



Department of Scientific and Industrial Research

Ministry of Science & Technology  
Govt of India



**DSIR - CRTDH CONCLAVE 2023**

# Viksit Bharat Abhiyan: Empowering MSMEs & Startups

**November 6-7, 2023 | IIT Gandhinagar**

**ALONGSIDE  
THE CONCLAVE**

## Workshops on

Flow Synthesis &  
Continuous Manufacturing  
Nov 5, 2023 | 3:30 PM

Low-Cost High-tech  
Automation for MSMEs  
Nov 5, 2023 | 3:30 PM

Innovation & Startup  
Ecosystem in CRTDH Labs  
Nov 6, 2023 | 5:30 PM

Hazard Identification  
using HAZOP  
Nov 6, 2023 | 5:30 PM

Energy Assessment for  
MSME Industries  
Nov 7, 2023 | 2:00 PM

**Affordable  
Healthcare**



**Electronics /  
Renewable Energy**



**New Materials /  
Chemical Processes**



**Environmental  
Interventions**



**Low-cost  
Machining**

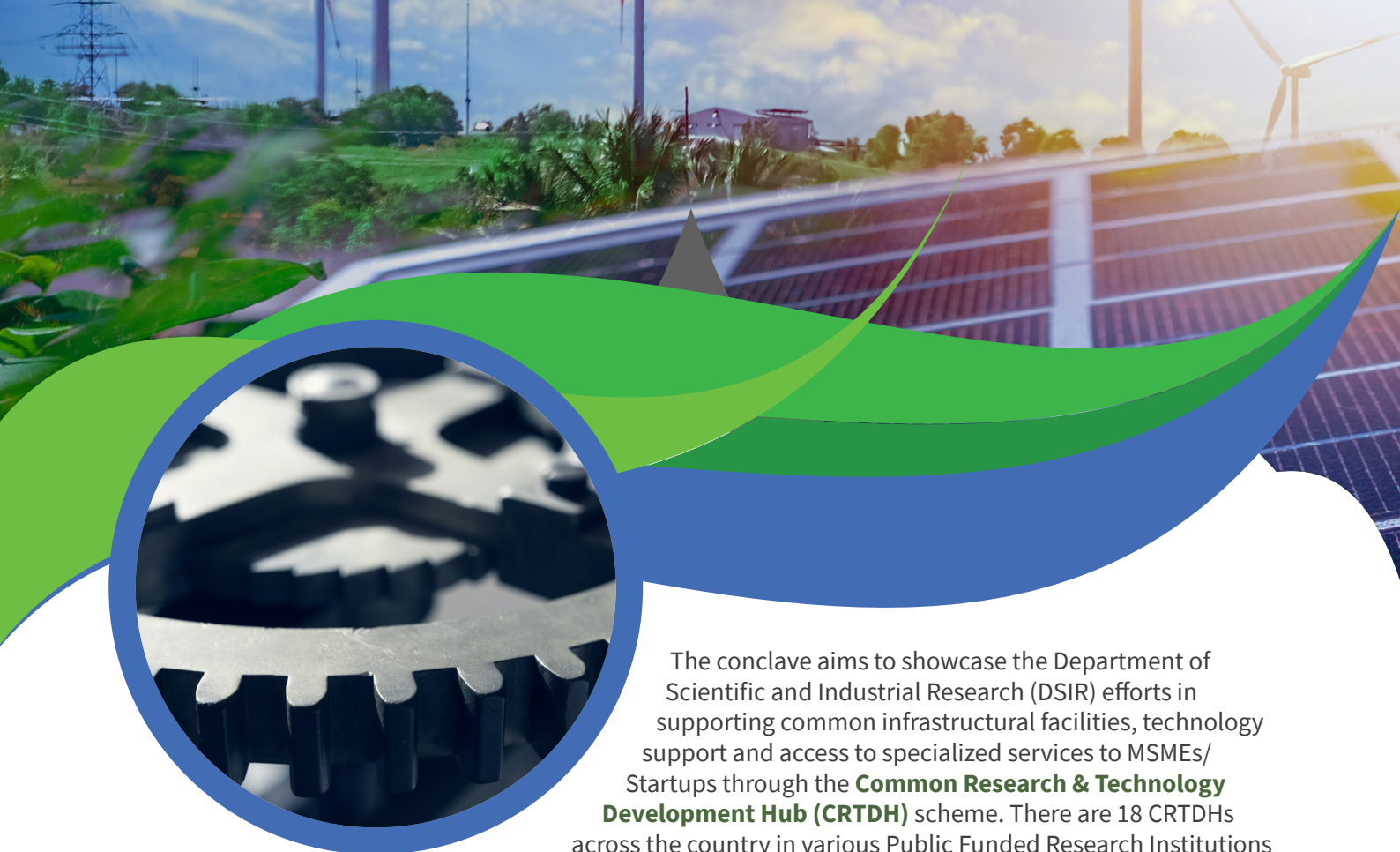


**Registration Form**  
[tiny.cc/DSIR-CRTDH](https://tiny.cc/DSIR-CRTDH)



**Deadline**  
October 31, 2023

[crt dh.iitgn.ac.in/conclave2023](https://crt dh.iitgn.ac.in/conclave2023)



The conclave aims to showcase the Department of Scientific and Industrial Research (DSIR) efforts in supporting common infrastructural facilities, technology support and access to specialized services to MSMEs/ Startups through the **Common Research & Technology Development Hub (CRTDH)** scheme. There are 18 CRTDHs across the country in various Public Funded Research Institutions (PFRI's) (e.g. CSIR Labs, IITs, NITs, NIPERs, and Universities). The ongoing multi-institutional effort under DSIR - CRTDH initiative engaged several MSMEs/Startups and facilitated their access to advanced technologies, research and development (R&D) facilities, technology infrastructure, incubation centers, testing solution and business development services.

**The MSME members will get an opportunity to leverage the exhibition/demonstration of relevant indigenous technologies developed by various CRTDHs in the area of**

- **Affordable Healthcare**
- **New Materials/Chemical Processes**
- **Electronics/Renewable Energy**
- **Environmental Interventions**
- **Low-cost Machining**

**The conclave will discuss required technologies, training programs and testing solutions for MSME and connect them to the corresponding supporting Labs/Pilot plant created under DSIR-CRTDH scheme.** There will be discussion and idea exchange sessions to make our collective efforts to empower MSMEs/Startups. The two-day DSIR-CRTDH conclave will provide a platform for MSMEs to connect with DSIR- CRTDHs, Startups & industry leaders and explore collaboration. The conclave is expected to provide roadmaps for targeted achievements of MSMEs/Startups.

Sessions for MSMEs & Startups:

