CRG - Most Innovative Initiative to promote Research

Research plays a key role in the academic pursuit of higher education. As a matter of fact, research environment in a university is the barometer of its academic health. Research is a long drawn affair and demands heavy capital expenditure with quite uncertain Returns on Investments (RoI). For private universities, which normally have very little support from the government, research becomes a double edged weapon; no immediate returns from research on one side and students general apathy towards research, clubbed with their calculated focus on the degree alone, on the other side. Yet there are few universities like Rabindranath Tagore University (RNTU) who are very keen on research and ready to take the risk of large investment. Core Research Group (CRG) is a unique initiative of RNTU. With a corpus of Rs. 1 Crore, CRG has been established in the University as an independent group with an annual budget of Rs. 1 Crore for Research related activities. Currently this group is handling 8 Research Projects funded from its own resources. There are 3 ongoing international projects too and many more activities and events on going and in the pipeline. The first issue of CRG bulletin provides the glimpses of research related activities.

The Group Composition

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
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<tbody>
<tr>
<td>Chairman</td>
<td>Shri Santosh Choubey Chancellor RNTU</td>
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<tr>
<td>Director</td>
<td>Prof. Vijay Kant Verma Founder VC of RNTU</td>
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<tr>
<td>Member</td>
<td>Prof. AK Gwal VC, RNTU Madhya Pradesh</td>
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<tr>
<td>Member</td>
<td>Prof. SK Shrivastav VC, AISECT University Jharkhand</td>
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<tr>
<td>Member</td>
<td>Prof. RP Dubey VC, CVRU Chhattisgarh</td>
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<tr>
<td>Member</td>
<td>Prof. AS Zhadaagoonkar Founder VC, CVRU, CG</td>
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<tr>
<td>Member</td>
<td>Prof. R.K. Pande VC, CVRU Bihar</td>
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<tr>
<td>Member</td>
<td>Maj. Gen Ajay Chaturvedi VSM, AVSM</td>
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<td>Member</td>
<td>Prof. Murali Mantrala</td>
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<td>Member</td>
<td>Prof. Anurag Seetha</td>
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<tr>
<td>Member</td>
<td>Prof. Sandhya Chaturvedi</td>
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<tr>
<td>Member</td>
<td>Prof. CK Ghosh</td>
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Navratn Centers of Excellence

Taking deviation from normal protocol, nine Centers of Research Excellence have been set up which though come under respective Departments, cut across all the other departments in the University and enjoy certain autonomy also in research operations. visit www.aiscetuniversity.ac.in for more

- Center for Renewable Energy (CRE) - Director - Dr. Anil Kurchania
- Advanced Material Research Lab (AMRL) - Head - Dr. Sudeshna Ray
- Center for Space & Earth Science (CESS) - Head - Dr. Surynashu Choudhary
- Agriculture Research Complex (ARC) - Head - Dr. Pragya Shrivastava
- Tagore International Center for Arts & Culture (ICAC) - Head - Mr. Vinay Upadhayay
- Center for IoT and Advanced Computing (CIOTAC) - Head - Dr. Preeti Maheshwary
- Center for Incubation for Entrepreneurs & Startups (CIES) - CEO - Mr. Nitin Vats
- Center for Environmental Science (CES) - Head - Dr. R.N. Yadav
- Dr. CVR Center for Science Communication - Director - Mr. Rag Telang
Research Collaborations

*Individually one drop, together a ocean*

- **The Current International Collaborations**
  - NCTU Taiwan
    (Area of Work - material science joint Indo Taiwan DST project is ongoing)
  - Benaka Biotechnologies Inc USA
    (Area of Work - Air Foil wind turbine and solar reflective materials)
  - ICEWaRM Adelaide Australia
    (Area of work – Water resources, water management. Organised jointly international conference on 15-18 March 2016 with 20 countries coming out with a charter for reforms and roadmap)
  - TSN University of KYIU Ukraine
    (Area of Collaboration - Earth Quack Prediction)
  - Mol University, Eldoret Kenya
    (Area of Work - Climate Change, Water bodies & Environment.)
  - RPI New York USA
    (Area of work - Renewable Energy)
  - Tribhuvan University Kathmandu Nepal
    (Area of Interest – Joint Research in environmental and earth science)
  - A & M Texas University USA
    (International Conference on Water, Energy, Environment and Society ICWEES-2018 at Tunisia being jointly organised in which 25 countries are participating.)
  - RPI, New York USA
    (Collaboration research in the field of renewable energy, faculty exchange and joint publication of research work)

