



**Maire Tecnimont Centre For Research in Waste  
Recycling and Circular Economy**  
National Institute of Technology Karnataka Surathkal  
NITK Campus Post Srinivasnagar Surathkal-575025

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**Advertisement for Maire Tecnimont Research Scholarships  
for Sustainable Development**

**Ref. No: NITK/AAIR/CSR-2021-22**

**Date: 04/08/2021**

Applications are invited for **Maire Tecnimont Postdoctoral Fellowships (MTE-PDF) for Sustainable Development**

Applications are invited from interested meritorious candidates under **Maire Tecnimont Postdoctoral Fellowships for Sustainable Development**, for CSR funded research project on Waste Recycling and Circular Economy

**Objective:**

The Maire Tecnimont Post-Doctoral Fellowship (MTE-PDF) for Sustainable Development is aimed to identify motivated young researchers and provide them support for doing research in frontier areas of **Waste Recycling and Circular Economy**. The fellows will work under a Faculty member from NITK, and it is hoped that this training will provide them a platform to develop as independent researcher. The beneficiaries of this fellowship in the future can support the planners and policy-makers of local governments in strengthening their capacity to manage problems related to waste and access to clean water as well as energy. Further, they can also create employment opportunities, which will help in social upliftment and promote social integration as well as social inclusion.

The availability of the MTE-PDF's will be for one year. Interested candidates should fill in their academic and personal details in the prescribed application format and send the same along with attested copies of relevant certificates within 15 days from the date of advertisement to the contact person. Only the shortlisted candidates will be informed by post/E-mail/Phone/ Website: [www.nitk.ac.in](http://www.nitk.ac.in).

Shortlisted candidates should report to the contact person for certificate verification, followed by test and technical interview. The interview is most likely to be held during last week of August 2021. Any change in the date of the interview will be intimated through email. Selection will be based on qualification, experience, test performance, and interview. TA/DA will not be paid for attending the written test and interview. NITK, Surathkal reserves the right to reject any or all the applications without assigning any reasons thereof. Selected candidates will be required to join immediately.



Title project	Waste Recycling and Circular Economy
Sponsoring Company	Tecnimont Private Limited, Mumbai, Indian subsidiary of Maire Tecnimont S.p.A. Milan Italy.
Monthly Fellowships /Research grants available	Refer Table 01 in P. No. 04
Number of Post-Doctoral Fellowships Available	Mechanical Engineering-01 (Male Candidate) Chemical Engineering-01 (Female Candidate) Chemistry-01 (Green Chemistry) (Female Candidate)
Faculty/Mentors Associated from Department/Centre	Department of Mechanical Engineering Department of Chemical Engineering Department of Chemistry
Tenure of availability of Scholarships	Currently for One year, extendable up to two years based on the availability of funding and performance of the candidate.
Qualification and Experience	<p><b>Qualification:</b> Ph.D. in the research areas related to Renewable Energy/ Waste Recycling and Circular Economy/ Thermal Engineering/Energy Engineering/Chemical Engineering/Chemistry</p> <p><b>Experience:</b> Knowledge of ANSYS and FLUENT Packages and Programming Skills (C- Programming/MATLAB/ Process Simulation ASPEN PLUS Modelling. Knowledge about Analytical techniques using GC, GCMS, GCxGC TOFMS, PTR TOFMS, TGA FTIR, NMR, ICP AES</p>
Desirable qualities	<p>The candidate must be able to work independently and flexibly and having the following qualities will be desirable.</p> <ol style="list-style-type: none"> <li>1. <i>Basic knowledge about</i> laboratory/benchscale work with a technical focus on the basic fundamentals to understand and optimize the process</li> <li>2. <i>Implementation:</i> Pilot/demonstration scale or the field application projects</li> <li>3. <i>Sustainability aspects:</i> Financial, social, environmental aspects, models and simulations, theoretical evaluation, potential analysis, decision support tools</li> <li>4. Excellent analytical and writing skills</li> </ol>



