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**INDIAN
INSTITUTE OF
TECHNOLOGY**
BANARAS HINDU UNIVERSITY



**IIT
BHU
connect**

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Editor's Desk

It is with great pleasure that we present to you the third edition of IIT BHU Connect. In our attempt to make it a more enjoyable read, we have been consistently including articles which do not merely state facts, but seek to understand and analyse the vision and the perspectives behind the activities. With that in mind, we have herein curated stories capturing the journey and struggles, as in the case of the home-grown start-up Aquvio, or the acclaimed fuel-efficient car Averera made by a student team. In a new introductory column honouring the stalwarts of this institute, we pay homage to Prof.

Gopal Tripathy, whose contributions to this Institute will always remain invaluable. Outgoing Dean of Academic Affairs Prof. GVS Satry candidly speaks about his tenure and shares valuable insights for the next generation. A special feature focuses on his contributions to the development of Electron Microscopy for which he received a Lifetime Achievement award this year. On the students' side, we have highlighted the appreciable social work being done by Kashi Utkarsh, and the promising future in sight owing to the setting up of a Social Service Council under the Gymkhana. The cover

article this time talks about the Induction Programme for freshers, which has found its way beyond the boundaries of our Institute, and is now on its way to be implemented in most engineering colleges across the country.

As always, we are grateful to the student and faculty fraternities, and to the Deans and their Offices for their inputs and cooperation. Feedback and suggestions are most welcome. The team may be reached at editor.newsletter@iitbhu.ac.in and studenteditor.newsletter@iitbhu.ac.in

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A FRESH START: THE INDUCTION PROGRAMME FOR FRESHERS

Prof. Rajeev Sangal, Director, IIT (BHU) Varanasi, discusses the Induction Programme for the entrants and its reach and future

On the Impact that the Induction Programme has had in the country:

The Induction Programme was started last year, in July 2016. Along with IIT BHU, two other IITs also introduced this programme, IIT Mandi and IIT Patna. IIT BHU is the homeland of this programme, so we helped them in conducting it. We provided them with materials, notes and other resources. The broad idea is to make new entrants comfortable in the college environment. They study hard to make it to the IITs, so it was also a way to bring them out and make them aware about college. The feedback we got about the last year's programme was particularly positive. Not only in IIT BHU, but even in Mandi and Patna, the responses of the students and the faculty were similarly good.

In a meeting of the IIT Council, which is the governing body responsible for all the Indian Institutes of Technology, I was asked to share the experience of the programme. They were pleased to hear about the new initiative and the reaction we got was overwhelmingly positive. It was then decided to introduce this in other IITs as well. Accordingly, many IITs joined the fleet and the programme has been implemented there this year itself. Some of them are IIT Kharagpur, IIT Ropar, IIT Jodhpur etc. MHRD has a

programme called TEQIP (Technical Education Quality Improvement Programme), under which there are 180 institutes. It was decided to introduce the Induction Programme in all these institutes, and the decision was finalized in August. However, since it was a little late, only a one-week programme could be announced this time. From the next year, the full-fledged three week programme will be conducted.

AICTE (All India Council of Technical Education) is organizing meetings of Principals and Directors of various engineering institutes to spread the awareness regarding the Induction Programme, after which teachers' training workshop are organized. The first of these were conducted in June and July this year. These workshops have taken place in Varanasi, Pune, Delhi and Hyderabad. AICTE has also developed a model curriculum for engineering colleges in which it has documented the Induction Programme as mandatory. It will be executed from next year in affiliated colleges. However, several autonomous institutes, have decided to implement it from this year itself.

On how IIT BHU is helping and leading the other institutes in applying the programme

AICTE has developed the model

curriculum and MHRD is organizing Teachers' Training programmes in colleges under TEQIP across the country. It is a three-day workshop. We are in touch with them and extend help in every possible way. I am personally communicating on a daily basis with the Principal of Government College of Engineering, Raipur, where the currently running workshop is being held. There are more of these, yet to come. The next workshop is planned in IIT BHU from 15 to 17 September, which is targeted at colleges in this region. In October, a training workshop is scheduled in IIT Guwahati. We are proactive in providing all resources whenever needed, and we keep in touch with the hosts. The newly formed Induction Programme Outreach Cell provides them with support materials and takes care of almost everything. Good coordination is required for something to be successful, and the cell does this job. Any difficulty that is faced in the organization or regulation of the workshops is handled by the Cell.

On changes planned in the programme after the student feedback and review:

We are constantly reviewing the programme and taking opinions and suggestions from students and faculty. For instance, based on student feedback, we delayed the morning physical exercise timing; it now starts half an hour late at 6:30 AM. Students found themselves too busy in the scheduled activities of the Induction Programme last year, so the contact hours have been reduced. It allows them to get more free time and interact with each other. We will analyse the feedback and try to improve it every year. We are committed to make it a pleasant and enriching experience for everyone.



Prof. Santosh Kumar, heading the newly formed Induction Programme Outreach Cell, talks about the objectives and prospects of the Cell.

IIT (BHU), playing a leading role in disseminating information and resources about the IP, has been trying to identify and to implement the content of right understanding. The topics identified for the Induction Programme are based on Self-Observation and are universal in nature. Faculty members need to learn these through intensive interactive workshops conducted by resource persons. Some of the topics of the Teachers Training Workshops (TTWs) are: understanding value education, self-

exploration as the process of discovering values, basic human aspirations-continuous happiness and prosperity, understanding the harmony at four levels- self, family, society and nature. Implications of the Right understanding, holistic alternative, human values component of the professional ethics in the light of right understanding and holistic technologies, production & management system.

These TTWs are organized by 'Induction Programme Outreach Cell (IPOC)' with

support from the AICTE regional office. Four regional IPOCs have been opened in the cities of Varanasi, Hyderabad, Pune, and Delhi. Each cell is being run by its respective Coordinator. The functions of Regional Cells are, to plan and organize 5-7 days TTWs to identify resource persons to conduct the TTW, to fix the date and venue of the TTW, to ask AICTE regional office to send announcements related to TTW and to coordinate with AICTE and its regional offices.

Prof. R. K. Mandal, in charge of the Induction Programme, talked in detail as to how the programme was structured to set up for the students a home away from home, and bring out the best in them.

The induction programme began with a one-day orientation to welcome the new students. Two major components of the three week-long programme were Human Values and Creative Practices classes. In an effort to closely understand the students and meet their needs, the former were held with a mentor and a student guide for each candidate. Creative Practice classes provided a platform to bring out their inner talent and creativity, with an array of activities including visual and performing arts. Coaching takes a toll on students, and by introducing early morning fitness and sporting activities at the Gymkhana



grounds, we are helping to restore the students to a healthy morning routine. When students come to a college campus, they are often not prepared to academically engage in a manner worthy of a premier academic institution like ours. This is not a place for solving

complex equations, but for asking and interpreting deeper questions of the field. In the inaugural address, The Hon'ble Director talked to students and parents and assured them that the students are in safe hands. However, the parents must stay connected with their wards. Teachers and alumni, and Department Heads were instructed to familiarize the students with their own fields of study. The deans informed them about various ordinances and guidelines, and the Gymkhana as well.

As part of the induction, once the students had settled down, various tours were organised. The entrants were taken around the city in the second week. Along with the continuing Human Values and Creative Practices classes, they were taken to places like Bharat Kala Bhavan and Sarnath, in several batches. In the following week, the students were exposed to world view classes.



Instructors from Social Sciences were invited to teach the students about the rich heritage and culture of Varanasi. We believe that no student should leave this campus without first learning about the city's pioneers like Kabir, Tulsidas and Raidas. Accordingly, ninety minutes per day were dedicated to each in this regard. Several interactive sessions were held in the students' hostels from time to time, where professors and mentors participated actively in discussions with the students. On Independence Day, the movie, "Gandhi" was shown to the students, followed by a discussion led by Dr. Suresh Chandra, a living authority on



Bapu. At the end of three weeks, a feedback session was organised by the mentors and student guides, with the hope that we can make the experience even better for the batches yet to come.

In Talks : Prof. GVS Sastry

An interview with Prof. GVS Sastry, the outgoing Dean of Academic Affairs, IIT (BHU) Varanasi

First of all, congratulations to you on the successful completion of your tenure as the Dean of Academic Affairs. Could you please share your experiences that you have had in all these years being the DoAA of this institute?



Thank you. I was appointed the DoAA through the normal selection procedure followed by the institute. So, before all, I would like to thank all my colleagues who had confidence in me and who thought that I would fit well in this post. Earlier in IT-BHU, there was only one Dean who would take care of all the affairs related to academics, student affairs, research and everything. So, I can say that I inherited that office and was able to carry out my responsibilities with the help of the office staff. The institute got transformed into an IIT in the year 2012 but the process of transformation to IIT standards is still going on. We had been practising different methods for academic programmes, faculty recruitment, etc. and because of the transformation, we had to change everything. Even before I took up the office as the DoAA, I was appointed the Chairman of a Committee to draft the ordinances relating to academic affairs. Any institute, to run successfully, should have well-drafted ordinances for academic issues. Initially,

the committee was given the responsibility of managing both UG and PG affairs. But, later on, it was realized that the task was insurmountable and the committee got split into two- one for UG and one for PG. I was responsible for PG affairs. With the help of the ordinances of IIT Kanpur and various other institutes, our ordinances were drafted and they were modified and updated from time to time. By now, I can assure that we have transparent, strong and sound ordinances without any legal inconsistencies or fallacies. By the time I took over, the Academic Automation Committee was fully functional and the first process that was automated was the Registration. The process was made online with the help of software developed by the System Analyst from BHU Computer Centre. Though the process wasn't robust enough in the beginning, it has been stabilized now. My vision when I took over, was to automate everything, starting from the registration of a student in the institute to graduation in their final year. I am very glad to say that, I had accomplished most of it, not single handedly, but with the help of the Associate DoAA and the office staff. The matters related to Scholarship Affairs were also automated through a portal and the eligible candidates were awarded various institute and endowment scholarships. There were a lot of demands relating to the Rule of Attendance and steps are being taken to automate the attendance. In a similar fashion, student feedback was integrated and made mandatory for the declaration of results.

One of the most important factors based on which an institute is rated is Academics. So, in my opinion, I can say that every possible step is being taken to improve the academic standards of the institute. One important thing to be

ensured is the involvement of every department in maintaining their records and regularly updating them. The academic structure of every department should be made strong and sound, and they should work collaboratively so as to raise the academic standards of the institute to a level wherein it can introduce new programmes like Space Engineering, Nano technology and a lot more. Meanwhile, we should develop a novel attitude to scrap off certain programmes that do not fit rightly in the modern era. I can say that these were my experiences as the DoAA trying to transform IIT-BHU into a more vibrant institute.

You were the first person in this institute to hold this position. You would have faced a lot of difficulties and crossed numerous hurdles to implement new initiatives during this process of transformation. Could you please tell us what they were and could you please share your experiences of overcoming them?