- **Some of The Indian Collaborations**
  - RTM University Nagpur - In the area of material science
  - Gujarat Forensic Sciences University Gujrat - In the area of Earth & Space Sciences
  - CRISP Bhopal - In the area of automation and communication
  - BSSS Bhopal - In the area of social sciences
  - S-VYASA Bangalore - In the area of Yoga and Meditation
  - BSNL Jabalpur - In the area of wireless communication
  - Kwality Photonics Pvt Ltd Hyderabad - In the area of LED Technology
  - National Institute of Solar Energy (SEC) Gurgaon - In the area of solar energy
  - JCI Project Solution - In the area of renewable energy
    Plus more than 20 important organizations.

- **Some Recent Collaborations for Research Related Work**
  - University of Florida
  - BSE Bombay
  - Tata Motors
  - Mahatma Gandhi International University Wardha
  - TEPL Bangalore

MoU with Nepal  Collaboration with NAARI  MoU with Australia  Collaboration with USA
IPR by RNTU

Following IPR’s have been registered by RNTU in the year 2017-18 for various innovative processes and products developed during the research work

- **An Afterglow Material for Cold-Tracer and a Process for the Preparation Thereof.**
  The material developed and process worked out has a very significant application in the defence.
  
  **Reg No.** 201721036125

- **A Multipurpose Solar Dryer for Rural Application.**
  The low cost efficient system has vast potential for use in remote agriculture sector and commercial application.
  
  **Reg No.** 201721034865

- **A Transformer Fault Detection Device.**
  This remote detection system has very significant application in preventing heavy losses and break downs.
  
  **Reg No.** 201721034866

- **A Novel System and Method for Automatic Attendance Marking using IoT.**
  The system has effective application in education sector.
  
  **Reg No.** 201721040690

- **Intelligent Solar Street Pole based on luminous level and traffic.**
  This cost effective and efficient system provides significant smart application.
  
  **Reg No.** 201721040691

- **Dual Axis Fault Resistant Solar Tracking Device.**
  The system makes the solar system more efficient.
  
  **Reg No.** 201721042400

- **Smart Solar Panel Cleaning Device to improve efficiency and economy in water usage.**
  The smart system has dual purpose of improving overall solar power system.
  
  **Reg No.** 201721042401

- **A Novel Blue Color Emitting Phosphor for application in agriculture.**
  This product has very important role in improving the yield and quality.
  
  **Reg No.** 201821003809
Ongoing Research Projects

The real research is when one doesn’t know what he/she is doing

- **Government Funded Projects**
  - Synthesis and Characterization of Lanthanide for efficiency enhancement of Solar Cells
    - *Indo Taiwan* joint Project in collaboration with IIT Delhi funded by **DST**
    - Investigator – Dr. Sudeshna Ray
  - Development of corrosion resistive Technique in electronic devices
    - **DST** funded Project
    - Investigator – Dr. Jyotsna Mishra
  - Research Project KA-1 for 2017-2020 with PM University Romania
    - Project funded by Government of **Romania**
    - Investigator – Dr. Shalini Yadav
  - Investigator on AB03 and A2 x 3 compounds for extreme condition
    - Project funded by **Spanish Government**
    - Investigator – Dr. Sudeshna Ray

