monthly

	health/travel-insurance documents to the SIA.	fellowship disbursement - Eighty percent (80%) of the sanctioned monthly fellowship amount shall be released every month. The remaining twenty percent (20%) of the monthly fellowship shall be paid by the Indian parent institution and shall be reimbursed upon successful completion of the fellowship, submission of the Final Technical Report, and approval by the DST–National Expert Advisory Committee (Milestone 3)
3	The fellow submits the Final Technical Report and presents/defends the work before the DST–National Expert Advisory Committee (NEAC). The Indian parent institution submits the Utilization Certificate (UC) and Statement of Expenditure (SoE) in the prescribed format to SIA.	Reimbursement of the remaining twenty percent (20%) of the sanctioned fellowship amount.

8.1 In-Kind Support and Open-Access Publication Costs (University of Groningen)

As part of its in-kind contribution, the University of Groningen will provide access to laboratories, research facilities, supervision, and academic resources without charging bench fees, and will additionally bear the cost of open-access publication charges (APCs) for jointly produced research publications. No APCs or bench fees shall be claimed from the parent institute/fellow/DST. This support is in addition to the non-contractual monthly top-up of €375 provided to Joint (Double) Doctoral Fellows.

9. Selection Process

Applicants must obtain a conditional acceptance letter from the host institution (University of Groningen), confirming willingness to host the fellow for the proposed duration and research theme, before submission of the application. The submitted applications will follow the process.

The selection will follow a Two-Tier Evaluation System, conducted by the DST–National Expert Advisory Committee (NEAC).

- **Tier I – Preliminary Evaluation**

The NEAC shall undertake an offline screening of all eligible applications based on (but not limited to) the following criteria:

- Compliance with the requirements of the Call for Proposals (CfP).
- Quality, clarity, and scientific merit of the proposed research work.
- Relevance of the topic to India's hydrogen priorities, transition pathways, and ecosystem needs.

- Preparedness and capability of the applicant, Indian parent institution, and proposed host research group.
- Potential for skill development, indigenization, and technology adaptation for Indian conditions.
- Completeness, accuracy, and authenticity of the documents submitted.

Shortlisted applicants will be invited for Tier II evaluation.

- **Tier II – Presentation and Interaction**

Shortlisted candidates shall present and defend their proposed research work before the DST–NEAC. This evaluation may include a technical interaction to assess:

- Depth of domain knowledge and understanding of research methodology.
- Innovation potential, feasibility, and expected impact of the proposed work.
- Potential contribution to India's hydrogen deployment, capacity-building needs, and Atmanirbhar Bharat objectives.
- At the discretion of the DST–NEAC, applicants may also be given a problem statement or scenario during the interaction, which they will be required to analyse, defend, and propose a solution for. This assessment will form part of the overall evaluation of the applicant's technical competence, problem-solving ability, and suitability for the fellowship
- DST-NEAC shall finalise the expected outcomes for each selected fellow in accordance with the approved research topic and the outcome framework specified in Clause 10. These outcomes shall be formally endorsed by DST and shall form the basis for monitoring, evaluation, and final approval of the fellowship.

Based on the evaluation, the DST–NEAC will recommend applicants for the award. The final decision regarding the selection and number of fellowships shall rest solely with DST.

10. Application Submission and Role of the Scheme Implementing Agency (SIA)

Applicants must first obtain a conditional acceptance letter from the University of Groningen confirming the willingness to host the proposed research. While seeking this acceptance, applicants shall select an appropriate research theme from Clause 5 (Research Topics). The University of Groningen will designate a programme contact or coordinating office to guide applicants regarding the relevant research group, required documents, and host-supervisor identification (dstfellowships.groningen@rug.nl).

Only after obtaining this acceptance may the application be submitted under this Call for Proposals.

DST will designate a Scheme Implementing Agency (SIA) to coordinate and manage the application, evaluation, and award processes. The SIA will facilitate communication between DST, the University of Groningen, and the applicant's Indian parent institution.

Applicants with conditional acceptance from University of Groningen must be submitted online through the portal specified in the CfP notification.