- Release of DSIR-CRTDH reports by the Secretary, DSIR & DG-CSIR
- Exhibition to showcase DSIR – CRTDH developed technologies for industries
- Innovation and technology adoption in chemical industries MSMEs
- Role of MSMEs and Startups in catalysing healthcare innovation
- Empowering India: Renewables and Indigenous Electronics
- MSMEs & Startup driving low-cost machining & environmental innovation
- Empowering MSME/Startups through networked existing CRTDH and new Hubs for indigenous technologies/products for *Viksit Bharat*



## Participating DSIR – CRTDHs to showcase developed technologies and prototypes/products

<p><b>Affordable Healthcare</b></p> <ul style="list-style-type: none"> <li>• CSIR- Centre for Cellular and Molecular Biology (CCMB), Hyderabad</li> <li>• CSIR- Institute of Himalayan Bio resource Technology (IHBT), Palampur</li> <li>• IIT Kharagpur</li> <li>• Delhi Pharmaceutical Sciences and Research University (DPSRU), New Delhi</li> <li>• CSIR- Central Drug Research Institute (CDRI), Lucknow</li> </ul>	<p><b>New Materials/ Chemical Processes</b></p> <ul style="list-style-type: none"> <li>• IIT Roorkee</li> <li>• IIT Gandhinagar</li> <li>• CSIR- Institute of Minerals &amp; Materials Technology, (IMMT), Bhubaneswar</li> <li>• CSIR- National Chemical Laboratory (NCL), Pune</li> <li>• National Institute of Pharmaceutical Education and Research (NIPER) Mohali</li> <li>• IIT Bhilai</li> <li>• IIT Guwahati</li> </ul>
<p><b>Electronics/Renewable Energy</b></p> <ul style="list-style-type: none"> <li>• CSIR- Central Electronics Engineering Research Institute (CEERI), Pilani</li> <li>• CSIR - Central Scientific Instruments Organization (CSIO) Chennai</li> <li>• National Institute of Technology-Andhra Pradesh, Tadepalligudem</li> </ul>	<p><b>Environmental Intervention &amp; Low-cost Machining</b></p> <ul style="list-style-type: none"> <li>• CSIR - Indian Institute of Toxicology Research (IITR), Lucknow</li> <li>• CSIR-National Institute for Interdisciplinary Science and Technology (NIIST), Thiruvananthapuram</li> <li>• CSIR- Central Mechanical Engineering Research Institute (CMERI), Durgapur</li> </ul>