- **CRG Funded Projects**
  - Design & Development of Ecofriendly Pervious Concrete Blocks
    - Investigator – Dr. Shalini Yadav
  - Research Project on Parvati River Pollution Check and Remedial Measures
    - Investigator – Mr. SK Sharma
  - Estimation of Pesticide in Fruits & Vegetables in Chhattisgarh Area
    - Investigator – Dr. Manish Upadhayay
  - Development of a smart Lab and smart innovative system for class room with IoT and application of IoT in agriculture
    - Investigator – Dr. Preeti Maheshwary
  - Development of an Innovative Solar system for Rural Application
    - Investigator – Mr. Anurag S.D.Rai & Ms. Rita Pawar
  - Master Slave Dual Axis Tracking System Proto type on one set of existing solar panel at RNTU
    - Investigator – Mr. Shrikant Vaishnav
  - Study on Financial Literacy in Youth and develop system to improve participation
    - Investigator – Dr. Sangeeta Jauhari
  - Development of a working model for vertical axis sail type wind mill for water pump in stand along mode for rural application.
    - Investigator – Dr. SR Awasthi
## Projects in the Pipeline

*Waiting is part of the process for good things to happen*

### Projects Awaiting Approval from External Agencies

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Title</th>
<th>Investigators</th>
<th>Funding Agency</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Solar Chimney Power Plant with vertical axis wind turbine</td>
<td>Dr. SR Nigam (AU)</td>
<td>DST</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Waste Management and its Utilization for Development of Composite materials.</td>
<td>Dr. Shalini Yadav (AU) Dr. Peer Ole Mallow (AU) Vienna, Austria</td>
<td>DST (Indo Austria)</td>
<td>Indo Austria Project</td>
</tr>
<tr>
<td>3.</td>
<td>Water resources planning and water quality management for Shipra Sub-Basin of Ganga Basin in India and Aley Sub- Basin of Ob-Irtysh Basin in Russia</td>
<td>Er. Ravi Galkate NIH Bhopal Dr. Shalini Yadav (AU) Dr. Irina Rybkina (Russia)</td>
<td>DST (Indo Russian)</td>
<td>Indo Russian Project</td>
</tr>
<tr>
<td>4.</td>
<td>Solar thermal pumping system with dual axis Tracking System</td>
<td>Dr. SR Awasthi (AU)</td>
<td>DST</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Waste water Treatment with integrated UASB-MFC and UASB-RH based adsorption systems and Energy Recovery</td>
<td>Dr. S. Suresh, MANIT Bhopal Dr. Shalini Yadav (AU) Dr. Tiezhen Ren, China Prof. JA (Kobus) Du Plessis South Africa</td>
<td>DST</td>
<td>BRICS Project</td>
</tr>
<tr>
<td>6.</td>
<td>Waste water Treatment and Sludge Utilization for Energy Recovery</td>
<td>Dr. Shalini Yadav (AU)</td>
<td>DST (Indo-EU Project)</td>
<td>Indo-European Project</td>
</tr>
<tr>
<td>7.</td>
<td>Development of Water Resources management plan in India and Iran with special reference to Water Quality</td>
<td>Dr. Shalini Yadav (AU) Professor from Iran and Tehran)</td>
<td>DST (Indo – Iran Project)</td>
<td>Indo Iranian Project</td>
</tr>
<tr>
<td>8.</td>
<td>Generation of Green Energy for rural application using thermal power of solar energy</td>
<td>Dr. SR Nigam (AU)</td>
<td>MNRE</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Development of Master Slave Dual Axis Tracking System for arrays of solar PV module</td>
<td>Dr. SR Awasthi (AU)</td>
<td>MNRE</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>Fabrication of Ultra high efficacy phosphor converted Blue &amp; Red LED for agriculture use</td>
<td>Dr. Sudeshna Ray (AU)</td>
<td>MPCST</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>IoT based environmental monitoring and alert system for smart city application</td>
<td>Dr. Preeti Maheshwary (AU)</td>
<td>MPCST</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>Development of Pyrophoric metal ceramic composite material for smart flare as IR counter measure</td>
<td>Dr. Sudeshna Ray (AU) Ms Prachi Tadge (AU)</td>
<td>BARC</td>
<td></td>
</tr>
<tr>
<td>13.</td>
<td>Study of emission associated with seismic activity in and around Narmada –San Lineament</td>
<td>Dr. Suryanshu Choudhary (AU)</td>
<td>MES</td>
<td></td>
</tr>
</tbody>
</table>
Research publications produced in a university by its faculty and scholars provide true image of the available research talent and the kind of motivation and resources that the university offers. In a short period the amount of research publication done by the RNTU speaks volumes about the research environment.