I would say that the only hurdle which I faced during the transformation was the mind-set. For example, many faculties who were a part of IT-BHU were not ready to accept the concept of Relative Grading. Though a lot of debate has been going on all over the world regarding the Absolute and Relative grading, it had to be brought about in our institute because, among other reasons, all the other IITs also follow this system. So, I had the responsibility to clarify this initiative to every individual concerned, and by now, I can say that every faculty in our institute has adopted this concept. One more example which I would like to mention here is the issue related to attendance. During that time, I had to be the person negotiating with both the students and the administration to come to the right conclusion. I had to explain to the students how important it is

to attend the classes and I had to answer questions like “Will I be considered a failure in a subject just because I wasn't able to attend a single class and my attendance fell short?”. I personally feel that there is no replacement for classroom teaching; none of the online videos or PowerPoint presentations give the same benefits which classroom teaching can provide. Based on my experience, I would say that, not attending the classes generates a very long gap between the student and the text book, and the realization comes the day before the examination. The last issue which I had to face was regarding the summer term. Since summer is the time in which the professors often take up research work, they were not able to offer their courses in summers and the students, who had backlogs, had to wait for a longer time to clear them. To some extent, this issue has been solved because of the resolution passed in the Senate.

Having done so much from your part, what are your expectations from your successor and what kind of initiatives do you think he must take for the development of the institute?

The first thing which I expect is that the automation process has to be completed. Though it is already complete by around 70%, the remaining issues like the thesis evaluation of PhD students, journal publication, etc. has to be automated. Moreover, steps have to be taken to completely solve the issues which I mentioned in my previous answer. It has to be ensured that the students attend the requisite number of classes and they must never put extra-curricular activities before academics. One more thing which I expect is the implementation of newer programmes in the institute and it should be designed in such a way that it shapes up the career of an individual and makes him not just a brilliant analyst in that area but also a good and well-mannered human being. Newer programmes may be something totally new like Space Engineering or it may be the introduction of modern focus

areas in existing disciplines. Once introduced, the institute should also be ready to drop it readily if it does not do any good to a student's career.

Being an experienced person, what is your message to the present batch of students?

My advice to the students is that they should start developing a serious attitude towards studies. They should be regular to the class. The rule of 75% attendance should not be misused by anyone. In my early days, when I started teaching, there were students who were disinterested but still they never had a problem of shortage of attendance. So, I would say that it is all a matter of mindset and it totally depends on the students' perspectives. One last thing which I would like to convey based on my experience as a student, a teacher and a Dean is that any task, that is to be performed, should be done within the stipulated time and one should understand that procrastination is an evil.

Could you please give us some insight about the idea of open electives and could you suggest some of the things that a student should keep in mind while choosing a course?

Some of the courses that cannot be included as a part of the department's curricula but learning them might help in the student's research area or his career anywhere can be included under the umbrella of Open Electives. The whole idea of Open Electives was introduced for this purpose only. For example, if I am a student pursuing some research in metallurgy and my project requires the use of “Molecular Dynamics”, then I can choose that course as an Open Elective and pursue it. The departments offering such courses should not select candidates based on their performance in core subjects or simply based on CPI. Instead, they should select them based on their background relating to that course. For example, if it is a Computer Science course, then the students can be given a chance to pursue it based on their programming background.

According to statistics, the number of students who are staying in the academia (for higher studies and research) after their undergraduation is very low and most of them are opting for jobs just after the completion of the undergraduate degree. What do you think is the reason for this and how can this number be increased?

I really do not know whether this number can be increased. I say so because in my opinion, the entire Engineering discipline is driven by the industry. If the industry faces a fall, the recruitment also will drastically drop down. So, our programmes have been designed in such a way, that the students can flourish in any stream they choose – be it job, research or higher studies. The industry is inconsistent, and one discipline which is at the top-notch level when one gets admitted might tumble and stop recruitment when they graduate. So, manpower should be developed by the institute in such a way that the student can survive anywhere with the knowledge they have got during their UG studies. Though, students taking up PhD in some foreign countries should, at some point of time in their life, try to come back and serve their country.

Since the applications of computer and software are growing in every discipline, don't you think that some courses related to coding and software development should be included in the curricula of every discipline?

As I mentioned earlier, the market is inconsistent, and it is not possible to predict what is going to happen in the next few years. It is possible that the number of people who get recruited in non-core sectors, might reduce drastically in the next few years. So, the students will not have any other option than to pursue their core discipline. Keeping all this under consideration, the course structure has been designed and it makes sure that the student gets enough knowledge related to Computer Science and Software in the first two years of his/her study and maximum time is devoted to their core discipline.

PRODUCING ENTREPRENEURS

Paritosh Tripathi, Manager, Malviya Centre for Innovation, Incubation & Entrepreneurship (MCIIE), IIT (BHU) talks about recent changes in the working of the incubator.

How is the MCIIE transforming its vision in recent times?

The MCIIE is transforming its vision to focus on identifying potential entrepreneurs and providing them with a platform, rather than start by identifying path breaking ideas. This change in focus, from the idea to the competence of the individuals, is being done with the philosophy that it is the competence of individuals involved, which drives ideas and innovation. Often, a product, that, looks good on paper, fails to perform in the market. It then depends on the entrepreneur, to identify the flaws, revise the ideology and modify the idea accordingly. In that respect, the MCIIE has started arranging a psychometric test for the individuals. The test analyses thirteen crucial aspects of an individual, with an attempt to monitor their strengths and weaknesses. The responses are not used for judgement, but for self-evaluation and monitoring. A self-assessment questionnaire, and a presentation thereafter, serve as selection criteria. We are also considering introducing a course for new incubates, to bridge the gap between their technical expertise and

the business aspects like commercialization and management.

Another aspect we focus on, is the development of the region we belong to, Purvanchal in particular. It is a generally held misconception that Varanasi is not a good place for business. But as a 3000-year old city, businesses like saree, paan have thrived here for ages. As the only incubator in the MCIIE region, we are trying to set up an ecosystem here; helping to create jobs in Purvanchal. Some aspects are challenging, and our methodologies need to be different from what is followed in metropolitan cities. But the government and IIT BHU have been very helpful in this regard. We welcome entrepreneurs to come work with us, and provide them with a platform to make an impact together.

What would encourage entrepreneurs to come here?

We approach them with a well-defined package. We have everything that one needs under one roof. Instead of waiting for them to come to us, we approach them with what we have to offer. Previously, there were only 10-11 applications in a year. Now, we have

more than 45. We provide them facilities so that they do not have to look for services in metropolitans. We organize meet-ups and fairs to attract them.



Inside MCIIE

Is there something you feel needs to be changed?

The pace remains an issue. We need to go a little fast. To pass an injunction or provide funds to some start-up, we need fast paperwork. The world is changing rapidly and to keep up with it, we must match the speed.

How have things changed in the past 2-3 years?

Over the course of previous few years, things have improved significantly. The number of incubatees has increased. Back then, budding entrepreneurs from outside IIT were hesitant to approach MCIIE. Now, the situation is much better, as we have people from other regions and cities. 2 years ago, there were about 9-10 entrepreneurs, whereas this picture has now changed for the better. More and more people are now coming to know about MCIIE. We have started advanced testing techniques. We now focus on entrepreneurs with clear vision, emphasizing 20% on idea, and 80% entrepreneurial vision.



Participants at a recent startup fair jointly organised by MCIIE

The National Electron Microscope Facility (NELMIF)

The National Electron Microscope Facility (NELMIF) is one of the most advanced facilities in the Metallurgical Engineering department, set up in the 1980s, and has undergone several upgradations. Prof. GVS Sastry was instrumental in the development of the facility and subsequent changes. This year, he received the Life Time Achievement Award of Electron Microscope Society of India (EMSI) for his dedicated effort in maintaining the good tradition of the department in transmission electron microscopy as well as nurturing electron microscopy teaching and research on the campus. He talks here in depth about the early days of the facility and the future in sight.

The topic which I selected for my Ph.D. required microstructural analysis of rapidly solidifying alloys. These types of alloys require microscopes with very high magnification. In 1977, the only microscope available under the University Grants Commission (UGC) was the TEM300, acquired in 1974. The microscope was available to us from 6 o' clock in the morning to right before midnight. However, the PEM300 had several limitations in terms of its capability; it could only go up to an accelerating potential of 100 KV and magnification of only one lakh. But many Ph.D. students required the use of higher magnification microscopy. The ensuing improvement in resources is largely owed to the vision of Dr.T.R. Ananthraman, who felt the need of newer and better microscopes in the department and pushed for it. Credit also goes to faculty members under him, Professor P. Suryanarayana and Professor Ranganathan. All of them were associated, in some capacity, with microscopy.

The UGC in those days used to have a Special Assistance Programme, through which they were willing to release funds for the microscope, but the amount offered was a meagre INR 3.5 lakh. An electron microscope in those days used to cost about INR 6.5 lakhs; today it is valued at around INR 1.5 crores. Nevertheless, although the department started trying in 1970, we could only get our hands on the microscope in 1977. It

so happened at that time that Paul J who was a professor at Caltech, USA visited the department with his wife, and he inaugurated the microscope, named CHITRA. It was then, after further deliberations, that Dr. Ananthraman thought that we needed an even newer microscope.

The proposal for the same was sent to the Department of Science of Technology, Government of India which was kind enough to sanction the NELMIF. I, along with my colleagues, were able to make use of it and complete our Ph.D. work. We were now able to achieve higher magnification, better resolution and make use of more advanced analysis techniques. Along with the microscope, there used to be an instrumental analysis facility which helped us determine the chemical composition of the materials we were looking at. With these capabilities, we were able to come up with good publications, and were able to offer this facility to many institutions within the university and outside Varanasi as well. We conducted periodical workshops to train youngsters to use this microscope. That is how the NELMIF came up in 1982. We had acquired Transmission electron microscope and a newer scanning electron microscope along with some sample preparation facility.

During much of my early years of teaching, I was associated with this. Before me, Professor Lele was in charge

and before him, there was Professor D.S. Sarma. These were the successive professors in charge of the NELMIF. I ran the facility for quite a few years. I was able to conduct workshops, training and research in electron microscopy and how to interpret the electron diffraction pattern and other related topics.

During my Ph.D. work, I could observe five-fold symmetry i.e. the pentagonal symmetry which is a forbidden symmetry in modern crystallography theory; but when you relax the periodicity conditions and if the atoms are able to get accommodated on a quasi-periodic cycle then five-fold symmetry is permitted. So my first work which was carried out on the new microscope at the NELMIF was concerned entirely on understanding those diffraction patterns and how to resolve them, achieving higher resolution and interpret why I was observing the five-fold symmetry pattern. I was completely preoccupied with the project and subsequently started working on several other alloys. Professor Vakil Singh and many of my other colleges were working and using the same facilities along with Professor Mukhopadhyay, Professor Singh, Professor B.N. Sarma, Professor Mandal and, very recently, Professor Jayasuriya Basu has joined me and they are being able to perform good research.

I have been invited by BE College, Shibpur (now IEST Shibpur) and by Indira Gandhi Centre for Atomic

Research, Kalpakkam where I used to deliver week long lectures on several effects of electron microscopy. I am very interested to use my expertise on the subject and further continue work on the topic, as I am well aware with all the ins and outs of electron microscopy.

My efforts in those 10 years were how to and whom to approach and get a newer microscope so that our expertise on the subject can be effectively passed on to the future generations, and also set up an advanced facility in the department with a set of new generation microscopes. We tried UGC and the Center for Excellence program and many other arrangements. There were hardly any doors that I did not knock, and there was hardly any scientist, who was in a position to help us, whom I did not approach. Many of my senior

colleagues also helped me during that time. But eventually, it took nearly 10-12 years before we got the next generation microscope.