How Applications Will Be Processed

After submission:

Preliminary Screening:

- The SIA will verify completeness, eligibility, and compliance with the CfP and Scheme Guidelines.

Forwarding to NEAC:

- All eligible applications will be compiled and forwarded to the DST–National Expert Advisory Committee (NEAC) for detailed evaluation.

Evaluation

Evaluation shall be carried out as described in Clause 9. Shortlisted and selected applicants will be notified accordingly.

Post-Selection Formalities

For selected candidates:

- Additional documents such as updated acceptance letters, No-Objection Certificates (NOCs), and visa-related details may be requested.
- The SIA will coordinate joining formalities between the fellow, the Indian parent institution, and the University of Groningen.

Fund Flow

- DST will release fellowship funds to the SIA, which will further disburse them to the Indian parent institution as per Section 8: Funding Mechanism.
- The Indian parent institution shall submit the Utilization Certificate (UC) and Statement of Expenditure (SoE) for financial closure.

Completion Requirements

At the end of the fellowship, fellows must submit:

- Final Technical Report
- Presentation before DST–NEAC (if required)
- Any additional documents requested for closure

11. Outcomes

The Doctoral and Postdoctoral Fellowships are intended to generate measurable scientific and techno-economic outcomes that directly support India's hydrogen ecosystem. The expected outcomes shall include, but are not limited to, the following:

1. **Cost and Competitiveness Improvements**

Fellowship outputs shall identify and quantify pathways for reducing the cost of hydrogen production, storage, transport, or utilisation under Indian conditions, including implications for domestic supply as well as for hydrogen exports from India.

2. **Increased Use of Indian Resources and Supply Chains**
   The research shall demonstrate increased utilisation of domestically available renewable electricity, raw materials, components, or manufacturing capabilities within hydrogen value chains, contributing to reduced import dependence and enhanced Indian value addition.
3. **Technology Readiness for Indian Deployment**
   The work shall improve the readiness of at least one hydrogen-related technology, component, or system for deployment under Indian climatic, grid, industrial, or infrastructure conditions.
4. **Reduction in Energy Losses and Environmental Footprint**
   Fellowship outputs shall include quantified improvements in energy efficiency, reduced losses, water use, or greenhouse-gas emissions across hydrogen systems relevant to India.
5. **Export and Logistics Competitiveness**
   Where applicable, the research shall contribute to lowering the cost or improving the logistics of hydrogen export from India, including port-based handling, storage, conversion, or transport.
6. **Safety, Standards, and Operational Readiness**
   The work shall generate inputs toward improved safety practices, risk mitigation, or standards development for hydrogen production, storage, transport, refuelling, or use in India.
7. **Knowledge and Skill Development**
   Each fellowship shall result in new data, models, experimental results, or analytical tools that strengthen India's human resource base in hydrogen technologies.

Faculty Fellowships are intended to create durable institutional, regulatory, and human-capacity outcomes that enable India's long-term hydrogen transition. The expected outcomes shall include, but are not limited to, the following:

1. **Development of Indian Human Capital**
   The fellowship shall result in the creation of academic or training material, courses, or modules that support the education and up/reskilling of India's future hydrogen workforce.
2. **Establishment of Testing, Modelling, or Demonstration Capability**
   Faculty fellows shall develop concepts, designs, or operating frameworks for hydrogen test facilities, laboratories, simulation platforms, or demonstration systems relevant to Indian needs.
3. **Strengthening of Policy, Regulatory, and Standards Frameworks**
   The fellowship shall produce India-relevant guidelines, policy notes, or regulatory frameworks for hydrogen safety, certification, blending, mobility, storage, trade, or industrial use.
4. **Support for Hydrogen Clusters and Port-Based Systems**
   Where applicable, faculty work shall contribute to regional hydrogen cluster planning, port-based hydrogen hubs, or export-oriented hydrogen value chains in India.
5. **Life-Cycle Assessment (LCA) and Techno-Economic Analysis (TEA) Capability for India**
   The fellowship shall build Indian capability in LCA, TEA, and the sustainability evaluation of hydrogen systems.
6. **International and Institutional Linkages**
   Faculty fellowships shall result in strengthened Indo-Dutch research partnerships, joint project pipelines, or institutional cooperation frameworks.
7. **Support for Indigenisation and Atmanirbhar Bharat**
   The cumulative outputs shall directly contribute to indigenous development, localisation, and commercialisation of hydrogen technologies in India.

