

Education Deconstructed @ANDC



Moving from school to higher education is not a mere upgrade for the students but a giant leap for many. There is a paradigm shift from curriculum-based pedagogy followed in schools to a more challenging one in the undergraduate colleges. This, more often than not leaves the students overwhelmed, especially those with an experience of poor teaching and inadequate facilities. Besides, the social and psychological consequences for many students of having to be on their own in a new city, with a different language and culture, and economic moorings coupled with lack of confidence could be further exasperating.

Right from its inception in 1991, students at Acharya Narendra Dev College (ANDC) have been performing handsomely in academics; thanks to a meticulous organization of teaching-learning undertaken by the faculty and the leadership in the initial years. Later, the paradigm shift required in the teaching-learning process was spearheaded by the vision of Professor Savithri Singh who assumed academic and administrative leadership as the Principal of the College in 2005. The College proactively embraced a slew of new initiatives for all-round development of the young learners. As the leader of the institution, she has been focusing on ensuring successful learning experiences

for every student on the campus. It became imperative that learning extended 'Beyond the Classroom' and encompassed diverse life skills.

Today, ANDC not only stands tall amongst the colleges of the University but also among institutions of higher learning in the country. This is evidenced by a number of recognitions it has achieved in the last few years – the NAAC "A" accreditation with a handsome score of 3.31, a superlative NIRF rank, first position for 'Best Practices' in the University, the [OPAL award at Berlin, Germany](#), and continuous ranking amongst the top 25 science colleges in the country. While tangibles are obvious, innumerable intangibles in the form of improvement in confidence levels, decision-making capacity, communication skills, developing sensitivity to differences, tolerance, leadership capacity etc. lead to the success of our students, faculty and the alumni at various forums.

Key to the changes at ANDC have been enabling an ecosystem where several pioneering experiments with education have been attempted over a period of time. These aimed to enrich the teaching-learning paradigm, while retaining academics at its core. Several of these initiatives spearheaded by the Principal, have hitherto been unheard of in public – funded institutions of India. We at ANDC, feel that these novel experiments and initiatives with education need to be shared widely to enrich policy-discussions on education as well as serve as exemplar for UG science education.

In 2011, the college was recognised internationally at Berlin, through 'the OPAL Awards of the The Open Educational Quality Initiative, a consortium including UNESCO, ICDE, EFQUEL and several European Universities working to promote open educational practices in higher and adult education. The OPAL Awards recognize excellence in OER policy, promotion and use, which have resulted in the improvement of quality and innovation in educational organizations.

"Acharya Narendra Dev College (ANDC), University of Delhi, India was awarded highly commended status in the Award for Institutions. This Award recognizes institutions with a policy of encouraging open educational practices through the provision of resources and support for the development of OER, participation in research and development, and a clear strategy for motivating its staff."

"The jury praised the strong motivation at ANDC to change traditional patterns of teaching, and a robust process for encouraging the creation of OER based on a self-funding model. The jury gave special mention to the College's work with the University of Mumbai to spread use and reuse externally, and its work to overcome faculty resistance to change."



We also feel that this is an appropriate time for such sharing, especially when this decade of experimentation in teaching-learning process may culminate with the superannuation of Professor Savithri Singh. It is important because this legacy and momentum needs to be taken forward for the benefit of students and faculty in ANDC in particular, and the cause of education in general.

Enabling Ecosystem

Standards can improve and overall development can only occur in a conducive environment. Mutual trust, diligence, sharing and delegation of responsibilities became the hallmark of functioning at ANDC. Total cooperation from the administration and accounts ensured that things moved without any major hurdles. It encouraged innovation in problem solving, thereby excellence became a norm. The aim was always to be receptive and create a positive and happy milieu.

Housed in a school building and facing severe space crunch, our determination to tackle challenges necessitated creative utilization of space. Our prioritization of best teaching-learning environment, prevented us from adding any new course in the last fifteen years. Providing class laboratory facilities to students and fifteen excellent research laboratories for faculty took precedence! After getting the University to



register Ph.D. students with faculty in colleges even in the experimental sciences, 17 Ph.D. students are currently enrolled with faculty here. Recognizing that good science needs financial and other support, we created अनुसंधान कोष for providing financial support for student travel to conferences, maintenance of laboratories, fellowships to students who run out of grants, and other sundry research-linked expenses. Of course, this is over and above research grants from funding agencies.

