

3.3.1 Institution has created an eco-system for innovations including Incubation Centre and other initiatives for creation and transfer of knowledge

DEI has created an ecosystem for Research and Innovation by

- (i) recruiting and developing desirable human resource,
- (ii) taking initiative for creation and dissemination of knowledge and
- (iii) establishing state of the art infrastructure:

1. Human Resource Development

At the entry level, DEI recruits meritorious, dynamic and enterprising young faculty through an elaborate selection process that involves careful scrutiny of applications, testing of knowledge and teaching skills through seminars and selection interviews.

The annual performance appraisal system encourages faculty to enhance their teaching, research and administrative skills, as well as social services to the desired level of promotion. Faculty members are encouraged to undergo professional development programmes and organize and participate in Conferences, Seminars and Workshops. Leave is granted and financial support is provided to participate in India and abroad. Teaching and non-teaching staff are encouraged to enhance their qualifications and pursue part-time PhD programs.

The institute has a well-defined and published research promotion policy. Faculty members are encouraged and financially supported to guide research. A good number of students have registered for M Phil and Ph D programs and the numbers are increasing every year. Research Fair is organized in the campus where all research scholars across the institute demonstrate their research work.

The Institute has identified Nine Broad Research Divisions with several sub-divisions. The main objectives of these research divisions are to contribute to the society through their research. The research may not lead to publications but the research output will definitely help the society. DEI is engaged in research for solutions. Some of the products developed after rigorous research used for the community are listed below:

- ⇒ Use of RFID techniques for Dairy Cattle
- ⇒ Use of IoT devices for Vehicle Tracking
- ⇒ Production of several dairy products
- ⇒ Food Processing
- ⇒ State of the Art Waste Management Techniques
- ⇒ Development of Bio-Diversity Parks
- ⇒ Innovation in Teaching using Tablets
- ⇒ Apparel Manufacturing
- ⇒ Deployment of Radio Network in Remote Villages

Young faculty across the institute are encouraged to do research in multi-disciplinary and inter disciplinary areas. Young Faculty members are financially supported upto Rs. 30 Lacs by the Institute for their research. Research scholars, the UG and PG students are being funded for their research/projects, Paper publication and travel grants for national and international travels.

2. Excellent research infrastructure

Research infrastructure has been created, both through extramural sources that include, MHRD, UGC, DST, AICTE and DBT, and also through intramural funding. Seed funding is provided to pursue specific research programs. Central facilities and advanced Research Centres and Laboratories have been established that are accessible to all. It is ensured that they are optimally utilized.

The Institute has developed several research labs in the respective area of research. These include:

- ⇒ Quantum Nano Center,
- ⇒ i-c-n-c TALL,
- ⇒ 5-G Lab,
- ⇒ Lab for the development of Autonomous Vehicle,
- ⇒ Renewable Energy,
- ⇒ Precision Agriculture Lab,
- ⇒ Dairy Technology Labs,
- ⇒ FSSAI certified Food & Dairy testing Lab
- ⇒ Waste Management,
- ⇒ Dairy Technology,
- ⇒ Consciousness Studies,
- ⇒ Hi-tech Multi-climatic Greenhouses etc.

3. Visits by Internationally known experts

DEI invites renowned experts from various domains from India and abroad to facilitate networking and establish collaborations for undertaking multi-disciplinary and inter-disciplinary research. Regular annual events are organized such as, the International School on Quantum & Nano Computing System and Applications (QANSAS) and the one-day Integrated East-West Forum on Perspectives on Consciousness, as part of the prestigious International Conference on Science of Consciousness, organized by the University of Arizona, USA.

Emeritus and adjunct professors from academia and industry have been appointed. External co-supervisors are appointed from universities with MoU with DEI for PhD students.

DEI has signed MoUs with prestigious academic institutions and research organizations such as, University of Maryland, College Park, USA, Michigan State University, USA, University of Waterloo, Canada, TIFR, IIT Delhi and ICGEB, New Delhi.

4. Entrepreneurship and Virtual Incubation Centre

This centre has been established to facilitate innovative, flexible and economical solutions to problems. A Jugaad Innovation Centre has also been established to display and sale of products made by students to earn while they learn on campus.

5. Industry-Institute Partnership Cell

This Cell facilitates interaction with industries and corporate establishments for the following activities:

- *A large number of job-oriented courses are offered in cooperation with AADEIs for students and unemployed graduates.*
- *Management Development Programs are organized for industry professionals.*
- *A liaison between the Institute and industry is established for consultancy.*
- *Summer training of students to familiarize them to practical industrial problems.*

6. Some ongoing research

The university uses a system's thinking approach for research. The multi-disciplinary and inter-disciplinary focus on research makes this institute unique. Some of the unique areas identified by the institute and work ongoing include:

- Analysis of children behavior through scientific methods for children's in the age group of 3 month to 3 years.
- Aptitude analysis
- Inculcation of value system through innovative approach
- Field Activity
- Lateral Entry to various programs, which are non-existent in other universities
- Nano Enterprises to overcome the problems faced in other government scheme for rural people upliftment
- Creation of Special Help Groups for No Means population
- Deployment of low cost renewable energy technologies for rural areas
- Research on ways and means for women empowerment.
- Use of Bamboo & Green Technology for providing low cost and environment friendly housing. Water cooler shed, Creche and Bamboo fabricated class rooms are classic examples.
- Use of River Bank Filtrations approach for providing drinking water
- Walking & Social Service Camps to reach at the door step of needy is a classical research example
- School Adoption & Village adoption for betterment
- Quantum Jugaad
- Research on Theology
- Innovative methods for use of ICT technologies
- Research on various construction material by developing working models

Some other initiatives include:

1. Entrepreneurship courses.
2. Visits to industries.
3. Organization of Technofest (*Sampravah*) to foster creativity and innovation alongwith other creative art contests.
4. Project work for all students.
5. Annual exhibits of Models and Innovative ideas of students on Founder's Day.
6. Skill training to augment potential for start-ups through Kaushal Kendra and B.Voc./M.Voc. Programmes.