## Sponsors



**ANUPAM RASAYAN  
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## Distinguished Speakers



Dr. N. Kalaiselvi  
Secretary, DSIR & DG-CSIR  
Ministry of Science & Technology



Shri Sandip J. Sagale, IAS  
Industries Commissioner and  
Chairman of iNDEXTb, Gandhinagar,  
Govt. of Gujarat



Prof. Rajat Moona  
Director  
IIT Gandhinagar



Dr H. G. Koshia  
Commissioner – Food and Drug  
Control Administration (FDCA)  
Government of Gujarat



Dr. Sujata Chaklanobis  
Scientist G & Head CRTDH  
DSIR, MoST



Shri Hiranmay Mahanta  
CEO, i-Hub Ahmedabad  
Gujarat



Dr Viranchi Shah  
National President, IDMA and  
Director, SAGA Laboratories



Shri Anandbhai Patel  
Director  
Gujarat Apollo India Pvt Ltd



Dr. Jaimin Vasa  
President Gujarat Chemical  
Association  
Former President GCCI



### **PROF CHINMAY GHOROI, DSIR-IITGN CRTDH**

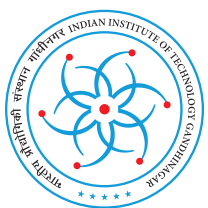
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Dr. Vipin Shukla  
Scientist F  
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## Programme

Nov 5, 2023 (Pre-Conclave) | Nov 6-7, 2023 (DSIR-CRTDH Conclave)

DATE	TIME	PROGRAM
Nov-05	15:30-18:00	WS1: Pre-Conclave Workshop on Flow Synthesis & Continuous Manufacturing
Nov-05	15:30-18:00	WS2: Pre-Conclave Workshop on Low-Cost High-tech Automation for MSMEs
Nov-05	19:00-21:00	Pre-Conclave Networking Dinner in Guest House
Nov-06	9:30-10:00	Registration for DSIR - CRTDH Conclave 2023
Nov-06	10:00-11:30	DSIR CRTDH Conclave Inaugural Session including the Inauguration of Exhibition
Nov-06	11:30-11:45	Tea Break 1 (Near the Exhibition site)
Nov-06	11:45-13:00	Technical Session 1: Innovation and Technology Adoption in Chemical Industry MSMEs
Nov-06	13:00-14:00	Networking Lunch 1 (Near the Exhibition site)
Nov-06	14:00-15:30	Technical Session 2: Catalysing Healthcare Innovation: Role of MSMEs
Nov-06	15:30-15:45	Tea Break 2 (Near the Exhibition site)
Nov-06	15:45-17:00	Technical Session 3: Empowering India: Renewables and Indigenous Electronics
Nov-06	17:30-19:00	WS3: Workshop on Innovation & Startup Ecosystem in CRTDHs
Nov-06	17:30-19:00	WS4: Workshop on Hazard Identification using HAZOP
Nov-06	19:00-21:30	Conclave Dinner & Networking (Guest House Lawn)
Nov-07	10:00-11:00	Technical Session 4: MSMEs Driving Low-Cost Machining & Environmental Innovation
Nov-07	11:00-11:15	Tea Break 3 (Near the Exhibition site)
Nov-07	11:15-13:00	Technical Session 5: Innovate to Impact: Unleashing Potential and Driving Change through New Hubs
Nov-07	13:00-13:30	Concluding Session of Conclave & Exhibition
Nov-07	13:30-14:00	Networking Lunch 2
Nov-07	14:00-17:00	WS5: Post-Conclave Workshop on Energy Assessment for MSME Industries
Nov-07	17:00-17:15	High Tea and disperse