12. Fellowship Completion

At the end of the fellowship, each Fellow will be required to submit a final technical and outcomes report endorsed by both the host institution and the Indian parent institution. Selected Fellows may also be asked to make a presentation before the DST–National Expert Advisory Committee (NEAC). The satisfactory completion and acceptance of this report by DST–NEAC will be a condition for formal closure of the fellowship and for processing of any final financial settlements by the Indian parent institution through the SIA.

12. Intellectual Property Rights

All Intellectual Property (IP), including but not limited to patents, copyrights, trademarks, industrial designs, software, databases, and know-how, arising from research conducted under this Programme shall be governed by the applicable DST Guidelines and norms, as amended from time to time. Such IP shall vest with the Indian parent institution and the host institution in accordance with their respective contributions and institutional policies, subject to the Government of India retaining a royalty-free, non-exclusive, irrevocable right to use the IP for governmental and public-interest purposes.

The Indian parent institution shall be responsible for filing, prosecution, and maintenance of IP protection in India. Any costs associated with IP protection in India or abroad shall be borne by the participating institutions as per their mutual agreement. DST shall not bear any IP-related costs.

13. Power to Amend CfP

DST may make the necessary amendments in the CfP, as and when required, with the approval of the Hon'ble Minister, Science and Technology.

14. General Provisions and Applicability of Scheme Guidelines

This Call for Proposals is issued under the approved Scheme Guidelines of the India–Netherlands Hydrogen Fellowship Programme. All provisions, eligibility criteria, financial norms, and administrative conditions etc not explicitly stated in this Call shall be governed by the Scheme Guidelines. Applicants are advised to carefully review the Scheme Guidelines before submitting their proposals.

****

Eligibility Restriction – Concurrent and Repeat Support

1. **Concurrent Support Prohibited**
   Applicants who are, at the time of application, receiving any fellowship, grant, or financial support that provides comparable international research mobility, living allowance, or research funding from any Government, institutional, or international source shall **not be eligible** to apply under this Fellowship.
2. **Repeat Availment Prohibited**
   An individual who has previously availed the India–Netherlands Hydrogen Fellowship Programme under any category (Doctoral, Postdoctoral, or Faculty) shall **not be eligible** to apply again under any category in future Calls for Proposals (CfPs).
3. **Exception Clause**
   Any deviation from the above shall be permitted only if explicitly notified by the Department of Science and Technology (DST) through a formal amendment to the Scheme Guidelines or a specific provision in a future CfP.

PROCEDURE FOR SUBMISSION OF PROJECT PROPOSALS

1. Apply to University to Groningen with interested area of research at –
2. Applicants with conditional approval from University of Groningen may apply - the Fellowship application, conditional approval along with annexure I documents through **ONLINE MODE ONLY (https://onlinedst.gov.in/Login.aspx) NO HARDCOPY** of the project proposal should be submitted.

Application received without the complete documents will not be entertained. **A soft copy in pdf format is also to be emailed to ranjith.krishnapai@gov.in**

Opening date: 06th February 2026
University of Groningen closing date: 23rd March 2026 (11:59 pm).
Closing date: 29th May 2026 (11:59 pm).