The department now has these two new generation SEM and TEM. But I am still not satisfied with it completely. Although we got the basic equipment, we could not get sufficient funds for the sample preparation unit. In a sense, it is almost as if you are equipped with all the rules of the game but you are not given the bat. Without sample preparation, the work that is possible is limited. These days, people use advanced sample preparation techniques and then they are able to get a sample prepared in a few hours instead of a full day required with the existing facilities at the department. That is the difference. The other thing is, you cannot run advanced

microscopy facility with just one SEM and TEM. If you want to really build a good group, you must have at least 2-3 SEMs and one lower generation and one higher generation TEM to allow optimal usage. Otherwise, everybody will only go for the advanced microscope, and then its capabilities would not be utilized to the fullest extent. That is where we are lacking. Now the electron microscopy system present in the central facility of the Institute is just a parallel of what we have in our department, no more advanced. In one sense, now the IIT has two microscopes but they don't have any sample preparation facility to name. I have talked about this with the Director and hopefully, the Institute would acquire, in another one year or so, such type of advanced facility.

Revisiting a Visionary : Prof. Gopal Tripathi



Prof. Gopal Tripathi, a visionary with extraordinary contributions in the field of Chemical engineering, was born and raised in Deoria district of Uttar Pradesh, where he received his preliminary education. Although he came from an ordinary family, he had extraordinary acumen, reflected in his subsequent

academic excellence. He completed his graduation, majoring in Chemistry, and his post-graduation in Chemistry from Banaras Hindu University. He always had an interest in pursuing research, and became an assistant lecturer in the Department of Silicate Technology of the College of Technology, BHU. In light of his exceptional talent, he was offered a Tata fellowship for higher studies in the US, wherein, he pursued his M.S. in Metallurgical Engineering from MIT and later on completed his M.S. and PhD in Chemical Engineering. World renowned individuals such as Prof. G. G. Brown, Prof. Lewis, Prof. D. L. Katz and other senior chemical engineers were among his teachers. He shared classes with J. J. Mcketta, editor of Encyclopaedia of Chemical Processing & Design and, consequently, became a member of the editorial board of this multi-volume set.

Prof. Gopal Tripathi was a voracious reader of technical journals and books and possessed a fantastic memory. His

batch mates used to refer him as a walking dictionary and seek his help in understanding mathematical concepts.

His research in US was in the area of Thermodynamics (PVT Relations of Hydrocarbon Gases – an area driven by WWII needs) under the supervision of Prof. G.G. Brown. He returned to India in the year 1949, on the request of Pandit Madan Mohan Malviya. Back in BHU, he became the Principal of College of Technology and founder-head of the Department of Chemical Engineering (founded in the year 1956), and initiated research in the areas of Vapor-Liquid Equilibria, Fluidization Engineering, Non-Newtonian Fluids, Catalytic Cracking of Reduced Crude, etc.

He had special interest in the fields of Fluid Mechanics, Transport Phenomenon, Thermodynamics, Mathematical Methods in Chemical Engineering and Petroleum Refinery Engineering. All of these are core Chemical Engineering subjects. The first

PhD awarded in Fluidization in India was mentored under him. In those days, without computers and calculators, he developed and inspired an interest in experimental research.

Prof. Gopal Tripathi was instrumental in spreading Chemical Engineering education across the country – University of Roorkee (now IIT Roorkee), Department of Chemical Engineering, Punjab University - Chandigarh, HBTI Kanpur were all mentored by him. With his exemplar display of perseverance and leadership traits, he played a key role in the creation of Institute of Technology – IT BHU (now Indian Institute of Technology – IIT(BHU), Varanasi), after the unification of all three technical institutes in BHU (BENCO, MINMET, TECHNO), and its inclusion into the Joint Entrance Examination (JEE) system for admission to undergraduate courses. He also held several posts – Director of Planning & Co-

ordination BHU, Chairman of Soda Ash Commission and also the leader of Indian Delegation to China. Later, he went on to become the Vice-Chancellor of Lucknow University.

Prof. Tripathi supervised several modifications for the betterment of the institute - research facilities were upgraded, new and advanced technology were installed in the laboratories. The degree of MSc given to chemical engineers was aggrandized to M.Tech and several small as well as consequential changes were made, which enriched the technical institute of BHU and prepared it to be counted among the top institutes of India.

Prof. Gopal Tripathi was an amiable individual and a compassionate teacher. His students still assert the unambiguity and frankness they had in interactions with him. His teaching skills were unparalleled and so were his incredible

contributions to the field of Chemical Engineering.

“Prof. Tripathi was punctual, outspoken and humble-hearted. Whenever he saw a class full of students with the professor late or absent, he would go in and teach that subject without even referring to a book – such was his competence in the subject”, recalls Prof. S.N. Upadhyay, a Raja Ramanna awardee.

This legendary person, with his flamboyant demeanour, won many hearts. He is a role model not only for Chemical Engineering aspirants, but for everyone who seeks to scale new heights of success. His legacy lives on in the Department through the Gopal Tripathy Auditorium, used regularly for different programmes, and the establishment of a Prof. Gopal Tripathi Memorial Chair Project in 2014.

Aquvio : Transforming Lives, One Drop at a Time



It all started around three years ago when Naveen Kumar, a 2014 graduate from Department of Civil Engineering, decided that he wanted to transform the lives of millions of people. After graduation, he had started working on improving the after-sales service for

households in Delhi. Most of his work was related to water purifiers. It then came to his notice that RO (Reverse Osmosis) process based water purifiers were wasting huge amount of water, and he decided to find a solution.

With a noble idea in mind, Naveen

always knew that the journey was never going to be a smooth one. But it was very adventurous. “Entrepreneurship can be a tough game. Almost no college or university level education can prepare one for it. Most of the learning happens on the job. The life of an entrepreneur is never easy. In the past years, we had to go through several ups and downs to achieve what we have today.” He recalls, “Having a background of the Civil engineering, it was really difficult for us to come up with ideas and solutions for water filtration as well as waste management using reverse osmosis and membrane technology.”

He built a beta product along with his colleague, Rohit Kumar Mittal, and presented it to the MCIIIE, TBI (Technology Business Incubator). He got incubation at MCIIIE-TBI in October 2014. Funding for development and

marketing of the product posed an issue throughout the period. With the aid and mentorship of the incubator, Dr. P.K. Mishra and Dr. S.N. Upadhyay, the ex-director IIT (BHU), they were able to work on building a more stable and viable marketable version of Aquvio. Subsequently, efforts were made to make a more stable product. It took his team nearly 8 months to come up with a final prototype of the product having a capacity of 100 litres per hour (1000 litres per day). They have also filed a patent for it.

The first product was sold in August. It was a defining moment in his career. But he knew that this was only the beginning. After this, the sales continued to escalate due to the huge B2B space in Varanasi. Gradually the team implemented better technology, and in no time, Aquvio became a common name in schools, colleges, restaurants and hotels. His company is now also a proud provider to the Indian Railways and Indian Army. In Varanasi itself, Aquvio has installed 48 Units so far. According to Naveen, the installations have saved over 1 crore litres water, which is equivalent to making water available to an additional 1 lac people a day, and savings of around 4200 KW energy, enough to meet the energy requirement of 500 houses per day. Right now, Aquvio is operating in Varanasi, Kanpur, Lucknow and Allahabad. So far, 65 units have been installed all over Uttar Pradesh. He adds that they are planning to further expand Aquvio in northern India over the next two years.

The company's innovative ideas and their radical technology have already started making waves in the world. Aquvio went on to be counted among the 10 most promising start-ups in 2016 by the CII (Confederation of Indian Industry). Later, Naveen even presented his ideas to the UN Industrial Development Organisation at the UN Conference Hall in Delhi. Widespread news coverage in local and national TV

channels and newspapers soon followed. Recently, Aquvio was awarded the prestigious Dr. APJ Abdul Kalam Start up Impact Challenge. In June, Aquvio was incubated at IIT Kanpur under the INVENT Social Incubation Programme. Innovative Ventures and Technologies for Development (INVENT) is a joint collaboration of the Technology Development Board (TDB), Government of India and the Department for International Development (DFID), Government of the United Kingdom.

"Winning the awards was a surreal experience", he says. "It was a great experience for me as well as the entire team of Aquvio. What made it great were the platforms where we received them." These awards took Aquvio to the next level, a level where the entire entrepreneurship world came to know about what they intend to do. He is also proud of the fact that he was not just representing Aquvio, but also IIT BHU's support and belief which had made it possible for him to reach there.

Talking about challenges faced, he highlights the fact that Aquvio mainly operates from Varanasi. "People in top management are doing well but as we go down the chain, workers are not so professional because of which product installation sometimes takes time. These are some issues inevitable in tier 2 or 3 cities like Varanasi." There were periods of struggle when there was lack of resources and the chances of sustaining seemed low. During that crucial period, the alumni of IIT BHU came forward to support him. Besides, the moral boost which was imparted to him made him stronger than ever.

Looking back, he muses that the only prerequisite for running a start-up is having a mentor with whom you can discuss, share and seek guidance. "If you have that quality person from beginning, you don't need anything." Fortunately for him, from Day 1 at MCIE TBI, he had his seniors Nikhaar, Tanmay and Abhishek from Bridgedots who not

only guided him at every step but also let him understand the meaning of this journey.

It is said that success is a journey, not a destination. Aquvio already has its future plans ready. Naveen says that they have identified that customers in his line of business have three primary needs: quality product, quality and timely after-sales service, and finally, trust. And this is what his team is focusing on, right now. They are not only delivering an innovative product but also trying to build a strong customer-salesman relationship.

Apart from saving energy and water, Aquvio is also strengthening the society by engaging rural people in operations and thus training daily-wage workers to get a stable job. Saving water helps a water supply unit to extend its service area, and reduces drinking water problem up to some extent.

Sharing motivational tips for budding entrepreneurs, he says, "I feel that the way you execute your idea, is the biggest factor. Even if it is a million-dollar idea, execution in the wrong direction will lead you nowhere. So stick to your idea, be disciplined, sincere, organised, work according to plans, believe in your team, gain experience and never give up. The journey is hard but if you are passionate about it, you will definitely achieve it. Start-ups are all about the execution of your ideas, no matter how big or small it is. There is nothing like a "million-dollar idea". As an idea alone is worth nothing unless you execute it with proper planning. Execution is the key to your success in your startup. That is what differentiates people who are great and successful, from people who are really smart and could not make it. It is a fact that investors invest in the people who can execute, or even better, have a history of successful execution. Entrepreneurship is a journey of self-exploration. You may find your real self after working on something you love."

Reaching New Heights : Team Averera

Team Averera is a group of 20 automobile enthusiasts from different branches and years of IIT (BHU) Varanasi, working towards sustainability and the future of electric mobility in our country.

Formed in 2014, the team has made three prototype fuel efficient vehicles and all three have participated in international competitions, including the prestigious annual Shell Eco Marathon. Various key projects taken up by the team apart from participation in this event are as follows :

1. Developing the concept of Solar Indica jointly sponsored by TATA motors and CERD, IIT (BHU)
2. Manufacturing of high speed test vehicle for various hybrid drivetrains
3. Development of experimental setup and study of performance and emission evaluation of a CI engine with 5 speed gearbox using Waste plastic oil blended fuel
4. Designing and Manufacturing of Gantry crane

Their recently manufactured vehicle, Alterno v2.1 is India's most fuel efficient electric prototype vehicle with which they participated in Shell Eco-marathon Asia 2017 and got recognition for the exceptional work done in designing, building and testing the vehicle. Team Averera represents our Institute as well as India annually at Shell Eco-marathon Asia and ours is the only IIT successfully participating in the event for the past two years.