In-House Research Journals Published by RNTU
RNTU thought of launching its own journal. Anusandhan a six monthly journal on Engineering Science and Technology came up with its inaugural issue in 2012. Shodhayan – a biannual journal on Education, Commerce, Language and Humanities came up with its first issue in 2014. Both the journals are approved by UGC and indexed by Copernicus. In 2017 they were made online with e-ISSN numbers.

- **ANUSANDHAN** – UGC Approved online and print biannual journal on Engineering, Science and Technology indexed by Copernicus (7 years uninterrupted publication)
- **SHODHAYTAN** – UGC Approved online and print biannual journal on Education, Commerce, Law and Humanities indexed by Copernicus (5 years uninterrupted publication)

In-House Books Publication
RNTU encourages its faculty members to author text books and also publish edited books. The Science Communication Center launched publication of popular science books series in Hindi under project name Anusrijan. For Anusrijan its co-opted writers are from outside also. The Chair for Arts and Culture Vanmali Srijan Peeth and Center for Arts & Culture produced collection of representative stories of writers from MP for last 100 years in a six volume research work titled Katha Madhya Pradesh. The same team is now working on 100 years of representative stories of Hindi writers from India under project Katha Desh.

- **BOOKS BY FACULTY OF RNTU** - 46
- **BOOKS UNDER PROJECT ANUSRIJAN** - 50
- **KATHAMADHYA PRADESH** - 6 Volumes
- **KATHA DESH** - Research work on going

Research Papers by the Faculty
- **RESEARCH PAPERS INTERNATIONAL AND NATIONAL JOURNALS** - About 1000
- **PAPERS IN INDEXED DATA BASE** - Above 100
- **RESEARCH PAPERS IN SCI JOURNAL/WEB SCIENCE/GOOGAL/UGC** - Above 200

Proceedings of International Conference
The University organises at least more than one Research related events in a year of International and National Level. Proceedings are published. Springer has published proceedings of International Conference held in March 2016 in 7 volumes.
Advanced Material Research Lab (AMRL)
Creating new materials that really matter
Head – Dr. Sudeshna Ray

*Lab Objectives*
Material Science is one of the signature thrust areas of research at RNTU. For the execution of research in this area Advanced Material Research Lab has been established. The Lab is well equipped with several modern instruments for the synthesis of materials. The lab also explores new chemical frontiers in the life sciences, physical sciences, materials, environmental sciences and agricultural sciences through visionary research, innovation and collaboration.

*The Current Research Interests*
Design, solution synthesis, characterization and luminescence study of New Inorganic Phosphor Materials for the application in the following devices:
- Fabrication of Phosphor Converted White Light Emitting Diode using the phosphors.
- Design of 'Up conversion' and 'Quantum Cutters' as Spectral Converters in Solar Cell.
- Exploration of persistent phosphors for the glow in the dark road.
- Defense application for National Security.