Contacts: Any inquiries to this call should be directed to: (Include subject: India-Netherlands Fellowship Program DST)

Dr. Ranjith Krishna Pai
Scientist 'F'/ Senior Director
Program Officer – Hydrogen and Fuel Cell /Hydrogen Valley Innovation Cluster
The Climate, Energy, and Sustainable Technology (CEST) division
Old S&T Block, Room No: 16B
Department of Science and Technology (DST)
Ministry of Science and Technology, Govt. of India
Technology Bhavan, New Mehrauli Road
New Delhi-110016
Ph: 011-26590475
E-mail: ranjith.krishnapai@gov.in

Annexure I

APPLICATION FORM
India–Netherlands Hydrogen Fellowship Programme
Department of Science and Technology (DST), Government of India
(Please use BLOCK LETTERS)

---

1. Category Applied For

☐ Doctoral Fellow
☐ Postdoctoral Fellow
☐ Faculty Fellow

---

2. Personal Details

Field	Information
Full Name	
Sex (M/F/O)	
Nationality	
Date of Birth	
Email ID	
Mobile Number	
Aadhaar / Passport No. (for ID)	
Present Address	
Permanent Address	

---

3. Academic & Professional Qualifications

Degree	Subject	University/Institution	Month & Year of Passing	Grade/CGPA

---

4. Current Academic/Professional Status

Category	Details
PhD Scholar / Postdoc / Faculty	
Department	
Institution	
Date of PhD Registration (if applicable)	
Expected Thesis Submission Date (Doctoral only)	
PhD Award Date (Postdoc only)	

Designation & Date of Appointment (Faculty only)	

5. Title of PhD Thesis / Current Research

6. Specialization

Broad Area	**Exact Area**

7. Publications & Patents

Type	**Number**
Papers Published	
Papers Accepted	
Patents Filed	
Patents Granted	

(Attach list separately)

8. Proposed Fellowship Details

Item	**Details**
Selected Research Theme (as per CfP Clause 5)	
Title of Proposed Work	
Host Supervisor (University of Groningen)	
Duration Proposed	

9. Research Proposal Summary (Max 500 words)

Problem Statement, Objectives, Methodology, Expected Outcomes relevant to India's hydrogen ecosystem.

10. Relevance to India

Explain how the work contributes to:

☐ Cost reduction
☐ Indigenisation
☐ Safety/Standards
☐ Export competitiveness
☐ LCA/TEA capability
☐ Technology readiness
☐ Other please specify:

---

11. International Exposure Justification

Why the Netherlands ecosystem / University of Groningen is essential.

12. Fellowships/Grants Currently Held

Fellowship	Agency	Period	Amount

13. Declaration of Non-Concurrent Support

I confirm I am not receiving overlapping international mobility support.
Signature: _____

14. List of Documents Attached

Sl. No.	Document	Attached (Y/N)
1	Applicant Declaration	
2	Supervisor Recommendation (Doctoral)	
3	Statement of Purpose (Postdoc)	
4	NOC from Parent Institution	
5	Cost Sharing Undertaking	
6	Faculty Cost Sharing Undertaking	
7	Compliance Undertaking	
8	Conflict of Interest Declaration	
9	Host Conditional Acceptance (University of Groningen)	
10	CV	
11	Publications List	

15. Applicant Declaration

I certify that the information provided is true. I agree to abide by DST rules and fellowship conditions.

Name:
Signature:
Date:

16. Certification by Head of Parent Institution

Certified that the applicant is affiliated with this institution and information provided is correct.

Name & Signature

Seal

List of Documents

1. DECLARATION BY APPLICANT (All Categories)

I, **[Name of Applicant]**, **[Designation/Status: Ph.D. Scholar / Postdoctoral Fellow / Assistant Professor / Associate Professor]**, currently affiliated with [Name of Indian Parent Institution], hereby declare that:

1. I am an Indian national and meet all eligibility criteria prescribed under the *India–Netherlands Hydrogen Fellowship Programme* of the Department of Science and Technology.
2. My area of research falls within the eligible disciplines, and I am engaged in work relevant to hydrogen energy technologies and allied fields.
3. I have obtained a conditional acceptance/host confirmation from [**Name of Host Institution, Netherlands]** for the proposed research period.
4. I am not currently availing any international fellowship, grant, or financial support of a similar nature that overlaps with the proposed fellowship period.
5. During the fellowship period abroad, I shall:
    - Not undertake any paid employment, consultancy, or teaching assignment.
    - Not receive any salary, honorarium, or contractual payment from the host institution.
    - Utilize the fellowship exclusively for approved subsistence and research purposes.
6. I undertake to return to India and continue/complete my academic or research responsibilities at my parent institution after the fellowship.
7. All information provided by me is true and correct. I understand that any misrepresentation may lead to cancellation of the fellowship and recovery of funds.