The project was initially funded by Design & Innovation Hub, IIT (BHU), Varanasi for the participation in Shell

Eco-marathon Asia 2015. The 2016 chapter of their participation in the event was sponsored by Centre for Energy and Resources Development (CERD), IIT (BHU) and Design and Innovation Hub (DIH), IIT (BHU) with DIH sponsoring for the manufacturing of the vehicle whereas major part of the expense including shipping of the vehicle, logistics and travel cost was sponsored by CERD. However, this year the team has formed a separate marketing team with the aim to secure independent sponsorships. Financial

support is being sought from outside, from teams and individuals who can support the team morally and economically in their initiative to build the country's most fuel efficient car. They are also reaching out to the alumni network in this regard.



Somesh Jaiswal, Team Manager of Team Averera, talks about their experiences at the 2017 edition of Shell Eco Marathon Asia, a global event where young engineers from around the world are invited to design, build, and test energy efficient vehicles

Going into the contest for the third consecutive year, we were determined to make it count. On day zero itself, we completed five technical rounds, including Vehicle's Weight Test, Driver's Weight, Vehicle's Dimension, Seat Belt Test and Turning Radius Test. On the first day, we completed the

remaining tests which included Visibility and horn Test, Driver's Exit Timing Test, Brake Test, Vehicle Design Test, Energy Test and became the fifth team to complete the Technical Inspection Round in the same vehicle category. This was the day when teams could take their first attempts on the



track, and the competition started. Unfortunately, as it rained throughout the afternoon, the first prototype vehicles attempt was cancelled due to wet track and the slot was availed for urban concept vehicles run. As a result, on Day 2, the vehicle runs started from the morning itself. We were among the first teams to attempt a run. The track consisted a total of 9 laps (10.71km) and had 14 turns in each lap. This distance had to be covered in 25 minutes. Unluckily, we encountered a puncture in one of the tyres in the 6th lap. Due to this, our vehicle collided with another car on the track and

faced some slight damage. After due repairs were made in the first half itself, the second half began and the second attempt was taken up by our co-driver. The efficiency came out to be 114km/kWh. In the third attempt, due to the use of walkie-talkies and improved driving, efficiency was recorded at 132km/kWh. Thereafter, with two more attempts remaining, attempt 4 was taken up. This was taken up by our other driver to take advantage of the weight factor so as to further increase the efficiency. Although, in the 7th lap, the tyre again got punctured but this time there was

no damage to the vehicle. The fifth attempt was again taken up by our driver but, due to some factors, the efficiency came out to be 120km/kWh. Every possible effort was made to take an additional last attempt, allowed by the administration, but we were out of time.

Our next target is to make a carbon-fibre monocoque car that will weigh around 35kg equipped with a more efficient motor so that efficiency of around 300km/kWh can be achieved.

FACULTY ACHIEVEMENTS

SK Sinha from the Mechanical Engineering Department published a book on book "Engineering Mechanics: Statics and Dynamics" through Pearson Education in June 2017.

Manoj Kumar Meshram from the Electronics Engineering Department received the INSA-DFG Bilateral Exchange Fellowship for three months. He joined the Institute of High Frequency, Stuttgart University, Germany for the period from 1 June 2017 to 28 Aug 2017.

Rajendra Kumar Pandey from the Electrical Engineering Department was appointed the Director General, National Power Training Institute (NPTI), Ministry of Power, Govt. of India by Appointment Committee of Cabinet (ACC) DoPT chaired by the Prime Minister of India.

Sanjeev Kumar Mahto from the School of Biomedical Engineering has been selected for the "Bharat Vikas Award"

2017 by the Institute of Self Reliance, Bhubaneswar, Odisha on the Occasion of Citizen's Day to be held on Nov. 19, 2017.

Mumtaz Ahmad Quraishi from the Department of Chemistry has been appointed as Chair Professor (by Invitation) in King Fahd University of Petroleum and Minerals (KSA).

Om Prakash Singh from the Mechanical Engineering Department has been selected as an external expert to make DPR for starting a Center for Energy at AryabhatKnowledge University, Patna

Shyam Kamal from the Electrical Engineering Department has been appointed a Visiting Research Fellow of RMIT University

MS Muthu from the Department of Pharmaceutics received the BIRAC-DBT-Gandhian Young Technological Innovation (GYTI) Award - 2017 on March 05, 2017 at the Festival of Innovation, RashtrapatiBhawan, New

Delhi with a research grant of INR 15 Lacks.

Santanu Das from the Department of Ceramic Engineering was awarded the prestigious IAAM Scientist Medal for the year 2017, from the International Association of Advanced Materials, Sweden, August 22nd to 24th, 2017 for his notable and outstanding contributions in the field of "Advanced Materials Science and Technology".

Surga Pal Singh from the Department of Electronics Engineering was invited to join as a member of the Editorial Board (EB) of the International Journal of RF and Microwave Computer-Aided Engineering by the Journal Editor in August 2017.

Brahmeshwar Mishra from the Department of Pharmaceutics was awarded "Distinguished HOD Award 2017 and "Distinguished Professor Award 2017" by Computer Society of India-Mumbai Chapter, Mumbai.

GVS Sastry from the Metallurgical Engineering Department received the Life Time Achievement Award of Electron Microscope Society of India (EMSI) in 2017 for his dedicated efforts in nurturing electron microscope related teaching and research.

Under the leadership of **Abhishek K. Srivastava** from the Department of Physics, a team of researchers from India, United-Kingdom, Ireland, Poland, Italy have made the H-alpha observations of the Sun's chromosphere from 2-m class world's biggest existing solar telescope. Their novel findings have been published on

3rd March 2017 in Nature Scientific Reports. He has been elected as a group member in International Academy of Astronautics (IAA) on Comparative Climatology - Studying Planetary Climate to Understand our Planet, and recently visited UMCS, Lublin, Poland during 12th June to 26th June 2017 for pursuing joint scientific research with Prof. K. Murawski and colleagues.

Satyabrata Jit from the Electronics Engineering Department has been elected a Member of Editorial Board, Journal of Nano Science and Quantum Physics (JNSQP).

SN Ojha from the Department of Metallurgical Engineering received the P. Ramachandra Rao memorial lecture award 2017 at CSIR-NML Jamshedpur on April 12, 2017 on "Metals and Material in Growth of Human Civilization".

SK Shukla from the Mechanical Engineering department has been Nominated as Coordinator of CST UP Incubation Centre for Grass-root Innovators at IIT (BHU), Varanasi by Council of Science and Technology, Lucknow.

INVITED TALKS

Shyam Kamal of Electrical Department delivered a lecture on A Brief Overview of Fractional Order Systems at RMIT University, Melbourne Australia on 28 July 2017.

Santanu Das of Ceramic Engineering Department delivered a plenary lecture on "Synergistic Nanostructures for Various Functional Applications in Electronics and Energy" at International Conference on Nanoscience and Materials during February 15-16, 2017 at Nesamony Memorial Christian College, Kanyakumari, Tamilnadu, India.

Santanu Das of Ceramic Engineering Department invited to address on the topic "TWO DIMENSIONAL FUNCTIONAL NANOMATERIALS FOR ELECTRONICS AND ENERGY DEVICES" at Fourth International Conference on Nanostructured Materials and Nanocomposites (ICNM 2017) held between 10-12 February 2017 at Mahatma Gandhi University, Kottayam, Kerala, India.

Santanu Das of Ceramic Engineering Department delivered a lecture on "Development of nanoparticles and characterization"; Materials Tribology: Fundamentals and Recent Advances" during 23-29 March 2017 at Department of Mechanical Engineering, IIT (BHU), Varanasi.

Santanu Das of Ceramic Engineering Department addressed the 2nd National Seminar on Nanoscience and Nanotechnology (NSNN – 2017) on the topic FUNCTIONAL NANOMATERIALS FOR ELECTRONICS AND ENERGY APPLICATIONS held between 17-18th March 2017 at Haldia Institute of Technology.

Avinash Singh Parmar of Physics Department addressed the conference of Biotechnology Department 2017 at Amity University.

Avinash Singh Parmar of Physics Department addressed a seminar organised by IISER-Kolkata this year.

Surya Pal Singh of Electronics Engineering delivered Invited Talks in the first Refresher Programme on Recent Trends on Microwave Devices and Antennas organized by the Faculty Development Centre, IIT(ISM) Dhanbad, held during 26 December 2016- 15 January 2017, on the topics:

- i) Microwave Measurement (11 January 2017), and
- ii) Antennas for Medical Applications (12 January 2017)

Surya Pal Singh of Electronics Engineering had delivered an expert talk at Madan Mohan Malaviya University of Technology(MMMUT), Gorakhpur on 18 March 2017, on the topic 'Antenna Ranges and Measurement of Antenna Parameters'.

Brahmeshwar Mishra of Pharmaceutics department gave a key note lecture on "Risk Management For Effective and Safe Medication" at the fourth International Conference on "Advances in Engineering, Pharmaceutical and Applied Sciences",

held by Sagar Group Of Institutions during 24-26 February 2017, in Bhopal.

Brahmeshwar Mishra of Pharmaceutics department delivered a lecture on "Expiry Dates and Effective Medication" during Pharmacy Research Week organized by Gujarat Technological University, during 8-16 February 2017 Ahmedabad.

Indrajit Sinha delivered a talk on, "Kinetic evaluation of p-nitrophenol reduction using a green hydrogen source in presence of Ag-Cu bimetallic nanocatalysts" in the International Conference on Catalysis and Chemical Engineering, held in Baltimore USA from 22-24th February 2017.

Indrajit Sinha from the Department of Chemistry delivered an invited talk on the topic "Iron oxide and plasmonic nanomaterials for water treatment" at the Workshop on Nanostructured & Smart Materials/Coatings (WNMC-2017) organized by Manipal University Jaipur from 4-5 June 2017.

Lal Pratap Singh of Mathematical Sciences Department delivered lectures on Advanced Numerical and Analytical Methods for Engineers and Scientists (NAMES-2017) as an expert guest speaker at the AICTE sponsored QIP Short Term Course organised by Department of Mathematical Sciences, IIT(BHU) Varanasi between 12-18 January 2017.

Lal Pratap Singh of Mathematical Sciences Department delivered lectures on Algebra, Analysis and Application (AAA) as an expert guest speaker at the AICTE sponsored QIP Short Term Course organised by Department of Mathematical Sciences, IIT(BHU) Varanasi during 03-08 July 2017.

Abhishek Kumar Srivastava from the Department of Physics was invited to deliver a lecture on the "Role of Torsional Alfvén Waves as an Energy Source in the Solar Corona" at the Asia Oceania Geosciences Meeting held between 6-11 August 2017.

Abhishek Kumar Srivastava from the Department of Physics was invited for a guest talk to UMCS, Lublin, Poland to address the topic "On the Peculiar EUV Waves in the Sun's Corona" on 20th June 2017.

Abhishek Kumar Srivastava from the Department of Physics contributed a guest talk entitled "Observations and Modelling of X6.9-class Flare-induced Vertical Kink Oscillations in a Large-scale Plasma Curtain" in the 8th Coronal Loop Workshop at Palermo, Italy during 27-30 June 2017.

Abhishek Kumar Srivastava from the Department of Physics delivered a guest talk entitled "Peculiar EUV Waves and Their Diagnostics Capability" at ST-12; Asia Oceania Geosciences Meeting held during 6-11 August 2017.