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## Workshop on Flow Synthesis & Continuous Manufacturing

November 05, 2023 at 3:30 PM – 5:30 PM

[crtdh@iitgn.ac.in](mailto:crtdh@iitgn.ac.in)

DSIR - CRTDH at CSIR-NCL, Pune is working on the process intensification in the chemical intermediates, dyestuff, and colorants industry through continuous flow synthesis and its scale-up for manufacturing. A broad spectrum of various types of reactions such as aromatic nitration, diazotization, and coupling, Meerwein arylation, sulfoxidation, Amination, bromination, chlorination, controlled oxidation of alcohols, fluorination, Grignard reaction, lithiation, ozonolysis, anionic polymerization, ethoxylation, and catalytic esterification etc. have already successfully demonstrated at different scales (ranging from a few in kg/day to tons/day). The workshop is aimed to showcase a few case studies (azo dyes, acid dyes, reactive dyes and basic dyes) and elaborate on the approach that CSIR-NCL would like to follow while working with the MSMEs in this sector. The workshop will be conducted with IIT Gandhinagar faculty members with expertise in safety and HAZOP analysis of continuous processes.

The workshop alongside the DSIR – CRTDH Conclave will discuss

1. The implication of Flow synthesis & Continuous Manufacturing
2. Case studies of well-known reactions

### Team for the workshop



**Dr. Amol A. Kulkarni**

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## Workshop on Low-Cost High-tech Automation for MSMEs

November 05, 2023 at 3:30 PM

[crtdh@iitgn.ac.in](mailto:crtdh@iitgn.ac.in)

Quality and cost are two critical parameters for MSMEs involved in the manufacturing sector. Low-Cost automation (LCA) is one of the major strategies to take care of these two sensitive parameters in MSME industries. Integrating microelectronics/ microchips with the LCA (coined as Low-Cost High-tech Automation - LCHA) around the existing equipment provides significant competitive advantages for MSMEs. It can be implemented with available yet simple technologies, easy to maintain and upgrade as per market dynamics. The deployment of LCHA reduces human intervention, improves product quality and minimizes product cost. However, there is a need to upskill the human resources in MSMEs. The proposed workshop is an initiative to share some of the developed LCHA techniques for MSMEs and its implementation tools to prepare MSME for more competitive markets. The workshop is already repeated for more than 50 times at IIT Bombay for number of industries.

The workshop will discuss

1. Systematic approach to Low-Cost High-tech Automation
2. Improve sophistication in manufacturing
3. Case studies from various type of industries

### Team for the workshop



**Dr. N. Ramakrishnan**  
Visiting Professor  
Department of Mechanical  
Engineering  
IIT Gandhinagar



**Dr. Joyce M Mekie**  
Associate Professor  
Department of Electrical  
Engineering  
IIT Gandhinagar





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## Workshop on Innovation & Startup Ecosystem in CRTDH Labs

November 06, 2023 at 5:30 PM

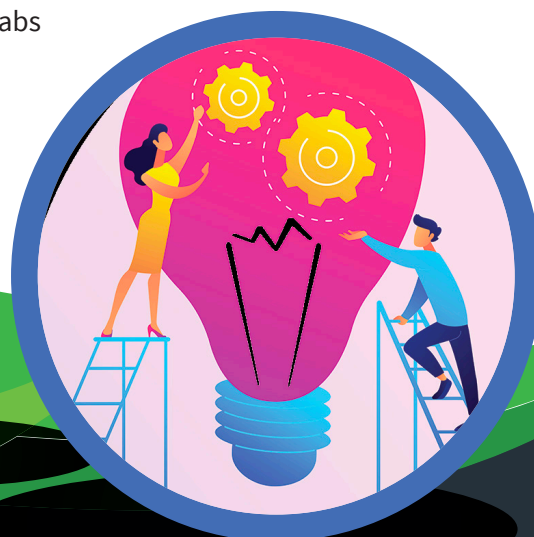
[crtdh@iitgn.ac.in](mailto:crtdh@iitgn.ac.in)

