

# CRIG Bulletin

Issue-4

Rabindranath Tagore University

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## Core Research and Innovation Group

*Making things obsolete which were latest till yesterday*

### ● From the Directors Desk – CRG to CRIG

The New Education Policy (NEP 2020) and a yearlong pandemic caused by Covid -19, has provided a new direction to the higher education, where; research, innovation, entrepreneurship, regional languages, cultural resurgence and skills are at the core with an additional dimension of on line technology. With a foresight and vision, RNTU had sensed, quite some time back, the inevitable paradigm shift in the education system. Accordingly it established a unique core group for research called CRG way back in 2017. Now it has added innovation in its charter and the new name of the group is – The CRIG (Core Research and Innovation Group) The group has helped in developing a vibrant research and innovation environment in all five universities of the AISECT Group. Despite lockdown and restrictions on moving out, the research and innovation work continued uninterrupted ushering in a new era of skillful use of virtual platforms. In last two years with internal funding RNTU researchers have completed 8 Projects with related patents for them. We hope to take the initiatives of CRIG to a new height in the year of Atma Nirbhar Bharat with a lot of research work, innovations and entrepreneurial initiatives under the mentorship of a new Advisory Board.

**-Prof. Vijay Kant Verma**

### ● The CRIG –Advisory Board - 2021

Chairman	- Shri Santosh Choubey,	Chancellor, RNTU
Director	- Prof. Vijay Kant Verma,	Chancellor, CVRU, Vaishali, Bihar
Member	- Prof. Bramh Prakash Pethiya,	VC, RNTU, Bhopal, Madhya Pradesh
Member	- Prof. R.P. Dubey,	VC, CVRU, Bilaspur, Chhattisgarh
Member	- Prof. R.K. Pandey,	VC, CVRU, Vaishali, Bihar
Member	- Prof. S.K. Shrivastava,	VC, AU, Hazaribagh, Jharkhand
Member	- Prof. Amitabh Saxena,	VC, CVRU Khandwa, MP
Member	- Dr. Mohamed Ouessar,	IRA, Tunisia
Member	- Mr. Richard Hopkins,	ORCA, Australia
Member	- Prof. S Sapra	UCF, USA
Member	- Prof. FJ Manjon	UPV, Spain
Member	- Prof. Weicheng WU,	ECUT, China
Member	- Prof. Joel Kibiiy,	Moi University, Kenya
Member	- Prof. M. Sundarajan,	(Science)
Member	- Prof. Salim Abbas Bhai Chaniwala	(Energy)
Member	- Prof. Tarun Pandya	(Management)
Member	- Dr. Vimal Kumar Sharma	(Science)
Member	- Prof. Murali Mantrala	(Management)
Member	- Prof. Sandhya Chaturvedi	(Sociology)
Member	- Dr. RN Yadav	(Environment)
Member	- Prof CK Ghosh	(Engineering)
Member	- Maj Gen Chaturvedi	(Technology)
Member	- Dr. SR Awasthi	(Renewable Energy)
Member	- Dr. Dinesh Kumar Soni	(Engineering)
Member	- Dr. Anil Kurchania	(Agriculture)



## ● New Research Centers in RNTU Campus

Pursuing the vision of New India with a determined return to cultural routes of the country. RNTU has expanded research activities significantly in the area of performing art, culture, music, tribal life, languages and literature. A whole new complex; we may even call it a new international cultural village, is fast taking shape in the RNTU campus under the Faculty of Humanities and Liberal Arts, housing five new research centers of excellence namely–

- |   |   |
|---|---|
| ❑ Pravasi Bhartiya Sahitya Shodh Kendra | (Coordinator – <b>Dr. Mausami Parihar</b> )     |
| ❑ Bhasha Shikhan Kendra                 | (Coordinator – <b>Dr. Ruchi Mishra Tiwari</b> ) |
| ❑ School of Translation                 | (Coordinator – <b>Shri Arunesh Shukla</b> )     |
| ❑ Vanmali Srijan Kendra                 | (Coordinator – <b>Dr. Usha Vaidya</b> )         |
| ❑ Sanskrit Shodh Sansthan               | (Coordinator – <b>Dr. Usha Vaidya</b> )         |

These centers are going to add new dimensions to research for effective cultural resurgence as envisaged in NEP 20.