AP Harsha of Mechanical Engineering delivered a lecture on "Friction, wear and lubrication of artificial joints" in 9th Summer School on "Tribology" held between 19-23 June 2017 at Indian oil Institute of Petroleum Management" Gurgaon. It was organized by Tribology Society of India and Department of Science Technology.

SN Ojha of Metallurgical Engineering delivered a lecture on the topic "Five Millennia of Metal Casting in India." At Bharat Vignyan Samellan on Ancient Metallurgy held at Pune during 11-13 May 2017.

SN Ojha of Metallurgical Engineering delivered a lecture on the topic Emerging Trends in Materials Processing at College of Engineering, Pune on 10 May 2017.

Anil Kumar Singh of Computer Science and Engineering Department delivered several lectures at the Eighth IIIT-H Advanced Summer School on NLP (IASNLP-2017) held during June 2017.

Anil Kumar Singh of Computer Science and Engineering Department delivered several lectures in the QIP-CEP Workshop on Empirical and Experimental Linguistics held at IIT Delhi in July 2017.

Anil Kumar Singh of Computer Science and Engineering Department gave a guest lecture at the Faculty Development Programme on Research Trends in Natural Language Processing at YCCE, Nagpur during July 2017.

Lavanya Sivakumar of Department of Mathematical Sciences was invited to deliver a talk on "AL Matrix: Properties and Applications" in the Fifth India-Taiwan Conference on Discrete Mathematics, held at Tamkang University, Tamkang, Taipei, Taiwan during 18-21 July 2017.

Satyabrata Jit of Electronics Engineering Department delivered a lecture on "Fabrication and Characterization of Colloidal Quantum Dots Based Photodetectors" at the IEEE international conference on Telecommunication and Networks (TEL-NET 2017) organized by the Amity University, Noida during August 10-11, 2017.

Satyabrata Jit of Electronics Engineering Department delivered a lecture on "Electrical and Optical Properties of ZnO Nanostructure Based Schottky and Heterojunction Diodes Fabricated on Si Substrates," delivered at the Dept. of Electronics Engineering, IIT(ISM) Dhanbad on July 24, 2017.

Satyabrata Jit of Electronics Engineering Department delivered a guest talk on “ZnO and TiO₂ Nanostructure Based Schottky and Heterojunction Diodes for Ultraviolet Detections” at the Department of Instrument Technology, College of Engineering, Andhra University, Visakhapatnam on March 08, 2017.

Shailendra Kumar Shukla of Mechanical Engineering Department was invited as a speaker at the Technical Summit 2017 in K. N. Modi University, Rajasthan during February 22-24, 2017.

Shailendra Kumar Shukla of Mechanical Engineering Department was nominated as the Session Chair for the 2017 spring meeting and 13th GCPS, America Institute of Chemical Engineers (AIChE) held at San Antonio USA during March 26-30, 2017.

Shailendra Kumar Shukla of Mechanical Engineering Department was the Chief guest and was invited as a speaker at National Conference on Recent Innovations in Mechanical and Civil Engineering (RCME - 2017) held on 07 April 2017 at KNGD Engineering college, Modi Nagar, U.P.

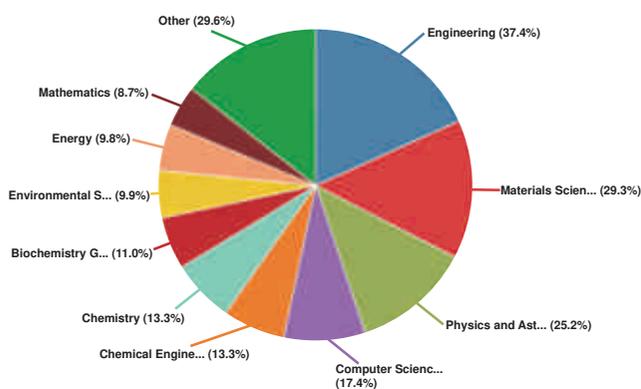
PUBLICATIONS

IIT BHU is committed to being a leading research institution. Since January 2017, over 564 papers have been published in reputed international and national publications.

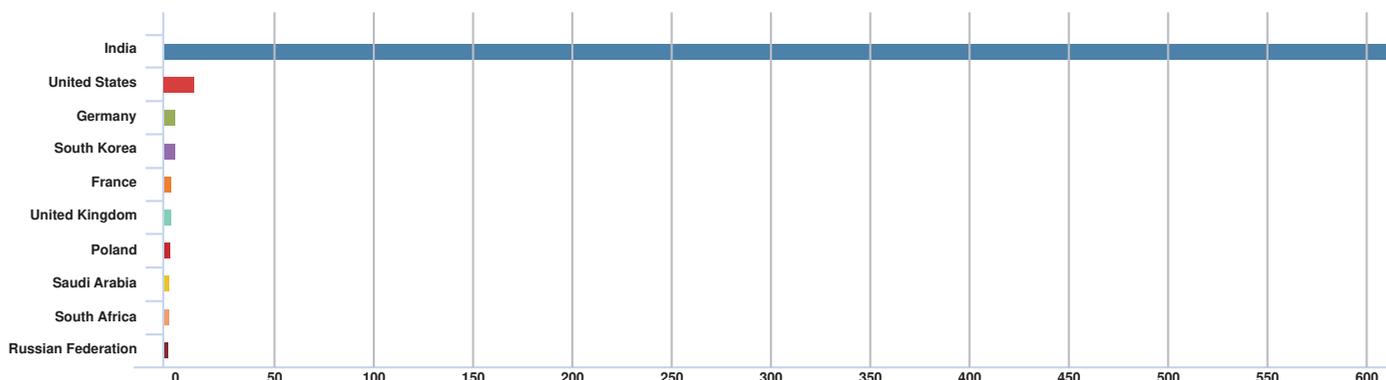
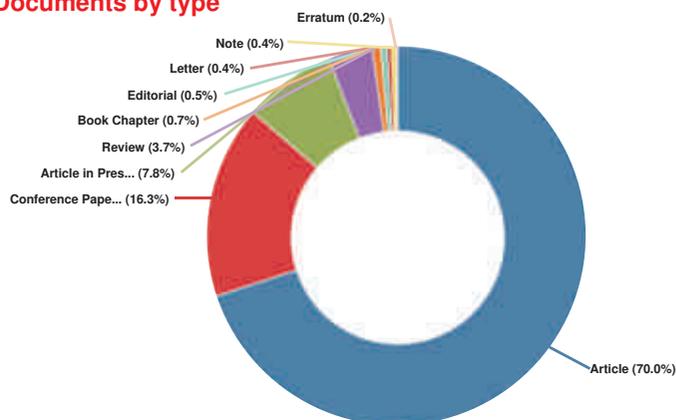
Collaborations

IIT BHU has performed research in collaboration with Educational and Research Institutions from several countries. Internationally collaborative research is performed with top Institutions and research centers including Nanyang Technological University (Singapore), National University of Ireland, Texas A & M University and National Oceanic and Atmospheric Administration(US), Korea Institute of Science and Technology (South Korea), Swinburne University of Technology (Australia), Nanjing University(China). Besides sister IIT's and other top universities IIT BHU collaborates with leading national research centers such as the Bhabha Atomic Research Centre, Central Drug Research Institute, Indian Maritime University, International Centre for Agricultural Research and the Indira Gandhi Centre for Atomic Research.

Documents by subject areas



Documents by type



List of Patents Filed in 2017

S. No.	Name of Inventor	Title of the Invention	Date of Filing
1	Pralay Maiti	A Medicated Biodegradable Patch for Treating Wounds and A Method Thereof	27-Jan-17
2	Sanjeev Kumar Mahto, Ashutosh Bandyopadhyay, Vimal Kumar Dewanagan	A Method for Rapid 3d Prototyping of Skeletal Muscle Tissue Constructs Using A Novel Composition of Bio-Ink	8-Feb-17
3	Rajiv Prakash; Asha Gupta; & Preetam Singh	High Capacitance Electrode for Pseudocapacitors and A Method of Preparing the Same	6-Mar-17
4	Sanjay Kumar Singh; Santosh Kumar; H. P. Gupta; & Tanima Dutta	A System and Method for Real-Time Cattle Recognition Using Muzzle Images	15-Mar-17
5	Subir Das, P. K. Mishra and N. Srikanth	A System and Method for Determination of Crack Progression	3-Apr-17
6	Manoj Kumar; Sudhir Ranjan and Rajiv Prakash	Substrate-Assisted Synthesis of Diverse Morphologies of Upconverting Nanomaterials	25-Apr-17
7	Manoj Kumar & Suhir Ranjan	Green Synthesis Process of Upconverting $\text{NaYf}_4:\text{Yb}^{3+}, \text{Tm}^{3+}$ Nanomaterials and Products Thereof	29-May-17
8	Pradip Kumar Roy, S.K. Saddam Hossain, & Deepshikha Shekhawat	A Method of Synthesis of Soft-Hard Ferrites	17-Jul-17
9	Sairam Krishnamurthy; Pankaj Paliwal; & Gaurav Chauhan	An Oral Composition of Indole-3-Carbinol and A Method of Preparation Thereof	28-Jul-17
10	Pralay Maiti; & Om Prakash	A Method to Enhance Thermal Stability and Efficiency in Porous Fluoropolymer Hybrid Membrane	31-Jul-17
11	Hari Prabhat Gupta; Tanima Dutta; & Surbhi Saraswat	A Real Time Writing Instrument Grip and Motion Monitoring System	8-Aug-17

Sponsored Projects Sanctioned between January to August 2017

S. No.	Title of Project	Name of PI/ Co PI	Date of Sanction	Agency
1	On characterizing and Obtaining the Complete Efficient Solution Set of an Interval Optimization Problem under a D-Dominance and a variable Dominance Structure	Dr. Debdas Ghosh	05.12.2016	SERB
2	Development of solution methods for Abel's integral equations and generalized Abel's integral equation	Dr. Rajesh Kr. Pandey	22.12.16	DAE
3	Understanding structure and dynamics of the Interstellar medium	Dr. Prasun Dutta	07.12.2016	DST
4	Sanction order for inspection of 751 GPIs to the 11 technical Institution	Dr. P.K.Mishra	20.03.2017	CPCB
5	Combined effect of dynamic electrical stimulation and surface charge on cellular functionality of electrovector and piezoelectrical toughened bioceramics	Dr. Ashutosh Kumar Dubey	23.03.2017	SERB
6	Cold sintered ferroelectric polymer-ceramic nanocomposite for energy storage	Dr. Akansha Dwivedi	24.03.2017	SERB
7	Development of rare earth free ceramic magnet with high energy and curie temperature for motor applications	Dr. Pradip Kumar Roy	25.07.2017	SERB
8	Development of Energy- efficient wireless sensor network for precision agriculture	Dr. Hari Prabhat Gupta	05.07.2017	SERB
9	Design and development of miniaturized pattern/frequency reconfigurable MIMO antennas and its performance improvement using artificial electromagnetic material	Dr. Manoj Kumar Meshram	31.01.17	SERB
10	Construction of Cold Inducible Expression System	Dr. Ashish Kr. Singh	16.02.17	DBT
11	Development of Polymer and Quantum Dots Blended Tandem Solar Cells Using Low-Cost Solution Processed Method	Prof S. Jit	03.05.17	SERB
12	Design and investigation of thermal conducting two dimensional heterostructures	Dr. Ashish Kumar Singh	27.06.17	SERB