Additional information	May be obtained by contacting the Head/ CSR Project Coordinator,  Maire Tecnimont Centre for Research in Waste Recycling and Circular Economy directly through email.
Last date for receipt of application	<b>18<sup>th</sup> August 2021</b>

Interested candidates may apply in the prescribed format along with CV, photo copies of relevant certificates, grade/mark sheets, publications etc., and should reach NITK on or before **18/08/2021** by post/email (scanned documents) at the prescribed address below:

Sd/-

Dr. Vasudeva Madav / Prof Ashok Babu

CSR Project Coordinators

Maire Tecnimont Centre for Research in Waste Recycling and Circular Economy

National Institute of Technology Karnataka Surathkal

Email: [mt.center-research@nitk.edu.in](mailto:mt.center-research@nitk.edu.in)

Tel: +91-824-2473670, M: +91-9008889796

Faculty Associated from various Departments/Centre's NITK

From Mechanical Engineering

Dr. Vasudeva Madav Assistant Professor, Department of Mechanical Engineering National Institute of Technology Karnataka Surathkal P.O: Srinivasanagar, Mangalore, Karnataka- 575 025	E-mail: <a href="mailto:vasu@nitk.edu.in">vasu@nitk.edu.in</a>
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Prof. Ashok Babu T P Professor, Department of Mechanical Engineering National Institute of Technology Karnataka Surathkal P.O: Srinivasanagar, Mangalore, Karnataka- 575 025	E-mail: <a href="mailto:tpab57@gmail.com">tpab57@gmail.com</a>
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From Chemical Engineering

Dr. Prasanna B. D. Associate Professor and Head, Department of Chemical Engineering National Institute of Technology Karnataka Surathkal P.O: Srinivasanagar, Mangalore, Karnataka- 575 025	E-mail: <a href="mailto:prsn@nitk.edu.in">prsn@nitk.edu.in</a>
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From Department of Chemistry

Dr. Saikat Dutta Assistant Professor, Department of Chemistry National Institute of Technology Karnataka Surathkal P.O: Srinivasanagar, Mangalore, Karnataka- 575 025	E-mail: <a href="mailto:sdutta@nitk.edu.in">sdutta@nitk.edu.in</a>

**Eligibility:**

- The applicant should be an Indian citizen.
- The applicant must have obtained Ph.D. degree from a recognized University. They must be able to provide a provisional degree certificate from the degree-awarding institute.
- The upper age limit for the fellowship is 35 years at the time of the submission of application, age will be calculated by taking the date of closure of the respective call.
- MTE-PDF can be availed only once by a candidate in his/her career.

**Nature & Duration of Support:**

- The fellowship is tenable only in India and will be implemented at NITK, Surathkal. The Maire Tecnimont Centre for Research on Waste Recycling and Circular Economy, NITK, Surathkal, and the respective department will provide necessary administrative and infrastructural support.
- The fellowship is purely a temporary assignment and is tenable for One Year. Extendable up to two years based on the availability of funding and performance of the candidate.
- The fellows will be entitled to receive the grants as given in table 1 below:

**Table 01: Fellowship and Research Grants**

Sl. No.	Budget Head	Amount
1	Fellowship	Rs.50,000/- per month (consolidated) for candidates who have been awarded a Ph.D. degree
2	Research Grant	Rs.50,000/- per annum

- Research grant can be used for minor equipment, consumables, contingencies, and domestic travel. There is no provision for providing manpower support under this scheme. The Fellow is expected to undertake the research objectives by himself/herself during the entire duration of the fellowship.
- The fellows are not eligible to receive any other fellowship from any Government or Non-Governmental source during the tenure of the fellowship.
- The fellows must seek the consent of Faculty Mentor/Project Coordinator/ Dean R&C if he/she intends to be away from NITK (except for fieldwork related to the project) continuously for a period of more than eight weeks.