The increase in student strength from less than a 1000 in 2005 to over 1800 could have been easily justified in a new building, but we were required to make adjustments through creative addition of infrastructure in the old location itself. Four porta cabins at one place, two at another, three bamboo structures that make-do for canteen, SPS structures of various kinds were added over time to allow departments to expand. All the Departments have, over time, more than doubled their laboratory space and infrastructure and augmented their equipments and staff rooms.

The College library was relocated into the main building, capacity for books and seating enhanced and facilities upped to automated issue and return of books through RFID. The



library also houses a 76-computer Web Centre having the latest configuration. Needless to say that all classrooms and laboratories have LCD projectors and the college is secured through CCTV. What we are proud of is that we have 900 laptops available all the time for exclusive issuance to the students, while faculty members have been provided Tablets with corporate mobile connectivity. The campus is Wi-Fi-enabled (100 MBPS with 1:1 connectivity) with backup connectivity to boot! This enabled seamless implementation of the ERP system through the campus leading to fully automated academic and administrative life-cycles of the students and staff.

Increased research meant increased power supply – from 38 KVA back in 2005, gradually to the present 200 KVA (through a 400 KVA HT electric substation in college) – a major achievement. The power backup through two silent 125 KVA DG sets has made us self-reliant. We need to improve the internal electric distribution. To safeguard the sophisticated instruments in our laboratories, UPS back-up facility has been provided along with air-conditioning in all essential areas.

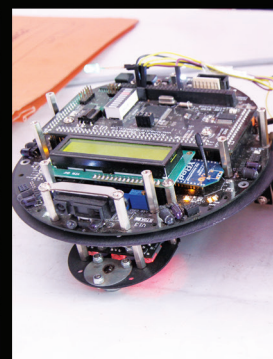
Some ten years back, during the annual process of the Principal meeting students who were short of attendance, it was found that many of the students were falling short due to jaundice/hepatitis and other water-borne diseases. Almost simultaneously, it was observed that there were increased medical bills of staff members for treatment of stomach and

related ailments. Immediate steps were taken to install four industrial RO systems having a capacity of 100 ltr/hour. Of course, we collect the drained water in a tank and reuse it for gardening and other purposes. The college also encouraged students living in rented and PG accommodations nearby to carry back safe water in the evening. This continues to this day — after 6.00 p.m. one often sees students come in with empty bottles to carry clean potable water back!

It was in November 2017 that the Hon'ble HRD Minister, expressed the desire that like campuses across the world, India should also adopt the global trend of a Digital Campus, where various facilities like admissions, academic calendar, attendance, assessments, result declaration, administration, finance etc. be computerized. Well, ANDC has already walked this path from July 2014 onwards. Student services are available on their devices and they can use online facility for paying fee; apply for all scholarships; avail library services; track attendance and internal assessment, semester assessment; read e-notices, e-content, submit examination forms, receive SMS notices; access previous years' question papers, various society and project reports and surveys; register with the placement cell; fill options for the CBCS courses etc.etc.

Knowing the Principal Professor Savithri Singh's experience with collaborative teamwork and her commitment to 'Open Educational Resources' as well as to 'Open Software' it came as no surprise to see her working towards bringing in greater administrative and financial transparency in functioning, through delegation, decentralization and working through various committees.

The concept of 'OPEN' paradigms threads over every sphere of the college life. From adoption of only open source software in administration and teaching-learning, it extends to promotion and production of OERs (Open Educational Resources). Several workshops, seminars, conferences have been organised to create awareness about its adoption within and outside the college. The College has been suitably recognised for the same — the OPAL award at Berlin, Germany is one such recognition. The College was an Affiliate of the Creative Commons in India and at present is an institutional CC Global Network Member.





The Finance Committee (FC) with one member from each department supervises all the procurement and the budget of the college ensuring impeccable functioning – following the relevant GFR rules, carrying out e-publishing and e-procurement, and procurement through Government e-marketplace (GeM). The rate contracts with high discounts are in place for

common items/services in the college like batteries, chemicals & glassware, comprehensive AMC of UPS/inverters, computers, RO systems, printing, printer cartridges, college excursions etc. The process has led to minimal audit objections. Further, FC has facilitated smooth functioning of various schemes of the college – SAKSHAM, ELITE, EXPLORE, training guidelines for external students, financial support to teachers for attending conferences, holding of workshops etc. – by framing relevant policies/guidelines. The procurements in all research projects are also routed through the FC.