List of MOUs signed by IIT (BHU) from 1.1.2017 till date

National MOUs :

M/s Bajinath Pharmaceuticals Pvt. Ltd.. Paprola, Tehsil Baijnath, Distt. Kangra (H.P.) on 8.6.2017

International MOUs:

1. University of Connecticut, Storrs, CT, USA (UCONN) on 31.1.2017
2. Institute of Inorganic and Materials Chemistry, University of Cologne, Cologne, Germany on 29.6.2017

List of faculty members, who joined during 01.01.2017 to 31.07.2017

S. No.	Title of Project	Designation	Department/School	Date of Joining
1	Dr. Tanima Dutta	Assistant Prof.	Comp. Sci. & Engg.	19.04.2017 (AN)
2	Dr. Smrity Dwivedi	Assistant Prof.	Electronics Engg.	09.05.2017 (AN)
3	Dr. Shishir Gaur	Assistant Prof.	Civil Engg.	19.05.2017 (AN)
4	Dr. Nikhil Saboo	Assistant Prof.	Civil Engg.	29.05.2017 (FN)
5	Dr. Amrita Chaturvedi	Assistant Prof.	Comp. Sci. & Engg.	30.05.2017 (FN)
6	Dr. Ashish Mathur	Assistant Prof.	Electronics Engg.	01.06.2017 (FN)
7	Dr. Ruchir Gupta	Assistant Prof.	Comp. Sci. & Engg.	05.06.2017 (AN)
8	Dr. Lakshmanan Kailasam	Assistant Prof.	Comp. Sci. & Engg.	05.06.2017 (AN)
9	Dr. Rosalin Sahoo	Assistant Prof.	Civil Engg.	27.06.2017 (FN)
10	Dr. Prasun Kumar Roy	Professor	Bio-Medical Engg.	04.07.2017 (FN)
11	Dr. Marshal	Associate Prof.	Bio-Medical Engg.	04.07.2017 (FN)
12	Dr. Supriya Mohanty	Assistant Prof.	Civil Engg.	14.07.2017 (FN)
13	Dr. Manas Chakraborty	Assistant Prof.	Civil Engg.	14.07.2017 (FN)
14	Dr. Pratik Chattopadhyay	Assistant Prof.	Comp. Sci. & Engg.	27.07.2017 (FN)

List of faculty members, who retired during 01.01.2017 to 31.07.2017

S. No.	Name	Designation	Department/School	Date of Retirement
1	Dr. Anand Mohan	Professor	Electronics Engg.	31.01.2017
2	Dr. R. Dwivedi	Associate Prof.	Electronics Engg.	31.01.2017
3	Dr. S. P. Singh	Professor	Ceramic Engg.	28.02.2017
4	Dr. Ram Prasad	Professor	Chemical Engg.	28.02.2017
5	Dr. Dhananjai Pandey	Professor	SMST	31.03.2017
6	Dr. G.V.S. Sastry	Professor	Metallurgical Engg.	30.04.2017
7	Dr. J. P. Dwivedi	Professor	Mechanical Engg.	30.06.2017
8	Dr. S. K. Srivastava	Professor	Bio-Chemical Engg.	31.07.2017

Short Term Courses/Workshops/Conferences Conducted

Indrajit Sinha from the Department of Chemistry coordinated an interaction workshop on "Preparation of Detailed Lecture Based Curriculum" for AICTE approved Engineering Colleges which was jointly Organized by the Department Of Chemistry, Physics & Mathematical Sciences, IIT (BHU) on 22 June 2017

Lal Pratap Singh of Department of Mathematical Sciences acted as course coordinator for the AICTE sponsored QIP Short Term Course on Advanced Numerical and Analytical Methods for Engineers and Scientists (NAMES-2017) organised by Department of Mathematical Sciences, IIT(BHU) Varanasi during January 12-18, 2017.

Nawal Kishore of Mining Engineering organized one STC under QIP-CEP initiative on the topic Coal Quality Management & Utilization from 24-29th July 2017.

Amitesh Kumar of Mechanical Engineering coordinated a workshop on "Basics of Computational Fluid Dynamics: Theory & Programming" during 20-22 July 2017.

J. Kandasamy and Vandana Srivastava from the Department of Chemistry organized Indo-German Workshop RACCB held between 14-16 February 2017.

A.P.Harsha of Mechanical Engineering conducted a QIP short term course entitled "Materials Tribology: Fundamentals and Recent Advances" during 23rd March to 29th March 2017 in the Department of Mechanical Engineering, IIT (BHU), Varanasi, UP. Professor Rajneesh Tyagi was also a coordinator.

Sandip Ghosh of Electrical Engineering coordinated a QIP Short-Term Course on "Advanced Topics in Robust and Nonlinear Control" during 14-20 Feb, 2017. The coordinators were Prof. S. K. Nagar, Prof. D. Singh, Dr. Sandip Ghosh, Dr. Shyam Kamal.

Rajesh Rai of Mining Engineering organized a CEP short term course on Rock Mechanics and Ground Control.

Satyabrata Jit of Electronics Engineering worked as Coordinator for the AICTE Sponsored Short-Term Course on "Modeling and Simulation of Advanced Semiconductor Devices" organized by the Department of Electronics Engineering, IIT(BHU) Varanasi during July 17-22, 2017.

Shailendra Kumar Shukla of Mechanical Engineering acted as the Coordinator of Regional Workshop on "Teacher Training Workshop on 'E-learning: challenges and opportunities" jointly organized by AICTE New Delhi and British Council held at TLC centre, IIT(BHU), on April 25, 2017.

M. K. Verma of Electrical Engineering conducted a QIP Short Term Course on "Power System Stability and Control in Smart Grid Architecture" held between 3-8 July 2017.

Rampada Manna of Metallurgical Engineering acted as the coordinator for the QIP Short Term Course (STC) and Continuing Education Programme (CEP) on Steel Technologies held between 2-9th March, 2017.

List of retired/expired/resigned technical/ministerial employees from January 2017 to July 2017

S. No.	Employee ID	Name	Designation	Department/School	Date of Retirement	Remarks
1	17667	Sri Chhannu Lal Kashyap	Junior Technician	Mechanical Engg.	30.04.2017	
2	13933	Sri A.K. Verma	Technical Superintendent	Electrical Engg.	31.05.2017	
3	16005	Sri V.K. Srivastava	Technical Superintendent	Electronics Engg.	31.05.2017	
4	-----	Sri Kumar Anand	Junior Assistant	Faculty Affairs	-----	Resigned W.e.f 28.05.2017 (AN)
5	19617	Sri Amar Nath Yadav	Assistant Security Officer	Proctor Office	-----	Resigned W.e.f 19.06.2017 (AN)
6	18988	Sri Umendra Narayan Singh	Senior Research Officer	Physics	-----	Expired on 10.07.2017
7	-----	Sri Manish Kumar Sonker	Junior Assistant	Salary Section, R.O. (Finance)	-----	Resigned W.e.f 04.08.2017 (AN)

List of Non-Faculty members who have attended workshop/ Training Programme outside the Institute from 01.01.2017 till date.

S. No.	Name & Designation	Course Title	Period
1	a) Dr. Amit Kumar Singh, Asstt. Registrar, IWD b) Sri Devendra Pratap, Assistant Registrar (Accounts)-I	Workshop on e-procurement	09.01.2017 to 10.01.2017
2	a) Ms. Swati Biswas, Deputy Registrar b) Sri Sudhanshu Shukla, Assistant Registrar c) Sri Ravi Kumar, Assistant Registrar	All India Conference "Ateendriya Bodh - An Ethereal Cognition"	28.01.2017 to 29.01.2017
3	a) Sri Devendra Pratap, Assistant Registrar b) Sri Ravi Kumar, Assistant Registrar	Training Programme on Public Financial Management System (PFMS)	06.03.2017 to 10.03.2017
4	a) Sri Sudhanshu Shukla (SB & Pension) b) Sri Ravi Kumar Assistant Registrar (Audit)	Right to Information Act-2005	27.03.2017
5	Ms. Swati Biswas, Deputy Registrar (A/cs)	Workshop on "The Sexual harassment of women at workplace (Prevention, Prohibition and Redressal) Act-2013"	28.04.2017
6	a) Sri Sameer Ranjan Singh Assistant Registrar (Scholarship) b) Sri Siddharth Kumar Gupta, Junior Assistant (Scholarship)	Filling of Master data & related works in Universities and Institutes	01.06.2017
7	Sri Sameer Ranjan Singh Assistant Registrar (Scholarship)	National Academic Depository (NAD) Awareness	30.06.2017
8	Shri Ravi Garg, Junior Assistant, Confidential Unit	Administrative Vigilance: Role of IO/PO	07.08.2017 to 11.08.2017
9	Shri Deepak Kumar Singh, Junior Assistant, Annual Account & Balance Sheet	Record Management-Right to Information	16.08.2017 to 18.08.2017
10	a) Sri Devendra Pratap, Assistant Registrar (Accounts)-I b) Sri Sudhanshu Shukla, Assistant Registrar (SB&Pension)	Government e-Marketplace (GeM) and GFRs 2017	21.08.2017 to 22.08.2017
11	a) Sri Devendra Pratap, Assistant Registrar (Accounts)-I b) Sri Sudhanshu Shukla, Assistant Registrar (SB&Pension)	Goods and Services Tax (GST)	23.08.2017 to 25.08.2017

“हिन्दी भाषा के त्रुटिरहित शब्दों के प्रयोग” पर हिन्दी कार्यशाला (अप्रैल 22, 2017) : एक प्रतिवेदन (रिपोर्ट)

संस्थान में दिनांक 22.04.2017 को “हिन्दी भाषा के त्रुटिरहित शब्दों के प्रयोग” विषय पर एक हिन्दी कार्यशाला का आयोजन किया गया।

उदघाटन सत्र :

कार्यशाला का शुभारंभ कार्यवाहक निदेशक, आचार्य जी.वी.एस. शास्त्रि, आचार्य अनिल कुमार त्रिपाठी, आचार्य अवधेश नारायण मिश्र, डॉ. एस.पी. माथुर, कुलसचिव एवं श्री जगदीश नारायण राय, संयोजक (के०स०, हि०परि०, वाराणसी) द्वारा महामना पंडित मदनमोहन मालवीय जी की प्रतिमा पर माल्यार्पण एवं दीप प्रज्वलन के साथ हुआ। कार्यवाहक निदेशक महोदय ने अपने अध्यक्षीय संबोधन में भाषा के त्रुटि रहित शब्दों के प्रयोग पर आयोजित उक्त कार्यशाला की महत्ता बतायी एवं संस्थान के कुलसचिव महोदय द्वारा संस्थान में राजभाषा हिन्दी के क्षेत्र में किए गए महत्वपूर्ण कार्यों की जानकारी दी गयी।

उक्त हिन्दी कार्यशाला के दौरान निम्नलिखित आयोजन किए गये-

1. संगणक विज्ञान एवं अभियांत्रिकी विभाग द्वारा विकसित ‘प्रशासनिक शब्दावली’ का एंड्रॉयड ऐप का प्रदर्शन :

संस्थान के संगणक विज्ञान एवं अभियांत्रिकी विभाग के चतुर्थ वर्ष के छात्र श्री श्रीयांश गौतम द्वारा विकसित ‘प्रशासनिक शब्दावली’ का एंड्रॉयड शब्दकोश ऐप का प्रदर्शन किया गया। इस ऐप का उद्देश्य कार्यालयों में हिन्दी के प्रयोग को बढ़ावा देना, इंटरनेट पर निर्भरता को कम करना एवं अंग्रेजी शब्दों के हिन्दी अनुवाद तथा उच्चारण की जानकारी प्रदान करना है।