*Ongoing Projects*
- Synthesis, Characterization of Lanthanide-based Phosphors as Spectral Converters in Solar Cells in collaboration with IIT Delhi and NCTU Taiwan.
  Investigator Dr. Sudeshna Ray
- Investigations on ABO3 and A2X3 compounds under extreme conditions of pressure and temperature (HIGHPRESMAT) in collaboration with the Spanish Govt.
  Investigator Dr. Sudeshna Ray
- Design and Synthesis of Persistent Phosphors for the fabrication of One Way Luminescence Cold Tracer in collaboration with DRDO.
  Investigators Dr. Sudeshna Ray, Dr. Prachi Tadge

*Publications by AMRL*
- 16 Research papers in International Journals with Impact Factor of over 2

*International Collaborations*
- National Chiao Tung University, (NCTU) Taiwan Prof. Teng Ming Chen
- Universitat Politècnica de València (UPV) Spain Prof. Francisco Javier Manjon Herrera
- Universidad de La Laguna (ULL) Spain Prof. Victor Lavin Della Ventura

*National Collaborations*
- IIT Delhi Prof. Sameer Sapra
- IISc Bangalore Prof. Abhishek Kumar Singh
- BARC, Mumbai Dr. D. K. Koul
- BHU Prof. S. B. Rai
- RTM Nagpur Univ. Prof. Sanjay Dhoble
- Sri Venkateswara University, Tirupati Prof. C. K. Jayasankar
破晓新闻

NEETI AYOG Awards

ATAL INCUBATION CENTER
to RNTU

only 2 universities selected from MP

破晓新闻

RNTU

the only University in MP
selected for
GREEN CAMPUS grant
by MNRE

AISECT varsity makes a mark

AISECT organises national seminar on sustainable growth

AISECT varsity makes a mark

Media

Sharma, Dr. Shalini, Vaishnav, Dr. Deepti, Prof Verma, Dr. Jauhari, Anurag, Reeta, Dr. Awasthi,

Investigators of CRG Funded Projects
Breaking News

MHRD awards UNNAT BHARAT Project to RNTU

Breaking News

Springer publishes 7 Volumes Proceedings of International Conference held at RNTU

Dr. Pragya, Prof.Khan, Dr. Pathak, Dr. Choudhary, Prof Verma, Prof. Vats, Dr. Sudeshna, Dr. Anil, Ravitesh, Prof. Telang, Dr. Prachi

The Foundation Taking care of Navaratna Centers of Excellence
Center For Renewable Energy (CRE)
Supporting the vision of next generation by Energy Reforms
Director – Dr. Anil Kurchania

● Objectives
  - To facilitate research projects, innovative work and experiments in the field of energy
  - To develop facility for Skill development in solar photovoltaic and other RE systems
  - To create awareness on Energy conservation
  - To endeavor for Green campus

● Highlights 2018
  - Ongoing Research on use of reflecting nano materials to enhance efficiency of Solar Cells
  - Ongoing Research on Solar Tracking, Sail Type Wind Mill
  - Established two RE Labs for Suryamitra solar PV installation
  - Imparted Skill Trainings – 11 Batches
  - Capability on all types of RE and registered with Skill Council of Green Jobs, (MNRE)
  - The only campus in MP selected by MNRE as the Green Campus with financial grant
  - Innovative product development: Strong collaboration abroad and India

● Major Resources & facilities
  - Solar Photovoltaic Training & Research System
  - Solar Thermal Training & Research Unit
  - Various kind of modules and system for investigation examination and research on solar system
  - All resources for training on various systems of RE

● Publications by CRE
  - International Journals : 15
  - National Journals : 21
  - Books/Book-Chapters : 08
  - Technical Bulletins/Reports : 14
  - Popular Articles : 05
  - International/National Conference Proceedings : 08
Center for Earth & Space Science (CESS)

*Working on today’s Science for tomorrow’s technology*

*Head – Dr. Suryanshu Choudhary*

**Objectives**

This Research Center carries out research in the field of dynamics of earth in order to provide. The research activities in this center attempts to solve the mystery of Earth & Space Sciences by generating valuable scientific reports of natural disaster and their prediction. Such early warning can certainly help in a big way in mitigation, restoration, reconstruction and other relief measure activities. CESS activity covers the entire gamut of Earth & Space Science and it also includes state disaster management preparedness activities. Centre for Earth & Space Sciences has all the resources to carryout research in the area of natural disasters which are mainly occurred in the central region of Asia. Natural disaster like Earthquake, Flood, Drought, Industrial Hazards and many more that causes great damage or loss of life come within the sphere of monitoring and warning plan of CESS. Early warning detection system through interface between academic, industry and the society.