CRTDH Labs, located in various academic and research institutes across the country, promotes innovation and startups. 18 CRTDH Labs has supported about 63 Startups. Each host institute has a mechanism to help innovators and startups through its own ecosystem. For example, IIT Gandhinagar has supported about 70 Startups through its Innovation and Entrepreneurship Center (IIEC). IIEC is the nodal center for implementing programs such as startup support program of the Ministry of MSME, DST - Nidhi Prayas and Nidhi Seed Support programs, the scheme for Startups and innovations by the Industries Department of Govt. of Gujarat etc. Few of the Startups at IIT Gandhinagar accessed DSIR CRTDH facilities on New Materials/Chemical Processes according to their needs. Similarly, the CRTDH-CCMB is focused on Biopharmaceutics and Diagnostics as priority areas in the field of Affordable Healthcare. About 110 startups have received support from CRTDH-CCMB through the Innovation and Entrepreneurship Center. The startup support program of the Ministry of MSME, along with the DST schemes such as Nidhi Prayas, Nidhi Seed, BIRAC-Sparsh, and the support from the Ministry of Electronics & Information Technology (MeitY) through TIDE, has enabled the development of technologies related to healthcare through the CRTDH-CCMB. Similar are the stories of other institutes having a DSIR CRTDH Lab. DSIR CRTDHs at all the host institutes are promoting innovation, entrepreneurship, and the development of technologies that can positively impact society.

The two-hour session on Innovation and Startup ecosystems in various academic and research Labs will discuss the existing ecosystem for incubation and startups at multiple institutes, including mentoring facilities and connections with VCs etc. Speakers from IIT Gandhinagar, CSIR – CCMB and other CRTDHs will share their experiences.

The workshop will discuss

1. Entrepreneurial opportunities in institutes with CRTDH Labs
2. Support system for Startups
3. Funding opportunities through various schemes
4. Best practices & Success stories







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## Workshop on Hazard Identification using HAZOP

November 05 at 5:30 PM

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Common Research & Technology Development Hub (CRTDH), along with the Centre for Safety Engineering (CSE) at IIT Gandhinagar, takes immense pleasure in announcing a half-day workshop on “Industrial Hazard Identification using HAZOP” for plant practitioners. Experienced safety professionals from industry and faculty from IIT Gandhinagar will conduct the workshop. The workshop will cover the basics of hazard identification and case studies for safer plant operation. The workshop aims to train the participants on various risk-reduction strategies to enhance industry safety. It will help professionals to understand the challenges and best practices to avoid hazards in industrial setups.

The workshop will discuss

1. Introduction to Hazard Identification and HAZOP
2. Techniques for hazard identification
3. Case studies and group activities

### Team for the workshop



**Shri G. Viswanathan**  
Former DGM, IPCL  
Vadodara



**Dr. Chinmay Ghoroi**  
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For HAZOP analysis at your location, please contact

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## Workshop on Energy Assessment for MSME Industries

**November 07 at 2:30 PM**

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A faculty team, along with BEE-certified energy auditors and field engineers at IIT Gandhinagar, regularly conducts Energy Assessments for industries. The team identifies and evaluates the implementable energy-saving measures through detailed analyses of industrial plant operations. We support MSMEs to improve plant energy performance through a systematic Energy Assessment and sustainability study. The IIT Gandhinagar team has already assessed various industry clusters in Gujarat, including a few existing CRTDH members in Ceramic, Diamond, Textile, Chemical, Cold storage, Metal, Plastic, Rubber, etc. It has achieved a significant reduction in energy bills for MSME members and a reduction in waste generation and overall carbon footprint.

*The initiative started to reduce MSME's carbon footprint under Kotak – IIT Save Energy Mission for MSMEs (KISEM- A CSR Initiative by Kotak Mahindra Bank)*

The workshop will discuss

1. Industrial Energy Assessment Program at IIT Gandhinagar
2. Energy Assessment in MSMEs and its implication in reducing carbon footprint.
3. Energy Assessment procedures and tools to reduce energy bills.
4. Case studies and benefits achieved for MSMEs.
5. Training on industrial energy monitoring through preliminary measurements



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For Energy Assessment at your  
location, please visit  
<http://tiny.cc/IITGN-KISEM>

## Energy Assessment Team



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Mr Sagar Loriya  
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Md Faizan  
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