2. प्रथम सत्र –“हिन्दी भाषा के त्रुटिरहित शब्दों के प्रयोग” (प्रशिक्षक-आचार्य अवधेश नारायण मिश्र)

कार्यशाला के प्रथम सत्र में आचार्य अवधेश नारायण मिश्र, हिन्दी विभाग, काशी हिन्दू विश्वविद्यालय, वाराणसी द्वारा “हिन्दीभाषा के त्रुटिरहित शब्दों के प्रयोग” विषय पर प्रशिक्षण दिया गया। उन्होंने ध्वनि, शब्द, भाषा, अर्थबोध, उपमान, व्याकरण, वाक्यशेष, कोश आदि के बारेमें बताया तथा शब्दों की बनावट के बारे में चर्चा की। इस अवसर पर संस्थान के

कुल ५० अधिकारियों/गैर-शिक्षण कर्मचारियों ने प्रशिक्षण प्राप्त किया।

3. द्वितीय सत्र-“संघ की राजभाषानीति व उसका कार्यान्वयन” (प्रशिक्षक- श्री जगदीश नारायण राय)

कार्यशाला के द्वितीय सत्र में श्री जगदीश नारायण राय, संयोजक, केन्द्रीय सचिवालय, हिन्दी परिषद, वाराणसी द्वारा संघ की राजभाषानीति व उसके कार्यान्वयन के बारे में बताया गया। इस दौरान उन्होंने सभी सहभागियों को हिन्दी तिमाही रिपोर्ट भरने से संबंधित आवश्यक जानकारी भी दी।

4. तृतीय सत्र-“हिन्दीभाषा के त्रुटिरहित शब्दों के प्रयोग” (प्रशिक्षक-डॉ. प्रभाकर सिंह)

कार्यशाला के तृतीय सत्र में डॉ. प्रभाकर सिंह, सहायक आचार्य, हिन्दी विभाग, काशी हिन्दू विश्वविद्यालय, वाराणसी द्वारा “भाषा से संबंधित स्वरूप एवं विचार” विषय पर चर्चा की गयी। इसके बाद कार्यालयी प्रयोग हेतु भाषा कैसे लिखी जाय, के बारे में सहभागियों को बताया। साथ ही उन्होंने कार्यालयी पत्राचार में सरल, सुगमभाषा के प्रयोग करने पर बल दिया एवं हिन्दी के चिह्नों का प्रयोग, वर्ण, शब्द, पद, वाक्य, अर्थ आदि के बारे में भी बताया।



Training Programmes in the Institute- A Report

A training programme meets the needs of both staff members and the organization, and keeps the organization growing and changing for the better. With this aim, the Institute has been organising training programmes for its non-faculty members from time to time. Two Training Programmes were organised on 19th April, 2017 and 24 to 27 August, 2017 for the employees. The training programmes were held in Annie Besant Lecture Theatre, Administrative Block, and GTAC, IIT (BHU).

First Training Programme - "Purchase procedure and processing of Bill" (19.04.2017)

This training programme was conducted by Ms. Swati Biswas, Deputy Registrar (Accounts), on 19.04.2017. All the staff posted in Trade Bill/Purchase Section as well as of Departments/Schools/Centres of the Institute dealing with these areas attended the programme. A total number of 82 participants attended the programme. Ms. Swati Biswas delivered a talk on "Purchase procedure and processing of Bills" in the offices.

Second Workshop Programme - "Noting & Drafting" (24-27.08.2017)

This workshop was conducted in two batches by Shri K.S. Kumar, Ex Faculty, ISTM, New Delhi during 24.08.2017 to 27.08.2017 in GTAC of the Institute. In this programme, 59 newly appointed Junior Assistants attended. Shri K.S. Kumar discussed the matters related to receipt letter, procedures on receipt letters, filing, docketing, File numbering, referencing, letter and office note etc. The participants became aware with the rules and procedures of Noting and Drafting.



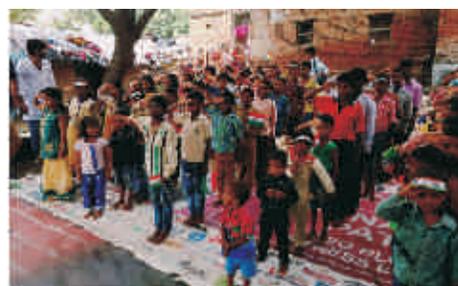
Social Service Council

GIVING BACK

Human beings are social animals. We depend on the society for various things. But this dependency isn't just one way. It is our duty to serve the society as much as it is our right to be a part of it. To shape this simple thought into reality, IIT-BHU came up with a strong and ambitious solution. Last semester, the much-anticipated Social Service Council became a reality, as a result of the students' strong motivation and sense of responsibility to create a better society for all.

With a simple yet bold vision to develop awareness and sensitivity towards fellow human beings through Social Service, this umbrella organisation encompasses four ambitious and motivated clubs which includes three infant clubs, namely, Health and Hygiene Club,

Social Projects Club, Sahyog (Educational Awareness Club) and also Kashi Utkarsh, which has been operating selflessly since 1997. Since, most of the clubs are still at a very early developmental stage, it is very early to count achievements. But all constituent clubs are working at a rapid pace and the continuous work being done to achieve every goal is truly praiseworthy. With a firm belief that the inborn humane qualities already existent in every individual only need to be nurtured and further developed to benefit the society as a whole, the council is committed to developing and disseminating professional knowledge, which includes identifying community problems at a micro-level, critical analysis and drafting innovative solutions, consequently



contributing to responsive social welfare.

In an interaction with Dinesh Seervi (of 5th Year Mining Engineering), the General Secretary of the Council, we were told about the entire structure of the council and the immediate and long-term goals of the various clubs and the council as a whole. "The main challenge during the formation of the council was in deciding the scope and field of work of every club", he said. But thanks to the efforts of the entire team, the entire structure was soon resolved and the Council came to be officially recognised on 13th January 2017. The Director, himself, was very actively involved in the entire process of the establishment of the council. Dinesh Seervi of Part V Mining Engineering was elected as its first General Secretary, while the Joint General Secretaries are Pallav Sahu of Part IV Mechanical Engineering and Ashish Verma of Part IV Electrical

Engineering.

The educational awareness club or SAHYOG, A Helping Hand, as we know it, aims to extend helping hands to mutually share the knowledge and simultaneously make the light of education fathom the darkest parts of the society. It is currently being enthusiastically led by Charul Soni of Part III Chemical Engineering as the Secretary and Shivam Singh and Harsh Gupta of Part III Mining Engineering and Part II Electronics Engineering respectively as the Joint Secretaries of the club.

The SOCIAL PROJECTS CLUB, being led by Yash Jain of Part IV Industrial Chemistry as Secretary and Ravi Kumar of Part III Civil Engineering and Shubham of Part II Chemical Engineering as Joint Secretaries, is the third club in the council. It seeks to contribute to the community through focused and rigorous

approaches on finding different roots and causes for the run-down of society and thereby forecasting its impacts and finding remedial measures. With sky high aims and crystal-clear goals, the club boasts of backbreaking and continuous work to back up each and every ambition they have for the near and distant future.

Lastly, the HEALTH and HYGIENE CLUB seeks to generate and propagate awareness about the importance of salubrious living habits and developing a feeling of sanitation, health, hygiene and cleanliness among fellow human beings. Anshuman Singh of Part III Metallurgical Engineering was appointed the Secretary and Sanyam Jain and Parth Sharma of Part III Ceramic Engineering are the Joint Secretaries of the club.

KASHI UTKARSH : Extending a helping hand

The most decorated club of the Social Service Council, Kashi Utkarsh has been inspiring students to selflessly serve the underprivileged parts of our society since 1997. It was included as a club in the Social Service Council after the council was established in the previous semester with Aayush Agarwal of Part III Chemical Engineering being elected as the Secretary and Keval Mehta and Ananya Gupta of Part II Ceramic Engineering and Electrical Engineering respectively as the Joint Secretaries. Long-time members of KU insist that it is not just a club, in the conventional sense of the word. It is indeed a family of thoughtful and bright minds, who are bound together by bonds thicker than blood, by the collective sense of responsibility towards humanity, who came together to help other intelligent and brilliant, but unprivileged children and society as a whole.

The words, 'it is a family' weren't used just to add meaningless impact. KU is, in

its truest and most beautiful sense, a family of loving and caring souls. Unlike most other clubs, KU doesn't have a rigid structure of positions. Everyone who feels the urge in their hearts to help someone else out is indeed as much a part of KU, as much as the club post-holders. There is freedom of thought, and that, combined with the will to do collective good brought about significant and wondrous memories and moments for everyone associated with KU.

The entire team of Kashi Utkarsh works in different bastis and is primarily organized into 7 teams, namely, 'Secondary Education Team', 'Navodaya Team', 'Patiya Basti Team', 'Silai and Mehendi Team', 'Gyaan Udyaan', 'Kakarmatta Basti Team' and 'Library and Computer Classes Team'. They meet different people at different places with different problems. But what connects each and every situation is the fact that in almost all cases it is

the children who suffer the worst. At an age when they should be enjoying life and learning new things, they are forced into the shackles of poverty and labour, robbing them of all their sense of individuality, talent and creativity. Although it is an issue much talked about by people, the general response is limited to blaming the others for the plight of these children. But if instead of talking about why this problem exists, people start talking about how these problems can be eliminated, it can be realised that there are numerous



solutions. And Kashi Utkarsh is one of the many solutions to this demeaning social scenario of our country.

This entire journey began back in 1997, when our respected alumnus, Anupam Bansal, along with his friend Vinod, realised that there was more to life than getting good grades and landing a decent package. With just two bicycles and a desire to serve the society, they set out to explore nearby colonies or mohallas and started taking notes on the socio-economic conditions of the families living there, and talking to strangers who would cross their path. They did this for quite some time until they decided that Lahartara basti was the place where they needed to start their work. They found out that there were two private schools but many children of the basti never even attended any school. Even though they did not have any fixed source of fund, they were bold enough to make huge commitments to the children

living there. They started collecting monthly funds from their batchmates. And slowly and gradually this spread out to the other branches of the institute. By scavenging through funds at that time, they did everything they could to help the



children attend school. They even got a few doctors from IMS-BHU to go with them to the basti and organize medical camps. Some very serious patients were identified through these camps and they were later taken care of in IMS.

There has never been any special publicity of the group and those who had genuine interests have found their way to

KU. It was clear that charity alone could not be a permanent solution to the problems the people were facing. Maybe this itself is the best thing about KU, that it is not just another charity group donating money to poor people. Instead it is teaching the people about a better way of life, enlightening and educating them, giving them an opportunity to become self-dependent in life.

On every Friday evening, all the volunteers of KU meet at the Rampur Lawns of the Electrical Dept. without failure to discuss the week's work plan and on every Sunday, the volunteers ride on their bicycles to different bastis radiating happiness and enlightenment all around. Over the years, Kashi Utkarsh has celebrated numerous achievements. And now as an official club under the Gymkhana, KU is all set to work through many more glorious and heart-warming moments and cement the legacy of this splendid fraternity further down the ages.

