

### Visit of DEI team to Italy

Dayalbagh Educational Institute is participating in a trans-national collaboration Mission Innovation R&D project (DST MI CALL-19) on “**Different Energy Vector Integration for Storage of Energy (DEVICE)**”. The consortium includes Indian Institute of Technology Roorkee, Indian Institute of Technology Delhi, Dayalbagh Educational Institute, Agra-282005, FBK - Fondazione Bruno Kessler, Italy, UiT - The Arctic University of Norway, and Umeå University, Sweden. The following 6-member delegation of consortium members from India will be visiting FBK, Italy from 24.3.2023 to 30.3.2023 for a review of the progress, technical discussions on the ongoing project and exploring the possibility of extending the collaboration with future projects.

1. Prof. A. K. Saxena, Dept. of Electrical Engg., Dayalbagh Educational Institute
2. Prof. D. Bhagwan Das, Dept. of Electrical Engg., Dayalbagh Educational Institute
3. Prof. Vishal Kumar, Dept. of Electrical Engg., IIT, Roorkee
4. Prof. Barjeev Tyagi, Dept. of Electrical Engg., IIT, Roorkee
5. Prof. Ravi Kumar, Dept. of Mechanical Engg., IIT, Roorkee
6. Dr. Dibakar Rakshit, Dept. of Energy Science & Engg., IIT, Delhi

A brief overview of the project is given below:

- The existing micro grids integrate various renewable energy sources with the grids. However, such micro grids are heavily biased towards electrical energy. Other forms of renewable energy are converted into electrical energy for integration with the grid.
- At present the storage of energy is also predominantly electrical but this strategy prevents the efficient and rational end-use of diverse sources of energy, especially where the energy is available as heat and is supposed to be used in the same form.
- Therefore, there is a need for development of a more holistic definition and design of the renewable energy micro grid, which ensures efficient integration/transformation of different forms of energy for rational end-use and storage of all forms of renewable energy to facilitate the optimal interchange of energy from one form to another.
- The **Goal** of the project is to design and implement a hybrid micro grid of electric and thermal energy with heterogeneous storage and relevant energy conversion inter-linkages. Further, to demonstrate the pilot for emphasizing its utility as a solution to energy needs in general and particularly in village setup to give necessary impetus to rural development.

### Project Partners:

Organisation Name	Country
Indian Institute of Technology, Roorkee	India
Indian Institute of Technology, Delhi	India
Dayalbagh Educational Institute, Agra	India
UiT The Arctic University of Norway	Norway

<b>Fondazione Bruno Kessler</b>	Italy
<b>Umeå University</b>	Sweden

## Work Packages

<b>WP No.</b>	<b>Work Package</b>	<b>Lead</b>
1	Management and Coordination	IITR
2	Mathematical Modelling	IITR
3	Development of Electrical Energy systems	DEI
4	Development of Thermal Energy systems	IITR
5	Design and development of Gas Storage System	DEI
6	Development of Hydrogen System	FBK
7	Investigations on Phase Change Materials	IITD
8	Development of a Integration strategy	IITR
9	Lab-scale Demonstration	IITR
10	On-site demonstration	DEI
11	Cost & Environmental Impact Study	UiT