Over the years, the Governing Bodies of the College have been highly supportive of the vision of the Principal whether it is to implement the flagship schemes – SAKSHAM, ELITE, EXPLORE, ECPDT, अनुसंधान कोष of the college that are created from its own funds or in pursuing matters with the Government of NCT of Delhi. The support from the University of Delhi has been no less – be it funding for the cluster lab, the bamboo canteen, the first audio-visual system, laptops, impromptu award of funds – we have got it all!

We are thankful to the Directorate of Higher Education, GNCTD for providing funds for all the various capital works in the college, without which we would not have been able to achieve what we did. We are ready with approved plans for a new college building having the provisions of a modern educational institution in our campus that is to come up at Sector 5, Rohini. We hope to get the funds released for the construction of our new campus which will take us to a totally new level and fulfill aspirations of any and every stakeholder of the college.

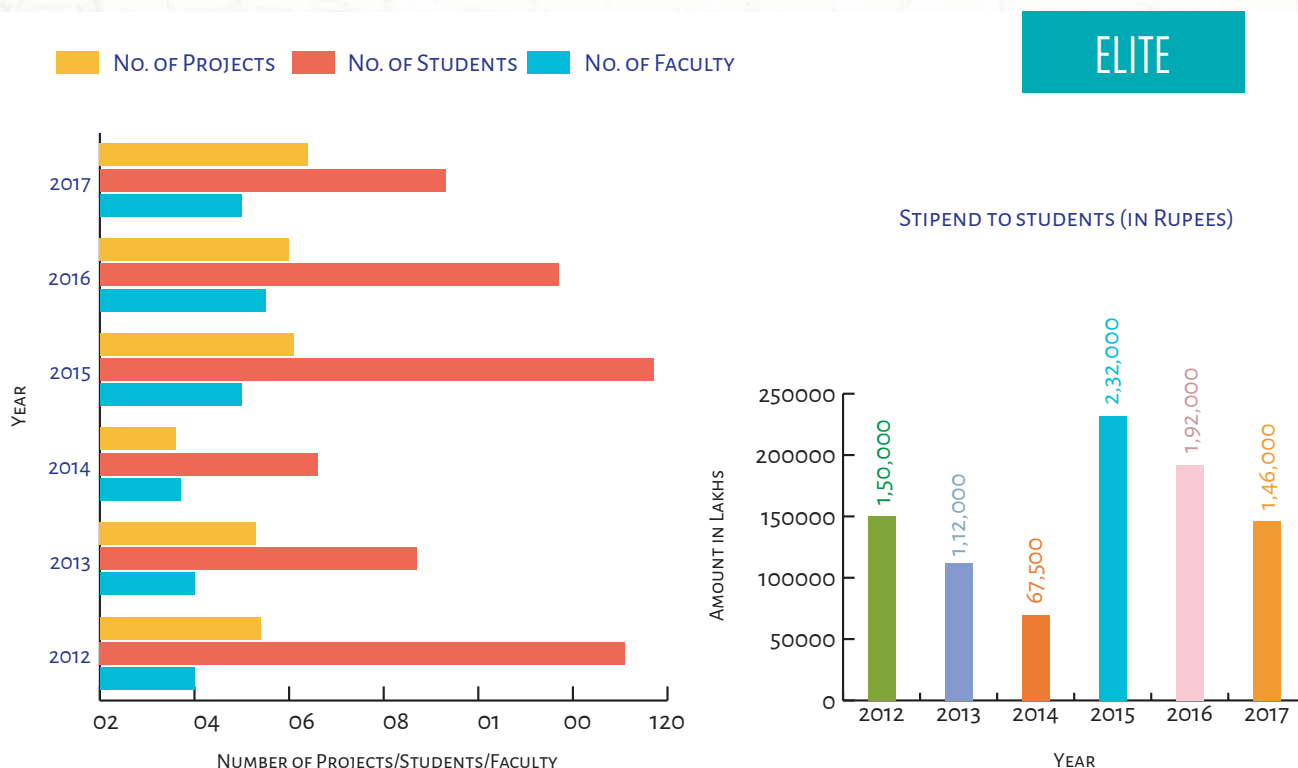
Research

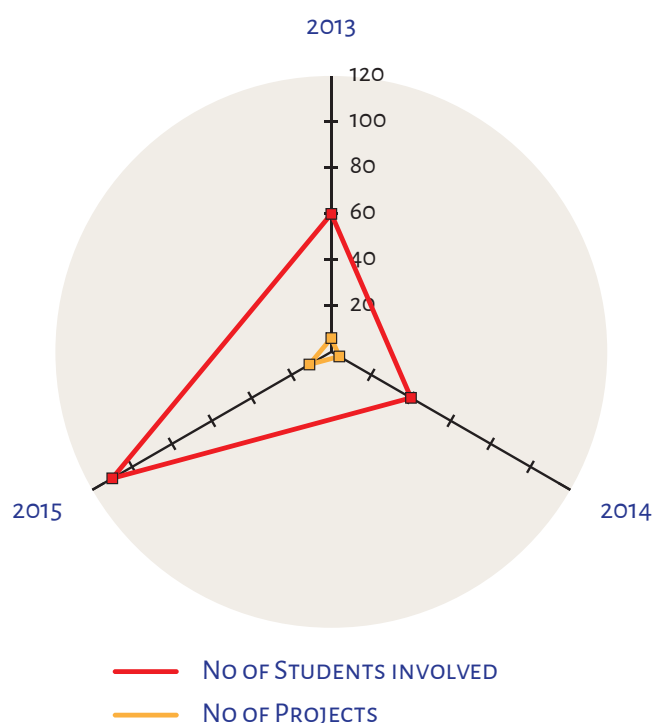
One of the attributes which separate ANDC from other institutions of higher learning is our commitment to research at the undergraduate level. The idea that UG research could do wonders came from a group of students trying to put together a 'supercomputer' from discarded CPU's back in 2008 – the Cluster project – that was supported through funds from the University. The passion with which the students worked, their excitement,

thrill on achieving any step was infectious. We decided that other students also deserved opportunities to experience the challenges of doing science. Thus, student 'research' took off in the College!

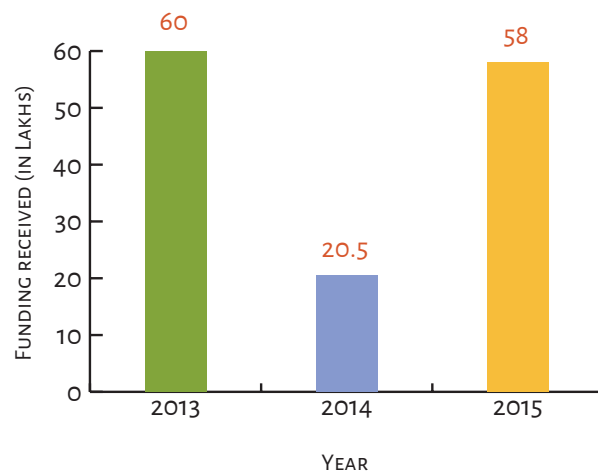
Another student-centric space in College is the [Th!nk Lab](#) (2010). This is an exclusive space for students to do experiments that they conceptualize and design without any direct contact with any College faculty. All discussion and guidance is through an all-India online group spearheaded by the HBCSE-TIFR. Basic funding and freedom to work independently is assured. Identifying and experimenting on model systems, the students do get to participate in workshops at Mumbai as well as present their work at conferences!