**Ongoing Projects**

- **Study of Atmosphere Chemical Potential with reference to Nepal Earthquake occurred in April 2015**
  
The Study is being done in collaboration with the Russian Space Agency. The study is likely to improve the scientific method of examination of electromagnetic phenomenon for earth quake prediction.

- **Remote Sensing of Disaster based on Noise Measurement**
  
The center had set up on research enclosure at Kumbh Mela and the project is continuing to develop a system.

**Collaboration**

- Taras Shenchenko University, Kyiv, Ukraine
- Russian Space Agency
- Institute of Seismological Research, Gandhinagar, Gujarat

**Chair For Science**

- Dr. CV Raman Chair
- Chairman – Dr. KML Jain A renown Scientist who has authored several books and done research work

**Activities of the Chair**

The Chair promotes activities related to scientific research and organises research events. This year under banner Bhartiym organised lecture series on Vivekanand Science and Idea of new India.
Agriculture Research Complex

Research in agriculture is research for civilization

Head- Dr. Pragya Shrivastava
Coordinator- Mr. ME Khan

Agriculture Research Complex (ARC) has been established in an 8 acre farm land. The objectives of ARC will be as follows-

● Objectives
  - **Research & Field Trials**- Research work and field trials on organic farming, crop upgradation, soil improvement and suitability, food processing techniques, manures and pesticide testing, irrigation and cultivation techniques, horticulture Floriculture and dairy farming.
  - **Practical Workplace for Students to do experiments and research**- It provides facilities for practical work and hands on training for students of Agriculture discipline and facilitate their research and project work.
  - **Multi Skill Center**- Develop ARC as Multi Skill Center for Agriculture Students as well as students of other branches and farmers/youth from adopted villages. Skill will be delivered on aspects like silage making, warm compost manure, hay making, urea treatment, care and maintenance of milk animals' farm machine maintenance and irrigation, Crop cultivation, Horticulture green house technologies etc.
  - **Technology Transfer**- To develop ARC as nodal center for technology transfer to farmers, provide consultancy services and operate help and information center on all matters related to agriculture.

● Ongoing Projects
  - Nano materials to enhance agriculture yield.
  - Remote sensing of moisture and temperature of the soil using IoT.
  - Organic farming at low cost with higher yield.
  - Developing cultivation area comprising Crop Area, Floriculture Area and Medicinal Plant Area which will be spread in 3 acres including experimentation area.
  - A Poly house with facilities for experiments and research.
  - Model Fruit Garden with experimental areas spread in 2.5 acre land.
  - A dairy unit with 20 cows of different breeds.

● Roadmap
  - For dairy unit finances will be obtained from NABARD.
  - ARC will develop in to a model of pure organic farm certified by Govt of MP.
  - ARC will become self sustaining by end 2018, and generate its own fund for growth.
Center for Internet of Things & Advanced Computing (CIOTAC)
Making difficult things simple and complex things possible
Head - Dr. Priti Maheshwary

- **Lab Objectives**
  - To create innovative applications and domain capability across verticals for country’s needs such as Smart City, Smart Health, Smart Manufacturing, Smart Agriculture, etc.
  - To build industry capable talent, start-up community and entrepreneurial ecosystem for IoT.
  - To provide an ecosystem for innovation to thrive and embrace entrepreneurship.
  - To provide end-to-end solution in engineering space with multidisciplinary approach.
  - To provide environment and eco-system in support to university CIES for product creation, testing and also for validation & incubation as if needed.
  - Innovative use of cloud computing facilities