Links

Entrepreneurship Virtual Incubation Cell

- <https://www.dei.ac.in/dei/incubationcell>

Quantum and Nano Computing Virtual Center

- <https://www.dei.ac.in/dei/quantumNano/>

Center for Consciousness Studies

- https://www.dei.ac.in/dei/index.php?option=com_content&view=article&id=215&catid=46

DEI Quantum Jugaad

- <https://www.dei.ac.in/dei/arts/index.php/programmes-2/qa>

3D Printing Laboratory

- <https://www.dei.ac.in/dei/additiveManufacturing/3Dlab.html>

Details of 3D Printers

- <https://www.dei.ac.in/dei/files/NAAC%20Self%20Qualitative%20Assessment/Details%20of%203D%20Printers%203.3.1.pdf>

Adjunct & Visiting Professors List is given in the Department profiles:

- https://www.dei.ac.in/dei/index.php?option=com_content&view=article&id=38&Itemid=288

Certificates & Awards Won

- <https://www.dei.ac.in/dei/files/NAAC/DVV/3.3.3%20awards%20for%20all%20Consolidates%20award%20proofs.pdf>

Awards at Competitions

- <https://www.dei.ac.in/dei/files/NAAC/DVV/5.3.1%20Cultural%20Awards.pdf>

Student Participation

- <https://www.dei.ac.in/dei/files/deinews/dei%20news%20april%202016%20volume%2010.pdf>
- https://www.dei.ac.in/dei/index.php?option=com_content&view=article&id=47&Itemid=297

Atal Tinkering Laboratories

- <https://www.dei.ac.in/dei/files/NAAC%20Self%20Qualitative%20Assessment/Atal%20Tinkering%20Lab%203.3.1/Atal%20Tinkering%20Lab%20PV%203.3.1.pdf>
- [https://www.dei.ac.in/dei/files/NAAC%20Self%20Qualitative%20Assessment/Atal%20Tinkering%20Lab%203.3.1/ATL-17-18-027%20\(1\).pdf](https://www.dei.ac.in/dei/files/NAAC%20Self%20Qualitative%20Assessment/Atal%20Tinkering%20Lab%203.3.1/ATL-17-18-027%20(1).pdf)
- <https://www.dei.ac.in/dei/files/NAAC%20Self%20Qualitative%20Assessment/Atal%20Tinkering%20Lab%203.3.1/Gmail%20-%20Uttar%20Pradesh%2001%20-%20ATL%20Selectio...chool%20for%20getting%20AIM-NITI%20Aayog%20Grant.pdf>

Patents

- <https://www.dei.ac.in/dei/files/NAAC%20Self%20Qualitative%20Assessment/Patents%20Granted%203.3.1/ECAP-DEI-PATENT.pdf>

- <https://www.dei.ac.in/dei/files/NAAC%20Self%20Qualitative%20Assessment/Patents%20Granted%203.3.1/ECAP-Patent-Letter.pdf>
- <https://www.dei.ac.in/dei/files/NAAC%20Self%20Qualitative%20Assessment/Patents%20Granted%203.3.1/IP15194%20LPD-KS%20Daya-2019.pdf>
- <https://www.dei.ac.in/dei/files/NAAC%20Self%20Qualitative%20Assessment/Patents%20Granted%203.3.1/Patents%20Granted%204.pdf>
- <https://www.dei.ac.in/dei/files/NAAC%20Self%20Qualitative%20Assessment/Patents%20Granted%203.3.1/Patents%20Granted%203.jpg>
- <https://www.dei.ac.in/dei/files/NAAC%20Self%20Qualitative%20Assessment/Patents%20Granted%203.3.1/Rajiv%20Ranjan%20Patent-2019.jpg>

Annual Reports

- <https://www.dei.ac.in/dei/files/NAAC%20Self%20Qualitative%20Assessment/Annual%20Reports/Annual%20Report%202012-2013.pdf>
- <https://www.dei.ac.in/dei/files/NAAC%20Self%20Qualitative%20Assessment/Annual%20Reports/Annual%20Report%202013-2014.pdf>
- <https://www.dei.ac.in/dei/files/NAAC%20Self%20Qualitative%20Assessment/Annual%20Reports/Annual%20Report%202014%20-2015.pdf>
- <https://www.dei.ac.in/dei/files/NAAC%20Self%20Qualitative%20Assessment/Annual%20Reports/Annual%20Report%202016-2017.pdf>
- <https://www.dei.ac.in/dei/files/NAAC%20Self%20Qualitative%20Assessment/Annual%20Reports/Final%20Annual%20report%202017-2018.pdf>