## ● Research Events with new Normals in the new Virtual World

During the pandemic, though the country was mostly under lockdown, the RNTU decided to unlock activities in a big way, using power of virtual platform, from day one. The virtual platform kept faculty students and research scholars totally engaged. In addition to normal teaching learning going uninterrupted, the university organised events on virtual platform in which about 10 events were from core research domain. Some of the significant ones are:-

- ❑ **Vishwarang 2020** – An annual international extravaganza of Art, Culture and literature. The 10 days mega show in Nov- Dec 2020 with almost 15 + countries participating online had many research events in arts, culture, language, theater and literature providing new direction for research and exposed the treasure of rich Indian heritage to the world.
- ❑ **International Seminar on Energy, Environment, Water and Society**- Two days seminar 5 countries 20 speakers 1000 participants discussing on the theme of use of remote sensing and GIS for enrichment.
- ❑ **International Webinar on Mathematical Modeling in Research** – Expert speaker Prof Tanmay Dev IIT BHU (16 June 2020) provided insight in to new tools and approaches.
- ❑ **Journey for Objectives to Result- A workshop on data analytics** – Expert Dr. DN Sansawala (1 June 2020)
- ❑ **Role of Microbes in Global Climate Management** – Expert for the workshop Dr. SR Mohanti IISI (9 Feb 2020)
- ❑ **Research Project Writing and Funding**- Two days workshop (15 Feb 21) by Dr. Channiwala a professor from NIT Surat with 33 years of research experience. Event was loaded with hands on sessions.



National Workshop on Data Analytics



International Workshop on Water, Energy, Environment & Society



A National Workshop on Project Funding

## ● CRIG Funded New Research Projects

A corpus of Rs. One Crore was again set aside by RNTU for internal funding to undertake research activities in 2021. CRIG has approved 13 research projects and released first phase of funding. Projects are mainly with a multidisciplinary approach, promoting social concern, contributing to new knowledge and supporting Atma Nirbhar Bharat.

- ❑ Development of dust resistant nano material coating for solar panel - **Dr. Prachi Dhote** Rs. 2.00 Lakh
- ❑ Development of IoT based Products –VTS, Soap Dispenser, Mask Detector, Temp Controller, Water Quality Monitor and Smart bed - **Dr. Rakesh Kumar** Rs. 0.50 Lakh
- ❑ Development of IMCS - **Ghanshyam G.** Rs. 0.80 Lakh
- ❑ Design and Development of a movable sanitizer - **Dr. DK Soni** Rs. 0.15 Lakh
- ❑ A Study of Kalbelia Tribes to preserve their identity - **Mr. Ravi Kanooode** Rs. 0.30 Lakh
- ❑ Recognition of Cationic and Anionic Pollutants using Chemo sensor from the Effluents of Sirgitti Industrial area in Bilaspur - **Dr. Milan Hait** Rs. 1.50 Lakh
- ❑ Formulation of herbo-metallic nanoconjugate for skin infection therapy : An emerald approach - **Dr. Naureen Shaba Khan** Rs. 1.00 Lakh
- ❑ Nanosynthesis and Characterisation of some Phytochemicals used in Hypothyroid Treatment - **Dr. Namita Bhardwaj** Rs. 1.30 Lakh
- ❑ Investigation on cation exchange capacity of clay minerals for environmental pollutant - **Dr. Rashmi Verma** Rs. 1.28 Lakh
- ❑ Performance assessment of primary students undergoing brain development classes in Bilaspur district - **Dr. PK Naik** Rs. 0.50 Lakh
- ❑ Study of Harmful Effect of Food Preservatives - **Dr. Rakesh Yadav** Rs. 1.00 Lakh
- ❑ Preparation of Eco- Friendly and low cost fly Ash based Materials for various applications - **Dr. MZ Khan** Rs. 1.5 Lakh
- ❑ Sustainable Livelihood Village Model Plan under Atma Nirbhar Bharat at Village Kota - **Dr. Manish Upadhyay** Rs. 3.0 Lakh