- **Ongoing Projects**
The center is first of its kind in central India which has been set up with the help of Intel, Frugal and Microsoft. We are the only University which was selected by Govt of MP to establish a Research Encloser at Simhasth-2016 to conduct experiments on Crowd Management with the help of IoT.
  - Simhast-16 - Project continues to develop IoT based crowd management system
  - Smart Agriculture - To measure temp and humidity centrally for effective irrigation
  - Smart Dustbin - Sends an alert on remote places for smart city project
  - Smart Home - Management of gazettes and security of house by IoT based system
  - Smart Attendance - Part of smart class room project
  - Smart Pole - Conserves electricity based on traffic density
  - Smart Security - Reduces security risk many fold

- **Collaborations**
  - **Intel**
    The Intel® IoT Platform is an end-to-end reference model and family of products from Intel that provides a foundation for seamlessly and securely connecting devices, delivering trusted data to the cloud, and delivering value through analytics. RNTU has entered in to collaboration for systems establishment.
  - **Frugal Labs**
    Frugal Labs is an Internet of Things (IoT) technology company. It provides business solutions, specializes in end-to-end product development and is also involved in corporate, academic as well as online IoT training. With RNTU they have established first IoT lab for research and training in MP.
  - **Microsoft**
    Under the project Eduavantage Microsoft has established advanced cloud computing facilities at CIOTAC which provides training and research development resources.
Centre for Science Communication
Making Science Simple, Interesting and Enjoyable

Director – Mr. RN Telang

At RNTU a Center for Science Communication (CSC) has been established which aims at creating scientific perspective in each person of the society without insisting for his/her scientific background. This includes all students irrespective of their discipline. The center is keen that scientific culture penetrates all departments of the RNTU and transform RNTU into a scientifically thinking entity and also propagate this culture in villages adopted by the University.

- **Objectives**
  - Generate interest and facilitate development of scientific perspective in students & faculty through various events like seminars, exhibition, displays etc.
  - Organise visits of students to important places, exhibitions, learning centers etc to provide scientific exposure.
  - Generate scientific temper in students through debates, film shows, expert lecture.
  - Publish science material in simple language.
  - Create an interactive platform for scientists to do brain storming among them and with students.

- **Highlights -2014-18**
  - Under the banner ‘Bhartiyam’ a lecture series was organised. So far 4 lectures have been delivered. The last lecture was by Dr. Jayant Sahastrabudhe, from Vigyan Bharti on “Vivekanad & Science”.
  - Organised large number of film shows stage shows, Nukked Natak.
  - Developed a library of books, DVD's, films etc currently the CSC has over 500 books and large number of films.
  - The center held several workshops and facilitated about 50 authors to write book to explain various scientific pheromones/principles/process. The center has published more than 50 books in Hindi.
  - Electroniki Aapke Liye’ a popular science magazine published regularly.
  - Compilation of Science fiction stories titled “Super Nova Ka Rahasya” & experts’ lectures on various occasion by renowned science communicators like Shri Devendra Mewadi, Dr. Arwind Mishra, Dr. Irfan Human, Shri Manish Mohan Gore, Dr. Zakir Ali Rajneesh, Dr. Arshiya Ali, Venkatesh Shukla etc.

- **Collaborations**
  - Vigyan Bharti
  - Regional Science Center
  - Sanchi Vishwavidyalay
  - Manav Sangrahaly

- **Road Map**
  During the current year, Centre for Science Communication, has planned to conduct various programmes focusing on works & Scientific journey of great Indian Scientists i.e. Prafull Chandra Ray, Visvasvaraya, S. Chandrashekar, Homi J. Bhabha, A.P.J. Abdul Kalam, Saalim Ali, Birbal Sahni, C.V. Raman, J.C. Bose, Srinivas Ramanujan, Satyendra Nath Bose, Raja Ramanna, Hargovind Khurana. A special programme on the Journey of Man (Manushya Mahabali kaise Banaa ?) Exhibition, Lecture & excursion to Bhimbetka, have also been planned.
  Apart from these activities Centre for Science Communication, will make all out efforts on the various art & culture platforms to popularize the Science (Viz contributing articles in various Magazines & newspapers, Discussion in electronic Media like AIR, DD, FM channels etc.)
  - We plan to institute Science Communication Awards every year in various categories.
Center for Incubation for Entrepreneurship Startup (CIES)
Transforming innovators to job providers for building New India