We believe that introducing students to hands-on research is the single most effective vehicle for developing true scientific understanding and in taking informed decisions. Thus, a lot of effort has been put in for transforming the textbook method of teaching science into dynamic pedagogical methods of learning that immerse students in scientific concepts and real-world issues by engaging them directly in research. It empowers students to consider the implications of real-world research evidence, data, and interpretations they analyze either virtually or in the field. Students are encouraged to engage intelligently in public debate about matters of scientific and technological concern. To actualize the mentioned, the college has made available various schemes, which permit students' engagement in active research. [ELITE](#) (Education in a Lively, Innovative Training Environment) is a flagship programme of the college started in 2010, which provides a fellowship of Rs. 1000 per month to students who participate in summer research projects (June-July every year) under the mentorship of one or more teachers. The scheme which targets 200 students





INNOVATION PROJECTS



per year provides first exposure to the students to diverse research possibilities and also helps them learn research methods, various laboratory skills and techniques. The scheme has evoked enthusiastic participation by both students as well as faculty and the college has been a willing facilitator. The extent of participation and the financial outlay made available are summarized in the info-graph. The students and faculty of the college have also been involved in a big way in the [DU Innovation Projects](#) (2013-2015) – an initiative by the University to promote UG research, a concept that had already been pioneered by the college. The scheme was trans-disciplinary, involving ten undergraduate students, three faculty members as mentors and one external expert in a project. The project duration was for one year and the sanctioned research grant up to Rs. 10 Lakhs per project. The info-graph given above schematically depicts the extent of participation in these projects.