## **Selection & Mode of Application**

The call for applications for MTE-PDF for sustainable Development will be notified through the website [www.nitk.ac.in](http://www.nitk.ac.in)

- The application form along with a research proposal highlighting the objectives of the research work to be undertaken should be submitted online through the email
- The selection will be based on the recommendations of an Expert Committee that will be constituted by the Maire Tecnimont Centre for Research on Waste Recycling and Circular Economy, NITK, Surathkal and as per the procedure laid down by NITK, Surathkal
- Final Selection will be made as per the procedure laid down by NITK, Surathkal.
- If required, the applicants may be called for the personal interview.

## **Research Area:**

### **1. Department of Mechanical Engineering**

#### **Title: Food Waste to hydrogen by steam methane reforming**

##### **Abstract:**

Methane steam reforming is a widely used method to produce hydrogen at a large scale due to well-developed methane infrastructures and the favourably high hydrogen to carbon ratio of methane. Catalyst deactivation is a major problem for steam methane reforming (SMR) reactions, which results mainly due to mechanisms such as poisoning, sintering and fouling. Numerical studies based on computational fluid dynamics (3D) and experimental studies need to be carried out to investigate the effect of varying operating parameters on the H<sub>2</sub> yield and reforming efficiency.

### **2. Department of Chemical Engineering**

#### **Title: Food Waste to Bio-CNG**

##### **Abstract:**

Biogas is primarily consisting of methane (50-70% by volume) and carbon dioxide (30-50% by volume) with a traces of other impurities. The conversion of CO<sub>2</sub> to methane in the presence of catalyst is a promising strategy that can offer an efficient solution to the use of CO<sub>2</sub> as renewable and environmental friendly carbon source, and is necessary for the development of technology for long term reduction of CO<sub>2</sub> emissions. In general, high metal dispersion, good anti-sintering property, deactivation of the catalyst due to oxidation and Surface area of catalyst are the four characters of an active catalyst which are the prime limits in the development of CO<sub>2</sub> methanation process and great attention is required in thermal and chemical stability, heat conduction and dissipation properties during design and synthesis of catalysts. The strategies to improve the performance of catalysts is an emerging area. The development of catalysts that can operate at lower temperatures can significantly improve the process economics.



### **3. Department of Chemistry**

#### **Title: Food Waste to Hydrogen Gas in Water**

#### **Abstract:**

Waste to fuels and chemicals is the way for the future that solves the multifaceted problem of waste management, feedstock flexibility, and environmental footprint. A significant interest has been given to the value addition of food wastes into hydrogen or syngas. A suitable chemical-catalytic system must be developed that can convert a wide-variety of food wastes into hydrogen in satisfactory selectivity and yield under energy-efficient conditions.

#### **How to apply:**

#### **For successful submission of the application the following points may be noted:**

- Applicants should fill the form, which includes Bio-data, Photo, Institute, Address, etc.
- Details including Project Title (max 500 characters), Project summary (max 3000 characters), Keywords (max 6), Objectives of the project (max 1500 characters), Expected output, and outcome of the proposal (max 1500 characters) should be provided at the time of submission of the application.
- Work Methodology and Research Plan must be submitted in a single PDF file, not more than 3 pages (max 10 MB).

#### **Documents required (in PDF) should be in prescribed format:**

- Duly Filled Application
- Bio-data
- Age Proof Certificate
- Qualification Certificate
- Undertaking Certificate by the applicant (as per the attachment)
- Plagiarism undertaking

#### **Termination of the Fellowship**

- If any fellow wishes to terminate the fellowship, he/she shall inform the Maire Tecnimont Centre for Research on Waste Recycling and Circular Economy, NITK, Surathkal, through the mentor immediately with one month notice.
- Maire Tecnimont Centre for Research on Waste Recycling and Circular Economy, NITK, Surathkal reserves the right to terminate the Fellowship at any stage if it is convinced that appropriate progress is not being made or the grant has not been utilized properly.

