



## **DSIR - Common Research & Technology Development Hub (CRTDH) on Electronics & Renewable Energy @ NIT Andhra Pradesh, Tadepalligudem**

*Sponsored by Department of Scientific & Industrial Research (DSIR), Ministry of Science & Technology, Govt of India*

**Common Research and Technology Development Hub (CRTDH) on Electronics & Renewable Energy** with the objective to enhance productivity and competitiveness of Micro and Small Enterprises (MSEs) is funded by **Department of Scientific & Industrial Research (DSIR)** under 'Building Industrial Research & Development and Common Research Facilities (BIRD-crf)' scheme and NIT Andhra Pradesh.

### **Looking for technical support/collaboration?**

**DSIR-CRTDH, NIT Andhra Pradesh welcomes Micro and Small Enterprises (MSEs) to utilize R&D services or facilities for technology adoption and digital transformation in enhancing competitiveness in both local and global markets in the sector of Electronics and Renewable Energy. Interested MSEs may register with required details at below link.**

**Link:** <https://tinyurl.com/nitapcrtdh>

### **Brief Introduction:**

The objectives of the hub are to undertake research of both fundamental and applied nature and enhance the capabilities of MSMEs in the sector of electronics and renewable energy so as to enhance the competitiveness in both local and global markets by providing assistance to MSMEs in technological problem solving and capacity building.

The specific areas of the DSIR-CRTDH, NITAP are

- Designing and development of intelligent micro-grid using renewable energy systems; and battery management systems
- Testing/Analyzing/charactering the renewable energy system/components
- Design for reliability in meeting industry demands and development of power converter topologies for renewable and electric vehicle applications.
- Development and deployment of intelligent smart control systems in meeting demands of respective interest of renewable or EV based MSE's.

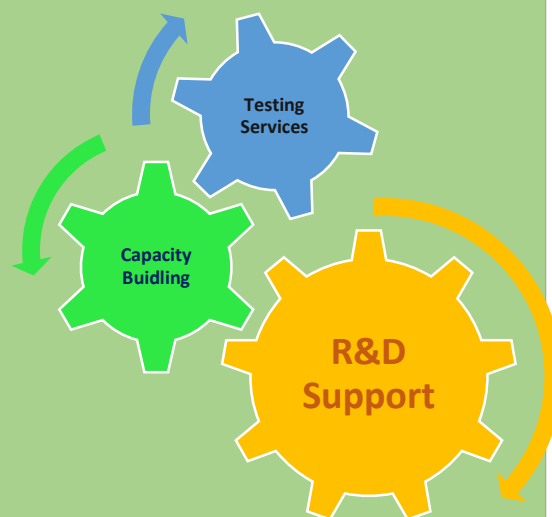
### **Equipment Available:**

- Power converter stacks, sensors and signal conditioning circuits for implementing prototypes of systems related to renewable energy sources and EV drives.
- Battery cell emulator and battery testing equipment (different battery technologies).
- Fuel cell, photovoltaic and wind emulators
- MATLAB and ALTAIR (PSIM) Simulation software for modelling renewable and EV systems.
- DC/AC programmable Sources and loads
- Real time controllers or Hardware-in-the-loop (HIL) equipment to test and validate control algorithms/systems before deploying/prototyping them in real-world scenarios.
- Testing equipment's -instrument calibration, power quality analysers, source measurement units and insulation testers.
- Prototyping Equipment-PCB Etching, 3D printers

### **Services Offered:**

- Delivery of first hand R & D technological solutions to the MSEs' in Renewable Energy sector including testing services
- Development of data driven simulation and design tools for assessment of renewable resource potential, cost assessment, operation-maintenance planning and risk assessment through testing and characterising of renewable resources.
- Design and development solutions to the decentralised power generation and to increase the penetration of renewable energies to the grid.
- Development of optimal sizing and power control strategies for hybrid renewable systems consisting of photovoltaic, wind, hydro, fuel cells including battery management.
- Analysing the power converters efficiency and reliability by developing loss models and mission profile parameters taken at MSE's location towards selection of suitable power converters in renewable systems.
- Support to MSEs in technological solutions towards Power quality enhancement in off-grid and on-grid renewable energy systems.
- Skill development of manpower of MSEs through training and capacity building programmes
- Incubate Startups in the area of Renewable Energy at CRTDH.

**"Innovate today, lead tomorrow. Investing in research and development is not just a cost-it's the key to sustainable growth, competitive advantage, and a cleaner future.**



For more details, please do contact:



**Head of the Institute:**

Prof. N. V. Ramana Rao

Director i/c, NIT Andhra Pradesh

Email: [director@nitandhra.ac.in](mailto:director@nitandhra.ac.in)

**Project Managers:**

Dr. V. Sandeep & Dr. Sankar Peddapati

DSIR - CRTDH, NIT Andhra Pradesh

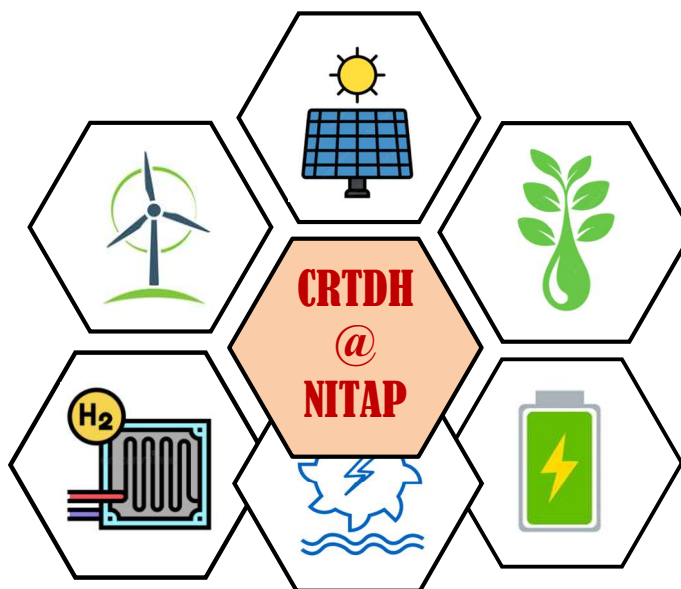
Email: [sandeep@nitandhra.ac.in](mailto:sandeep@nitandhra.ac.in),

[sankarp@nitandhra.ac.in](mailto:sankarp@nitandhra.ac.in)

Contact no: 8861290060, 8897983939

Click for location of NIT Andhra Pradesh

<https://maps.app.goo.gl/H99ncecirZaKzJUX6>



***Core Functions of CRTDH-ERE:***

- ❖ System Modelling
- ❖ Design and Sizing
- ❖ Programming Algorithms
- ❖ Simulation Studies
- ❖ Analysis & Control
- ❖ Forecasting & Management
- ❖ Development & Planning
- ❖ Rapid Prototyping

***Interface Technologies Focused:***

- ❖ Machine Learning
- ❖ Artificial Intelligence
- ❖ Internet of Things
- ❖ Deep Learning
- ❖ Data Science