The maturity of students' research was evident in the CSIR's [OSDD](#) (Open Source Drug Discovery) project, in which ANDC was a significant node. A large number of students were trained in diverse techniques and data generated was uploaded on an open book platform for collaborative data analysis. This project was aimed specifically at students and they contributed towards building a repository of recombinant proteins identified to be drug targets in *Mycobacterium tuberculosis*. They were also successful in publishing their research findings in peer-reviewed journals. Rs. 18.6 Lakhs grant was received to carry out the project objectives in this project.

Established in 2010, the student chapter of [SPIE](#) (Society for Photo-Optical Instrumentation Engineers, USA) allows one student to attend the Optics and Photonics Conference at

San Diego, USA through Officers' Travel Grant of USD 2500 each year. SPIE - ANDC which is now one of the most active chapters in the world has a generous outlay in the form of an activity grant for organizing various workshops and a special grants for Optics Outreach activity. This chapter is buzzing with activities in optics and photonics and has proved to be a unique forum for 'learning by doing' for students.

Student projects under the aegis of [IEDC](#) (Innovation and Entrepreneurship Development Centre with support from Department of Science and Technology) and the Innovation projects of the University provided space and facility to expose students to do research! Since 2017, the [DBT Star College Scheme](#) has enabled hands-on training for students as well as faculty and laboratory staff. Besides, research being a pedagogical tool for enhancing understanding of scientific concepts, students are also publishing papers in scientific journals and are participating in national and international conferences. Many have taken up research as a career, which now, happily, is an informed choice rather than one due to peer or parental pressure.

That the college is turning into a research hub is obvious – about 50 percent of the regular faculty is involved in active research. This has helped create and sustain an ecosystem at ANDC which instills confidence in one's ability to do quality research as evident by the copious extramural grant received by faculty members (about Rs. 2.6 Crore so far) and ever-increasing basket of research publications in peer-reviewed journals of repute. Many faculty members are now recognized as editors/ reviewers/ mentors in scientific bodies and awards are also being bestowed upon students and faculty for contributions to research. Participation in National and International conferences by faculty and students (to an extent) is a given.

Student Empowerment

Empowering the student entails giving them the opportunities to actively participate in and contribute to the college activities and to take mature decisions that will shape their lives, the lives of their peers and the lives of their families.





This gains further significance for first-generation learners. Empowerment essentially involves considering young students as assets, valuing their experience, and adopting a positive view of their potential rather than focusing on problems.

The process of inclusion begins right from day one, when students attend a 3-day intensive *Orientation Programme*, aptly called '[Breaking Barriers](#)'. This aims not only to introduce the College and the facilities available but also to give students the opportunity to shed any inhibitions they may have in a new milieu. Orientation sessions are conducted through six parallel workshops including Research, Theatre, Social responsibility, Sports, Entrepreneurship, Talent hunt, Data feeding and using ERP, Counselling. What's special and enjoyable about these workshops is that they are conducted by second and third year students; freshers hence get to interact with the seniors in a friendly atmosphere and they learn from them what it means to be a student at ANDC!

We are also mindful of the economic underpinnings of our students and like to ensure that no deserving student faces financial impediments. A large bouquet of student-aid is available under [SAKSHAM](#) (Student Aid for Knowledge, Success, Honour and Motivation), which attempts to ameliorate financial constraints, which students may face while pursuing their courses in the college. The origin of the idea for SAKSHAM has an interesting context. *One year, while conducting interviews to decide on student aid, the board came across a student who had lost weight drastically – on enquiry he told us it was because the University results of first year had not come. We could not fathom any guess as to how these two things were connected. But, a few minutes later we realised that delay in results meant delay in admission to the next year, which in turn meant the student could not get his bus pass made! This child had been walking to and fro from Sarita Vihar (often on an empty stomach) since he could not afford travel by any other means – not even the regular fare of the bus! We at once handed him a Metro card! It was then that we decided that Student Aid in form of fee waiver had to be further extended to include a monthly stipend and some funds for record books, photocopying etc. Thus, SAKSHAM was created!*

The cardinal principle of students' empowerment at ANDC is providing exposure to each student in a variety of activities, which may not have been available to them earlier. We believe that the exposure could stimulate a student's latent potential or passion. The college supports the annual excursion under [EXPLORE](#) (Excursion for Peer Learning in an Open and Rejuvenating Environment) and students research under ELITE in this spirit.