## ● Research Awards/Achievements

Many awards/achievements/recognitions have been bagged by faculty in 2020. Some important ones are:-

- ❑ International Research Awards on New Science Inventions – 2020 **Dr. Priti Maheshwary** at Science Father
- ❑ Emerging Scientist Award 2020 - **Dr. Dinesh Kumar Soni** at VDGGOOD Technology
- ❑ Innovative on Green Initiatives - **Mr. Ranjeet Kumar Puse** at The Institute of Engineers (India)
- ❑ Best Paper Presentation Award - **Dr. Basanti Mathew** Merlin at Social Science & Management Welfare Association



Research Funding Workshop

Telescope making- workshop

New International Cultural Village

Energy Park Activities



## ● Externally Funded Ongoing Projects

- ❑ Development of Pyrophoric Metal Ceramic Composite Materials for Smart Flare as IR Countermeasure funded by DRDO - Investigator - **Dr. Sudeshna Ray**
- ❑ Research Project KA-1 for 2017-2020 with PM University Romania Project funded by Government of European Union - Investigator - **Dr. Shalini Yadav**
- ❑ Mission Eco-Next, Eco Leads & Eco Routes : To nurture young role models for resurgence of eco scientific traditions funded by DST - Investigator - **Dr SR Awasthi & Mr. Prabal Roy**
- ❑ Preparation of Biodiversity Register for Obaidullaganj Janpad Panchayat funded by MPSBB Investigator - **Dr. Pragya Shrivastava, Dr. Ankit Agrawal**
- ❑ Preparation of Biodiversity Register for Udaipura Janpad Panchayat funded by MPSBB Investigator - **Dr. Ankit Agrawal, Dr. Pragya Shrivastava**

## ● IPR Score

Ten new IPRs have been acquired by the University during 2020

- ❑ Fog Collecting System (201921049689) **Anil Kumar Rao**
- ❑ Enhanced Biometric Based Digital Circulation of encrypted question Paper (202041040640) **Dr. Sitesh Kumar Sinha**
- ❑ Artificial Intelligence Based Efficient Communication Platform Between Deaf & Blind And Between Blind & Deaf (202021044631) **Dr. Shiv Shakti Shrivastava**
- ❑ An IOT Enabled Cloud Computing Based Remote Monitoring System of Hazardous, Flammable, and Explosive Leakage for Chemical Industries (202041015822A) **Dr. Sanjeev Kumar Gupta**
- ❑ Method For Preparing Stone Matrix Asphalt (201921049692) **Amit Kumar Ahirwar**
- ❑ System and Method for Identifying Knuckles of Users (201921049690) **Ankit Pandit**
- ❑ Prediction Device for Surface Roughness (201921049691) **Rohit Pathak**
- ❑ Video Shot Transition Detection Method (201921049693) **Dr. Varsha Jatwani**
- ❑ System and Method for Constructive Effort Estimation (201921049688) **Dr. Sitesh K. Sinha**
- ❑ Portable Charger (322257-001) RNTU, Bhopal

"This takes the tally to a whopping 42 IPR by RNTU during last 3 years.

## ● Publications

In the year 2020 publication summary is as follows:-

- |  |   |                  |
|--|---|------------------|
| ❑ Papers Published in SCI/SCOPUS/UGC approved Journal      | – | 35               |
| ❑ Papers Published in other International/National Journal | – | 128 (Total 2182) |
| ❑ Edited/Text Books Published                              | – | 4 (Total 81)     |
| ❑ Papers published in the Proceedings                      | – | 4                |

## ● Consultancy

- ❑ Under an MoU with Global Vikas Trust, RNTU is knowledge partner for Agriculture (**Dr. Anil Kurchania** Consultant – In 2020 Consultancy Rs. 30000/-)
- ❑ Under a Consultancy Project Civil Materials (**Dr. Shalini Yadav**- Consultant – In 2020 consultancy Rs. 35000/-)