Student Festivals

KASHIYATRA '17 : A FEST BEYOND IMAGINATION

Kashiyatra, the annual cultural festival of the Institute, has always believed in the motto 'Our competition should be with ourselves to achieve excellence' and continuously works towards this endeavor, ensuring a new edition better than the previous one. True to its word, it has broken its own record in 2017, with enormous participation from external colleges. KY '17, held between 20th and 22nd January, witnessed a rise in footfall to about 30,000, up from 20,000 last year. A pre-event of KY, called Bliss was organized which was an inter school competition in various fields comprising music, dance, arts and quiz. A magazine called 'KY Beats' was published and distributed to provide each and every detail about KY beforehand and give a glimpse of the wonders to come. The inaugural session of KY '17 included an Odissi dance performance by the Italian dancer

Ileana. Several other performances followed, including the ones by Priya Saraiya, ABeatC, The Local Train, Mind shift and Sunburn. The final proudest performance by the famous and successful duo Sachin-Jigar will be remembered fondly for a long time. Every year Kashiyatra enforces different and innovative ideas in the form of pre-events or main event. This encourages various participants to develop their own skills and enhance their ability. Some ideas implemented in Kashiyatra'17 include Run for Cancer, Benares Bazaar, Poker night, International carnival, Zumba and Salsa dance workshops, KY Beats, Naratana and Rangbaazi. The number of main events was increased this year by the introduction of Naratana, a folk dance competition, and Rangbaazi, a blow painting (without using brush) event, both of which drew huge participation. Relaxed hostel entry timings for girls ensured their increased participation in the activities.



Technex'17

The institute hosted the 78th edition of its annual techno-management fest Technex, during 24-26 February, 2017. Being Asia's oldest fest, it has a long standing legacy of nurturing and channelling young minds across the country. This year, Technex witnessed participation from over 600 colleges across the country in various events.

A guest lecture by Balaji Viswanathan ("Most followed author" on Quora) on the first day marked the initiation of the fest. In addition, other stalwarts like Sam Pitroda (Advisor to PM of India),

Dilip Chhabria (Founder of DC Design), Vinod Dham (Father of Pentium), Balaji Holur (Senior VP, Samsung) and J.N. Reddy (Creator of FEM) delivered stimulating lectures as part of the Think Talks series. The Corporate Conclave brought together companies which are the very face of modern technology. Samsung, Citi, De Shaw, L&T and others showcased the future of technology in their respective sectors.



The participants competed in 40 competitions in various fields such as robotics, aeromodelling, economics and finance, computer science, astronomy, etc. Technex '17 with its motto of "Achieving sustainability" offered challenging problem statements in different domains and a total prize money of about 20 lakhs motivated the participants to come up with innovative solutions. Exhibitions have been a part of Technex since long, but Technex'17 took it a notch higher. It had 12 exhibitions in all, highlights being the Humanoid Robots and a Mind Controlled Drone. The most awaited Prof. Veer Bhadra Mishra Memorial Airshow was organised on the last day of the fest. Alongside the

spellbinding show put up by the gliders and model planes, the Show was marked by a Rocket Launch, a first-of-its-kind event in an Indian college fest. The rocket was about 1.2 meters in height, with a maximum altitude of around 900 meters. Technex'17 also ensured a memorable experience for all through Pro-nights including a Harley Davidson Roadshow, fun filled stand-up comedies by Sorabh Pant and TVF Humorously Yours team, a live concert by Shirley Setia etc.

Technex achieved great heights in 2017. we make and break records with every passing edition. For me, it was a year full of challenges; but in the end, it was the team that put things together every time, defying all the odds. I cannot express all the awesomeness of Technex'17 in words. One had to see it to believe it.

Omkar Jadhav
Convener, Technex'17

STUDENT ACHIEVEMENTS

Ashwin Agrawal from the Metallurgical Engineering Department was selected in Google Summer of Code (GSoc) 2017 in R organisation for statistical computing. **Divesh Pandey** from Computer Science and Engineering was also selected in GSoc 2017 under the organisation Red Hen Lab.

Dr. Bharat Kumar Allam from the Department of Chemistry won the Perkin Elmers Chem Draw Innovation Challenge 2017 as a top innovator and got a place in the Chem Draw Hall of Fame.

Lakshya Narula from the Ceramic Engineering Department was selected to attend and present an action project at the Grand Initiatives Symposium (GIS), Taiwan, held during 3-7 July 2017.

The team of **Saurabh Chopra, Archit Agarwal, Avnish Kumar and Vishnu Pandey** secured the fifth position among 20 top teams from 20 countries at the grand finale of the Global Student Challenge in Supply Chain Finance, held at Windesheim University, Zwolle, The Netherlands.

CULTURAL COUNCIL ACHIEVEMENTS

In Anwesha 2017, the annual cultural fest of IIT Patna, IIT BHU won the second prize in Satanz Tantrum (band competition). Chetan Chaudhary got the second prize in Syngphony (Solo/Duet Competition). The institute also won the first place in the street play event.

In Spandan 2017, the cultural festival of BHU, the Institute bagged the 3rd position in the Indian group singing competition.

In Insomnia'17, IISER Mohali, first-yearite Akshay got a Special Mention as the best guitarist of the western music band event.

The Quiz Club bagged an overall top-10 finish in Nihilanth 2017 (Inter IIT-IIM Quiz Fest) held at IIM Lucknow. An institute team also emerged runner-up in the zonal round of Tata Crucible Campus Quiz 2017.

EVENTS ORGANISED

The cultural council, IIT BHU hosted an edition of SPIC MACAY, complementing the cultural heritage of the university and the city of Banaras. SPIC MACAY (The Society for the Promotion of Indian Classical Music And Culture Amongst Youth) was held

during 8th to 10th April 2017. Participating artists included Sarod maestro Mr. Partho Sarothy, Kathak pioneer Smt. Malti Shyam, and Ms. Sunanda Sharma, a leading vocalist in Indian classical music.

Sayonara '17 was a first-of-its-kind event by the Cultural Council, held to mark the farewell of the outgoing batch. All clubs took part in the proceedings, with a Qawwali performance by IMC and the band performance by the senior members of the club. Other events included dance performances, mimicry, stand-up comedy and an engaging quiz.

Rock Informal's were held on the evening of 12th April, with a number of scintillating performances by the Indian and Western Music clubs.

Kshiti'17 was organised by Masquerades, the dramatics club, celebrating various

theatrical forms including mimes, short plays and monoacts. Masquerades also organised Abhivyakti '17, a farewell event on 16th and 17th April, where the members enacted two engaging plays, "Aisa kehte hain" and "Kasturi".



Science and Technology Council

ACHIEVEMENTS

The team of Nikhil Khatavkar, Vivek Gupta and Gaurav Somani from the Astronomy Club secured the first position in What's Up - a sky-gazing event held in Techkriti 2017. The team of Nikhil Kumar Bhondekar, Khushveer Singh and Vineesha Srivastava secured the third position in the same event. All three podium places were bagged by the members of the Astronomy Club in AstroTreasure and AstroQuiz in the same fest.

Yash Khandelwal from the Aero-Modelling Club secured second position in Multirotor at Techkriti 2017.

The SAE-BAJA team of the institute team, led by Yash Mittal and Nishant Rajesh, secured 72nd position out of 450+ teams in SAE-BAJA Virtual Round 2016-17.

In the Inter-IIT Tech Meet 2017, held in IIT Kanpur, the team of Mohit and Digvijay Pratap won the silver in UAV Design Challenge with the highest plane glide time among all IITs. The team of Nikhil Bhondekar, Tarush Tiwari, Kajal Kumari and Priyanka Baa from the Astronomy Club won Silver Medal in Eyes on the Sky having

discovered 86 Messiers in just 7 hours. The team of Vaishnav S. Menon, Vaibhav Kumar Dixit, Akshay Sharma and Shreyansh Singh won the 4th position in Dashboard with their design beating all IITs in novelty.

In Kshitij 2017, held at IIT Kharagpur, the team of Naman Sharma, Abhishek Thamman, Rakshit Shukla and Balwant Singh Shekhawat bagged the first position in B.R.I.C.K.S - a semi-autonomous robotics event. The team of Mayank Garg, Khayati Mittal, Samikshya Chand and Parth Shyara bagged the second position in Conquest - an image processing event. The team of Tarunay Shrivastava, Rakshit Chauhan, Shashwat Rai, Shashank Shekhar and Muneeb Ahmed finished in the top 20 among 140 teams in Sandrover - a wireless obstacle crossing event.

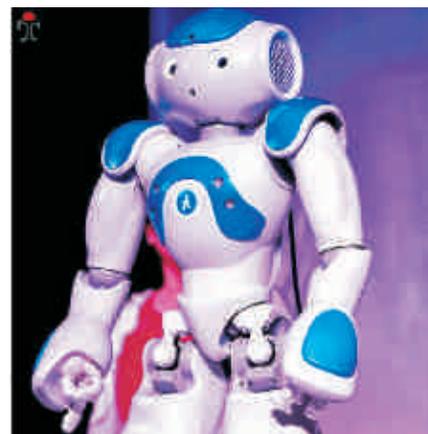


EVENTS ORGANISED

Technical and Rural Outreach Club organized Escalate - an event involving discussions on ideas and policies to be implemented to realize 17 Sustainable Development Goals adopted by the United Nations.

The newly formed Club of Economics and Finance organized Utilize - an event based on the concepts of economic utility, price regulations, trading and negotiation.

The third edition of Microsoft code.fun.do coordinated by the Club of Programmers was an immense success with a footfall of more than 700 students.



GAMES AND SPORTS COUNCIL

ACHIEVEMENTS

In Sportech (IIT Delhi) 2017, IIT BHU was adjudged the overall first runner-up. In athletics, gold went to Nitish Kumar for 110m hurdles, Anant Kumar Singh for javelin throw and Gaurav Kant for discuss throw. The silver was won in javelin throw by Gaurav Sharma, in hammer throw by Chandershekher Pandey, shot put by Gaurav Kant, and in the 1500m and 5000m sprints by Ajit Kumar. The bronze was won in long jump by VinodRajak, and in the 400m, 800m and 400m hurdles by



Vaibhav Ratnam, Ajit Kumar and Nitish Kumar respectively. Additionally, the cricket, football and male volleyball teams won the bronze, while the powerlifting team finished runners-up in the 56kg and 77kg-up categories.

EVENTS ORGANISED

The Interhostel Sports Meet was organised in the Even Semester with a plethora of sporting activities.

Vishwakarma Hostel was adjudged the overall winner, and Rajputana the runner-up.

The Male Athletics Meet was held, and the best athlete award went to Anant Kumar Singh.

In the Female Athletics Meet held, Ratnadipa Shinghare was declared the best athlete.

Other events organised include a Boot Camp, Ballerz (an open basketball

tournament for girls), Open Squash Tournament, Inter-Year sporting tournament, and the Adel Memorial Football tournament.



FILM AND MEDIA COUNCIL

EVENTS ORGANISED

Vista, the annual photography and visual arts exhibition, was held on 13th January, wherein over 200 artworks in various forms were put on display at the Limbdi corner and accompanied with informal events. It drew participation from 20+ colleges and footfall of over 500.

ACHIEVEMENTS

In the Inter-IIT Cult Meet 2017, Suraj Panigrahi and Rajasvi Vinayak Sharma secured second and third position respectively in the brochure design competition. Members of Cine Club came fourth in the Online Short film making competition in the Cult meet.

Photographs taken by members of the Photography Club were featured on Instagram pages with over one lakh followers.