It is well recognised that personality development is key to success in today's world. Therefore, emphasis on personality development is a necessary ingredient in all student-centric activities viz., *Tark, Paritantra, NSS, Dhvani, Dhun, Myra, Sports, SPIE, Th!nk Lab* etc. The add-on course [ECPDT](#) (Effective Communication and Personality Development through Theatre) is a 120-hour rigorous workshop-mode programme available to students, which harnesses theatre as a medium for self-improvement. The '[Remedial Coaching Classes](#)' go beyond the UGC plan to help all categories of students to catch-up in their academic programmes. For students who love enterprise, the college has established [IEDC](#) (Innovation and Entrepreneurship Development Cell) with support from DST-Gol for Skill development and promotion of research and entrepreneurship. It transforms job-seekers to job-givers. Supplementing this objective the '[UDGAM, the Business Incubator](#)' sanctioned by MSME-Gol supports students/ex-students in nurturing their creativity and entrepreneurial ideas into innovative ventures. The Business Incubator – The [ANDC inStart Foundation](#) – funded by the Delhi Government., offers a platform for start-ups, investors and companies to liaise and establish symbiotic relationship with the budding innovators and entrepreneurs. Other students who are in search of jobs get succour due to the efforts of the [Career Counseling and Placement Cell](#) of the college.

Social Sensitization

Besides academics, inculcating social awareness and sensitivity amongst students is also a prime responsibility of any educational institution. This converts into efforts at maintaining equilibrium between various sectors of the society, economically and otherwise, besides environmental welfare.

The women empowerment cell of the college – [Sashakt](#), is engaged in empowering the girl students with awareness about their rights as an individual – more as a woman, importance of health and hygiene and personal security. Over the years this cell has become a friend and a support system for the female students and faculty. The [Gender Champions Club](#) of the college supports the cause of gender equality amongst the college community.

One key highlight among multitude of activities by the [NSS](#) unit of the college is the lifetime adoption by the College of nine thalassemic patients for their blood transfusion needs. The other is the annual '*Sahyog' deepawali mela* where various NGOs working with the differently-abled bring their products for sale and interact with students and staff of the college; this proves an excellent space for sensitization. The activities of NSS help to instill the sense of service and sensitivity to recognize and honour the diversity prevalent in society.

The [EOC](#) (Equal Opportunity Cell) in association with the [Sports Committee](#) of the college has been organizing an annual inter-college [Para-sports](#) competition since the last three years. These help educate both, the specially-abled students as well as the so-called 'normal' people. The [Cell for Students from the North East](#) offers a special platform to help students overcome their inhibitions and to help others also appreciate the socio-cultural differences.

The Eco club, '[Paritantra](#)' is working overtime to sensitize students about the need to protect and conserve the environment. One key thrust area has been reduction in paper use since 2006. Besides rain-water harvesting, solar lights in the lawns also help the conservation efforts. Keeping the campus free of single-use plastics is a major drive specially during freshers and farewell parties and during cultural festivals. Plantation drives and eco-club rallies also serve as means to educate – both in the college and in the neighbourhood! These efforts that have a focus on society also get good support from the Theatre group [Dhwani](#).

At ANDC we believe that promoting sensitivity and respect for people around oneself, for co-workers and for environment in general, amongst all stakeholders helps to create a positive and productive environment where everything and everybody thrives.

ACHARYA NARENDRA DEV COLLEGE

NAAC 'A' GRADE 3.31

BEYOND THE CLASSROOM ...

OPAL AWARD

BREAKING BARRIERS

GOOD PRACTICES AWARD

SPIE

ANDC INSTART FOUNDATION

THINK LAB

CREATIVE COMMONS

DBT STAR COLLEGE SCHEME

RFID LIBRARY

DIGITAL CAMPUS (ERP)

RESEARCH

ENTREPRENEURSHIP LAB

UDGAM BUSINESS INCUBATOR

MERITORIOUS TEACHER AWARD

निष्ठा: IN-SERVICE RECOGNITION

SILVER JUBILEE BEST STUDENT AWARD

FOREIGN LANGUAGE CENTRE

NSDC SKILL COURSES

IEDC

OER

PM YUVA

FOSS

ANDY

ECPDT

NSS

DHWANI

PARITANTRA

TARK

PARA-SPORTS

INNOV8

SASHAKT

IQAC

अनुसंधान कोष

ELITE

SAKSHAM

ECPDT

EXPLORE

PREPARING FOR THE FUTURE ...