#### **Leave**

MTE- PDFs are entitled to leave as per the rules of NITK. Participation in scientific workshops held in India or abroad will be treated as on duty.



**APPLICATION FOR MAIRE TECNIMONT POSTDOCTORAL FELLOWSHIPS FOR  
SUSTAINABLE DEVELOPMENT**

<b>For Office Use:</b>	Paste your recent Passport size photo
Serial Number: .....	
Eligible for Written exam/Interview: Yes / No	
Verified the Certificates: .....	

<b>1. Name:</b>	
<b>2. Father's Name:</b>	
<b>3(a). Date of Birth:</b>	<b>3(b). Nationality:</b>

**4.Contact information:**

<b>(i) Address for communication:</b>	
<b>(ii) Mobile No:</b>	
<b>(iii) Email ID:</b>	

**5.Educational Qualifications\***

Class	Subject/ Stream	Board/ University	Name of Institute	Marks/ CGPA	Year of Passing
X					
XII					
UG Degree					
PG Degree					
MPhil					
PhD					
<b>Competitive Exam</b>					
<b>Competitive Exam</b>	<b>Qualified</b>	<b>Marks / Rank</b>		<b>Year</b>	
CSIR-UGC NET	Yes / No				
GATE	Yes / No				

**\*Attach self-attested copies of all certificates.**



**6. Work Experience, if any (in years) .....**

Organization	Designation	Duration	Responsibilities

**7. Number of Publications: (Attach a separate list of publications with full details)**

National	International

**8. Workshop/Training programs attended\*:**

S. No.	Details

**\*Attach separate sheet (if required)**

**9. Technical Skills**

S. No.	Details

**10. Other Achievements\*:**

S. No.	Details

**\*Attach separate sheet (if required)**

**11. Declaration:** All the above information provided by me is accurate to the best of my knowledge and I understand that, if found incorrect, I may be disallowed to appear in the interview/test or terminated at any stage.

**Date:**

**Place:**

**Signature of the Candidate**

**Note:** Attach the list of enclosures along with the application.





**Undertaking by the Fellow**

I, \_\_\_\_\_, Son/Daughter/Wife of Shri \_\_\_\_\_ resident of \_\_\_\_\_ agree to undertake the following, if I am offered the MTE-PDF

1. I shall abide by the rules and regulations of NITK during the entire tenure of the fellowship.
2. I shall also abide by the rules, discipline of the institution
3. I shall devote full time to research work during the tenure of the fellowship
4. I shall prepare the progress report on the 25<sup>th</sup> day of every month and communicate the same to Maire Tecnimont through the mentor and Project Coordinators
5. I shall send two copies of the consolidated progress report at the end of the fellowship period.
6. I further state that I shall have no claim whatsoever for regular/permanent absorption on the expiry of the fellowship.

Date:

Signature



**Plagiarism undertaking by the Fellow**

To

Sir I \_\_\_\_\_  
hereby certify that the research report titled \_\_\_\_\_

\_\_\_\_\_ submitted for as a part of MTE-  
PDF funding by Maire Tecnimont is my original idea and has not been copied/taken verbatim from  
anyone or from any other sources. I further certify that this proposal has been checked for plagiarism  
through a plagiarism detection tool i.e. \_\_\_\_\_ approved by the Institute and the contents  
are original and not copied/taken from any one or many other sources.

I am aware of the UGCs Regulations on prevention of Plagiarism i.e. University Grant Commission  
(Promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions)  
Regulation, 2018.

I also declare that there are no plagiarism charges established or pending against me in the last five  
years. If the funding agency notices any plagiarism or any other discrepancies in the above proposal of  
mine, I would abide by whatsoever action taken against me by NITK, as deemed necessary.

Signature of Fellow with name and date