Signature
Name:
Date:

---

2. **RECOMMENDATION BY Ph.D. SUPERVISOR** (Doctoral Fellows)

This is to certify that **Mr./Ms. [Name]** is registered as a Ph.D. scholar in the Department of **[Dept Name]**, **[Institution Name]**, w.e.f. **[Registration Date]**.

Thesis Title:
"……"

The candidate has demonstrated strong research capability in the field of **[Area]**, and the proposed fellowship in the Netherlands is:

- Scientifically essential for the doctoral research
- Aligned with the thesis objectives
- Expected to significantly strengthen the quality and international relevance of the dissertation

The expected thesis submission date is **[Date]**, which is more than eight months after the proposed fellowship completion.

I strongly recommend the candidate.

Supervisor Name & Signature
Designation:
Institution:
Date:

---

3. STATEMENT OF PURPOSE (Postdoctoral Fellows)

I, **[Name]**, Postdoctoral Fellow at **[Institution]**, outline below the purpose of the proposed fellowship:

- Summary of completed research
- Ongoing research focus
- Relevance to hydrogen technologies
- Expected scientific/technological impact
- Justification for collaboration with host institution

I confirm this fellowship is essential for advancing my postdoctoral research and capacity building in hydrogen science and technology.

Signature
Date

---

4. NO OBJECTION CERTIFICATE

This is to certify that **[Applicant Name]**, **[Status/Designation]**, is affiliated with **[Institution Name]**.

The institution has **no objection** to the applicant undertaking the India–Netherlands Hydrogen Fellowship for the approved duration while retaining:

- Ph.D. registration / Postdoctoral registration / Employment status

The institution confirms the applicant will resume duties after completion.

Head of Institution
Seal

5. UNDERTAKING FOR COST-SHARING (Doctoral/Postdoctoral)

This institution agrees to provide **20% of the fellowship amount** to **[Applicant Name]** during the approved fellowship period.

The institution also undertakes to submit:

- Utilization Certificates (UCs)
- Statements of Expenditure (SoE)
- Any documents required by DST/SIA

We understand reimbursement of this share will be subject to approval of completion reports by DST-NEAC.

Head of Institution
Seal

---

6. UNDERTAKING BY PARENT / HOST INSTITUTION COST SHARING (Faculty Fellowship)

This is to certify that [Name of Institution], the parent/host institution of Dr./Mr./Ms. [Name of Faculty Fellow], hereby agrees to provide the remaining share of the fellowship amount, which shall be not less than fifty percent (50%) of the total sanctioned fellowship, under the *India–Netherlands Hydrogen Fellowship Programme* of the Department of Science and Technology.

The institution understands and confirms that:

1. The Department of Science and Technology (DST) shall provide up to fifty percent (50%) of the sanctioned fellowship amount.
2. The balance contribution committed by this institution shall be borne from institutional/project resources.
3. This institutional share is non-reimbursable and shall not be claimed from DST at any stage.
4. The funds shall be released to the Fellow as per the approved fellowship duration and in accordance with the programme guidelines.
5. The institution shall comply with all financial, audit, and reporting requirements prescribed by DST or the Scheme Implementing Agency.

Name of Head of Institution
Designation

Institution Seal
Date

---

7. Compliance Undertaking (All Categories)

I undertake to comply with:

- DST financial norms
- Audit requirements
- Return-to-India obligation
- No dual fellowship rule

Signature
Name:
Date:

---

8. DECLARATION – CONFLICT OF INTEREST

I have read the "Policy on Conflict of Interest" (Annexure II of DST) applicable to the Reviewer / Committee Member / Applicant / DST Scheme or Program Officer and agree to abide by the provisions thereof.