CEO- Mr. Nitin Vats
Incubation Cell- Mr. Anurag SD Rai, industry Academia Cell- Dr. SR Awasthi, Entrepreneurship Cell- Preeti Shrivastava & Ravitesh Mishra

- **Objectives**
  - Identify potential entrepreneurs in initial stages of their academic career and groom them.
  - Provide Incubation, Entrepreneurship development and Start up support under one roof.
  - Support innovative ideas with administrative, legal, financial and mentoring guidance, training & support.
  - Hand holding to establish during teething stages of start up.
  - Impart plug and play facility, co-working space and other basic amenities.

- **Major Sectors of Entrepreneurship Development Support**
  - ICT
  - Energy
  - Education
  - Environmental Sustainability
  - IOT
  - Agriculture

If potential candidate has strong innovative idea in any other sector also, CIES will provide full.

- **Regular Major Events**
  - Annual state & national level Dream Start up Challenge regularly from 2015 to 2017.
  - Felicitation at annual start up competition in Service, Manufacturing and Agriculture.

- **Working RNTU Incubates of CIES**

- **Collaborations**
  - Micro, Small & Medium Enterprises, GoI
  - PM Yuva Yojna
  - Wadhwani Foundation
  - Swan Finance Partners
  - Bhopal Management Association
  - Head Start
  - IPET
  - My Skill

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*Training Session  Mentor in Action  Presentation by Aspirant  Deliberation*
Tagore International Research Centre
For Arts & Culture (TICAC)

Discovering something extraordinary about ordinary
Head- Mr. Vinay Upadhyay & Dr. Sangeeta Pathak

It is the interdisciplinary study and research center for Arts, Literature and Culture. The Center is actively involved in organising & conducting research activities, workshops, conferences, literacy discourses, film and audio developments. The center also undertakes publication and digitalization.

● Activities Highlights
  ● "Katha Madhya Pradesh". This is a massive research work of ICAC, to select compile, edit with critical reviews and publish entire work of story writers of Madhya Pradesh for last 100 years in six volumes. It has been acclaimed at international level..
  ● Release of Books. The center has extended help in publication of several books on literature and arts. Last two such books are- 'Jal Tarang' by Shri Santosh Choubey and 'Satyakatha Kahi Nahi Jati' by Shri Mukesh Verma.
  ● Katha Desh. Currently TICAC is working on literature of 100 year by Hindi writers at national level for 100 years. The project is likely to be completed by 2019.
  ● Seminar and Conference on Literature. Large number of conferences and interactive sessions have been organised in which renound literary figures came on different occasions. This includes big names like, Rahat Indori, Ashok Bajpayee, Rajesh Puri, Mukesh Verma, Pradeep Choubey, Malti Joshi, Dhanajay Verma, Chitra Mugdal, Mamta Kaliya, Ashok Mishra, Pankaj Mishra, Rohini Agrawal, Suarabh Mishra, Jayprakash, Ramesh Chand Shah, Dr. Gyan Chaturvedi, Mehrunnisa Parvez etc.
  ● Workshop and Training the Center held several workshops on theater, drama and other forms of performing art, which inculcates a positive feeling in students and provide opportunity to hon. their talent.
  ● Stage Shows TICAC organised many stage shows with the help of professional groups and university students based on our rich literacy treasure, folk music, historical events etc and promote culture of exploration and research. TICAC has Collaboration with Romania Theater Group.

● Chair for Promotion of Literature, Culture & Arts
  ● Vanmali Srijan Peeth
  ● Chairman Mr. Mukesh Verma a renownd literary figure of India
  ● The Chair is engaged in organising several programmes, award ceremonies, hold seminars, conferences, Work shops etc. It has published large number of books and organized literary events.