

About the Department

Reliable supply of energy is a key issue of this century. With the aim to achieve this need of human life, the Centre for Non-Conventional Energy Resources was established in the year 2000. The aim of the Centre is to work for Green energy / power. This Centre is mainly established for the purpose of the research in the field of renewable energy and material science. This course deals with the issues of alternative energy sources and sustainable development such as Thin films (surface & Interfaces), Solar Cells, Hydrogen Storage (Content measurements & kinematics), Nanostructure & Nano materials synthesis & their characterization for the various applications. During the course, the research students are learning and measuring (Hands-on practice) the data through the live experiments at the Centre or at National/ International Collaborative Institutions. The experiments included in the laboratories are based on the theoretical course structure and the research students are allowed to enrich their subject knowledge by independently exploring these experiments for various application under the supervision of teachers.

Thrust Areas

- Hydrogen Energy: Storage and Applications
- Solar Energy: Materials and Devices
- Thin Films: Surfaces and Interfaces
- Amorphous Semiconductors

Infrastructural Facility

(a) Major Research Facilities:

The Centre has a research laboratory equipped with sophisticated equipment. Following are the available facilities at the Centre:

- 1) UHV (10-9 Torr) E-gun evaporation technique for Thin films preparation
- 2) HV (10-6 Torr) E-gun evaporation technique for Thin films preparation
- 3) HV (10-6 Torr) Thermal evaporation technique for Thin films preparation
- 4) High Energy Ball Milling for nanomaterials for Nanomaterials synthesis
- 5) Glove Box (Homemade) for synthesis of DSSC and Perovskite Solar Cells
- 6) Furnace (Temperature upto ~1000 0C)
- 7) UV-Vis Spectro-photometer for Optical

Director & Professor

Dolia, S.N.

Deputy Director

Lal, Chhagan

- measurements of Solid/Liquid/Thin films
- 8) Dynamic type P-C-T setup (Homemade) to measure the hydrogen content in the solid materials and with this facility thin film Hydrogenation Setup also exist for the environmental facility Current-Voltage. Resistance measurements.
- 9) Keithley Electrometer for electronic properties.
- (a) Laboratory-(Number.): 02
- (b) Seminar Hall-Yes/No: Yes

Research Outcome (Last Academic Year 2023-2024)

- (a) Research Paper published No.): 19
- (b) Workshop/Conference/Seminar Organized:
 - One seminar cum exhibition is organized for solar energy awareness & the Solar bus yatra (by Prof. Solanki Sir, IIT Bombay): 27th October 2023
 - 27th February 2024 (2nd day) of Rajasthan Vigyan Mahotsav (National Science Day 2024) is organized by the Centre in association with CSIR-CEERI, Pilani; DST- Govt. of Rajasthan.

Only research collaboration is alive with the following Institutes and potential outcomes in the form of high impact factor journals:

- 1) Bansthali Vidyapith Niwaie, Rajasthan
- 2) National Physical Laboratory, New Delhi
- 3) Indian Institute of Technology, Patna
- 4) Indian Institute of Technology, Assam
- 5) Indian Institute of Technology, Indore
- 6) Raja Ramanna Centre for Advanced Technology, Indore
- 7) J.P. University, Chapra, Bihar

Course Offered

- (a) Name of Programme: Ph.D. Programme
- (b) Duration: Minimum 3 years
- (c) Total Seats: Availability of vacant seats depends on teachers (from different departments)
- (d) Eligibility: M.Sc. in Physics/Chemistry/Materials Science

9. Notable Alumni

S.No.	Name of Alumni	Present position
1.	Prof. Pratibha Sharma	Professor of Energy, Indian Institute of Technology, Bombay
2.	Dr. Chhagan Lal	Dy. Director – C.N.C.E.R. and Assistant Professor of Physics, University of Rajasthan, Jaipur -04

Other Highlights and Achievements

- Top 2% scientist award in World level the data and ranking prepared by AD Scientific Index [Prof. I.P. Jain (Rtd.) 2020-till now
- Dy. Director (Dr. Chhagan Lal) is also listed in top 3% scientist award in World level data and ranking prepared by AD Scientific Index from 2021- till now.

Placement

- Last year 2023-24 two students (Ms. Rajlaxmi Chouhan and Mr. Amit Kumar) is selected for the School Lecturer in Rajasthan Education Department, Bikaner.
- Ms. Rajlaxmi Chouhan was also selected for the Scientific Assistant in ISRO 2022-23.