☐ I hereby declare that I have no conflict of interest of any form in relation to the proposed grant.
☐ I hereby declare that I have a conflict of interest in relation to the proposed grant.
(Tick whichever is applicable)

If yes, details of the conflict of interest may be provided below:

Name of the Applicant: _____
Signature: _____

Date: _____

Annexure I – Document Format & Letterhead Requirement

Sl. No.	Document Name	To be Issued By	On Official Letterhead?	Remarks
1	Declaration by Applicant	Applicant	No	Personal eligibility & compliance declaration
2	Recommendation by Ph.D. Supervisor (Doctoral)	Ph.D. Supervisor / Dept.	Yes	Must certify registration date, thesis title, and timeline
3	Statement of Purpose (Postdoctoral)	Applicant	No	Academic statement
4	No Objection Certificate (NOC)	Indian Parent Institution	Yes	Permission to undertake fellowship while retaining status
5	Undertaking for Cost Sharing (20%) – Doctoral/Postdoc	Indian Parent Institution	Yes	Institutional financial commitment + UC/SoE compliance
6	Undertaking for Cost Sharing (≥50%) – Faculty	Parent/Host Institution	Yes	Institutional financial liability; non-reimbursable share
7	Compliance Undertaking	Applicant	No	Personal undertaking to follow DST norms
8	Conflict of Interest Declaration	Applicant	No	Personal ethics declaration
9	Conditional Host Acceptance	University of Groningen	Yes	**Must be on University of Groningen official letterhead**

Note: DST/SIA reserves the right to request additional documents, clarifications, or undertakings at any stage of the application, evaluation, or award process.

Annexure II

DEPARTMENT OF SCIENCE AND TECHNOLOGY (POLICY ON CONFLICT OF INTEREST)

FOR APPLICANT

Issues of Conflicts of Interest and ethics in scientific research and research management have assumed greater prominence, given the larger share of Government funding in the country's R&D scenario. The following policy about general aspects of Conflicts of Interest and code of ethics are objective measures that are intended to protect the integrity of the decision-making processes and minimize bias. The policy aims to sustain transparency, increase accountability in funding mechanisms, and provide assurance to the general public that processes followed in the award of grants are fair and non-discriminatory. The Policy aims to avoid all forms of biases by following a system that is fair, transparent, and free from all influence/ unprejudiced dealings, before, during, and after the currency of the program is entered into to enable the public to abstain from bribing or any corrupt practice to secure the award by assuring

them that their competitors will also refrain from bribing and other corrupt practice and the decision makers will commit to preventing corruption, in any form, by their officials by following transparent procedures. This will also ensure a global acceptance of the decision-making process adopted by DST.

Definition of Conflict of Interest:

Conflict of Interest means "any interest which could significantly prejudice an individual's objectivity in the decision-making process, thereby creating an unfair competitive advantage for the individual or to the organization which he/she represents". The Conflict of Interest also encompasses situations where an individual, in contravention of the accepted norms and ethics, could exploit his/her obligatory duties for personal benefits.

1. Coverage of the Policy:

a) The provisions of the policy shall be followed by persons applying for and receiving funding from DST, Reviewers of the proposal, and Members of Expert Committees and Programme Advisory Committees. The provisions of the policy will also apply to all individuals including Officers of DST connected directly or indirectly or through intermediaries and Committees involved in the evaluation of proposals and subsequent decision-making process.

b) This policy aims to minimize aspects that may constitute actual Conflicts of Interest, apparent Conflicts of Interest, and potential Conflicts of Interest in the funding mechanisms that are presently being operated by DST. The policy also aims to cover, although not limited to, Conflicts of interest that are Financial (gains from the outcomes of the proposal or award), Personal (association of relative / Family members), and Institutional (Colleagues, Collaborators, Employer, persons associated in a professional career of an individual such as Ph.D. supervisor, etc.)

2. Specifications as to what constitutes a Conflict of Interest.

Any of the following specifications (non-exhaustive list) imply a Conflict of Interest if,

i. Due to any reason by which the Reviewer/Committee Member cannot deliver a fair and objective assessment of the proposal.

ii. The applicant is a direct relative or family member (including but not limited to a spouse, child, sibling, or parent) or personal friend of the individual involved in the decision-making process or if any relative of an Officer directly involved in any decision-making process / has influenced interest/ stake in the applicant's form etc.The applicant for the grant/award is an employee or employer of an individual involved in the process as a Reviewer or Committee Member; or if the applicant to the grant/award has had an employer-employee relationship in the past three years with that individual.

iii. The applicant to the grant/award belongs to the same Department as that of the Reviewer/Committee Member.

iv. The Reviewer/Committee Member is the Head of an Organization from where the applicant is employed.

v. The Reviewer /Committee Member is or was, associated with the professional career of the applicant (such as Ph.D. supervisor, Mentor, present Collaborator, etc.)

vi. The Reviewer/Committee Member is involved in the preparation of the research proposal submitted by the applicant.

vii. The applicant has joint research publications with the Reviewer/Committee Member in the last three years.

viii. The applicant/Reviewer/Committee Member, in contravention to the accepted norms and ethics followed in scientific research has a direct/indirect financial interest in the outcomes of the proposal.

ix. The Reviewer/Committee Member stands to gain personally should the submitted proposal be accepted or rejected.

x. The Term "Relative" for this purpose would be referred to in section 6 of the Companies Act, 1956.

3. Regulation:

The DST shall strive to avoid conflict of interest in its funding mechanisms to the maximum extent possible. Self-regulatory mode is however recommended for stakeholders involved in scientific research and research management, on issues about Conflict of Interest and Scientific Ethics. Any disclosure about the same must be made voluntarily by the applicant/Reviewer/Committee Member.

4. Confidentiality:

The Reviewers and the Members of the Committee shall safeguard the confidentiality of all discussions and decisions taken during the process and shall refrain from discussing the same with any applicant or a third party unless the Committee recommends otherwise and records for doing so.

5. Code of Conduct

5.1 To be followed by Reviewers/Committee Members:

(a) All reviewers shall submit a conflict of interest statement, declaring the presence or absence of any form of conflict of interest.

(b) The reviewers shall refrain from evaluating the proposals if the conflict of interest is established or if it is apparent.

(c) All discussions and decisions about conflict of interest shall be recorded in the minutes of the meeting.

(d) The Chairman of the Committee shall decide on all aspects of the conflict of interests.

(e) The Chairman of the Committee shall request that all members disclose if they have any conflict of interest in the items of the agenda scheduled for discussion.

(f) The Committee Members shall refrain from participating in the decision-making process and leave the room concerning the specific item where the conflict of interest is established or is apparent.

(g) If the Chairman himself/herself has a conflict of interest, the Committee may choose a Chairman from among the remaining members, and the decision shall be made in consultation with Member Secretary of the Committee.

(h) It is expected that a Committee member including the Chairperson will not seek funding from a Committee in which he/she is a member. If any member applies for a grant, such proposals will be evaluated separately outside the Committee in which he/she is a member.

5.2 To be followed by the Applicant to the Grant/Award:

(a) The applicant must refrain from suggesting referees with potential Conflict of Interest that may arise due to the factors mentioned in the specifications described above in Point No.2.
(b) The applicant may mention the names of individuals to whom the submitted proposal should not be sent for refereeing, clearly indicating the reasons for the same.

5.3 To be followed by the Officers dealing with Programs in DST:

While it is mandatory for the program officers to maintain confidentiality as detailed in point no. 6 above, they should declare, in advance, if they are dealing with grant applications of a relative or family member (including but not limited to a spouse, child, sibling, parent) or thesis/ post-doctoral mentor or stands to benefit financially if the applicant proposal is funded. In such cases, DST will allot the grant applications to the other program officer.

6. Sanction for violation

6.1 For a) Reviewers / Committee Members and b) Applicant

Any breach of the code of conduct will invite action as decided by the Committee.

6.2 For Officers dealing with Program in DST

Any breach of the code of conduct will invite action under the present provision of CCS (Conduct Rules), 1964.

7. Final Appellate authority:

Secretary, DST shall be the appellate authority in issues about conflict of interest and issues concerning the decision-making process. The decision of the Secretary, DST in these issues shall be final and binding