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INDIAN  
INSTITUTE OF  
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BANARAS HINDU UNIVERSITY

IIT  
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connect

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# Editor's Desk

The editorial team is happy to bring to you the fifth edition (Volume 3 Issue 2) of the Institute Newsletter IIT BHU Connect. The joining of Prof. Pramod Kumar Jain as the Director, marks the beginning of a new chapter in the journey of IIT (BHU). This issue thus begins with interview of the Honourable Director where he shares his views for the development of the institution.

In continuation to the previous edition, we bring to you the news about the recently held inauguration ceremony of the Centenary Celebrations which brought together the 1968 alumni of this prestigious institution. A story featuring the interview of ex-Vice President of the students' parliament

presents to you the details of its achievements over the past few years.

A distinctive feature of this Institute that sets it apart from any other educational establishment in the world is its heritage. Through the column honouring the visionaries of this place, we bring to you a story about Prof. Charles A. King, the first principal of BENCO. Then an alumnus of our Institute takes some time to reminisce about an exemplary incident of his student life.

IIT (BHU) Varanasi has been increasingly promoting the R & D activities among its learning community. A series of four stories on energy, medicine and sustainable development explore different aspects

of scientific research pursued in IIT (BHU). The students of IIT (BHU) engage themselves in activities beyond the academia as well. An apt example is the culmination of the E-Cell in the Institute to bring all the entrepreneurial activities under one umbrella and guide them. The details of it are published here.

As always, we are grateful to the students, staff, 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](mailto:editor.newsletter@iitbhu.ac.in)

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# Roadmap for the Future:

## Interview with the Director

The team of IITBHU Connect interacts with the new Director Prof. Pramod Kumar Jain to know his thoughts and course of action.



Prof. Pramod Kumar Jain, Director, IIT (BHU) Varanasi

**Welcome to the Institute, Sir. What is your first perception of this Institute after taking over as its Director?**

Thanks. IIT BHU is very well known for its academic excellence for over a period of hundred years and it is a proud moment for us to celebrate centenary year this year. I am quite happy to get this opportunity and I would be fortunate to contribute to the legacy of Malviya Jee. Each institute has its own characteristics, traditions and value systems, and in my opinion while maintaining our identity, new values and traditions should also be adopted to change with time.

**Earlier, you have worked for a long time at IIT Roorkee. So, what were the differences (administrative or any other), if any, that you might have noticed after the change in your working places?**

IIT Roorkee has long history as IIT BHU and I have seen its transformation from a university to IIT. In my view, both institutions could survive while maintaining academic excellence just because of their value systems. Naturally, one has to evolve with time and some restructuring may be required in procedures and processes from time to time.

**3. What according to you are the strengths of IIT BHU? Also, can you tell us about the challenges being faced by the institution that you have identified?**

The strengths which I feel are, IIT BHU has a very good reputation, a very strong alumni base, and good facilities. Some weaknesses are also

there in all the systems. Some improvements, replacements, better facilities etc are required and we will work upon them in due course of time.

We all have to work hard to bring more research funding and grants to the institute. I wish that every faculty member has at least one research project grant. Also it is needed that we work hard on improving perception about IIT BHU through our Outreach Cell. We have to be proactive in publicising our achievements, innovations and stories.

**Considering the above points, what is your vision and course of action for the development of IIT BHU?**

As I said, the major avenues for improvement are: improvement in research funding, increase in good research publications, improved graduation outcome in terms of placements and higher studies. Outreach activities in the form of MoUs, exchange programs etc also significantly contribute to the perception and development of the institute. We have set our plans to increase the number of MoUs and also to setup some Centres of Excellence in the campus. With success in above endeavours, I am confident that IIT BHU will climb up the ranks, be it national or international.

**5. Can you briefly tell us about the early initiatives and steps you have taken after resuming the office?**

It's too early to say about that. I believe in actionable plans and then

regular follow up of those actions. My first priority as said earlier is to connect with various funding agencies to bring more research funding.

**What do you think will be the short term and long term effects of these measures?**

My long-term vision is that our IIT creates impact in all possible academic endeavours both at the national and international level. We have the potential, all the capabilities too. And, I am sure that with the hard work from each and every one - the students, faculty, and the administration, we would be able to improve our standing in the IIT system.

**What are your plans to augment the R and D component, infrastructure and subsequently the indicators that are being used to measure its performance i.e. NIRF?**

Regarding research, we are in the process of setting up a few centres of excellence in the Institute. We are in touch with some funding agencies and I hope that in due course of time new project grants would come to the institute. Regarding the infrastructure, we are planning four new buildings –

- i) A boys' hostel
- ii) Faculty residence
- iii) A research park, where major research activities can be promoted.
- iv) A student activity centre to house all student activities and offices.

I know that this is not enough; if we have to match other IITs, a lot more is required.

**Coming to the academics, what are the changes that you envisage for the curriculum in general and also in terms of majors/minors and student exchange programs?**

Majors/minors academic programmes are extremely essential these days because when a student joins IIT, he/she does not know much about the discipline he/she is going to enrol in and may wish to change his/her discipline of study. We have to provide some flexibility to the students in the form of a major or minor. I feel that our

students should be exposed to the ongoing research and developmental activities on campus. This may be done by allowing them to do certain interdisciplinary projects while allowing them to earn credits. Another issue is the limited number of electives offered to the students. This issue can be resolved if electives are offered in modular form. Each module may be of 8-10 contact hours and is engaged by an external expert.

**Do you have any plans to push the Institute towards undertaking MoUs with other research institutions or industries?**

We are working on that. Faculty members have been asked to explore the possibility of signing MoUs with the university/lab/institutions they are in touch with. Many of them have come forward with their proposals.

**Having been celebrating the centenary year, in view of the huge alumni resource we have what are your ideas to tap this huge resource?**

IIT BHU is fortunate to have a huge alumni network who are quite supportive. We are requesting them to support their alma mater financially or otherwise. DoAA office is approaching alumni and we hope to generate a sizable corpus soon.

## In Talks: D.Sai Teja Reddy, Ex-Vice President, Students' Parliament, IIT (BHU) Varanasi

**An interview with the ex-Vice President of the Students' Parliament, D.Sai Teja Reddy provides an elaborate overview of the various initiatives taken up by the Students' Parliament in the past working session (2017-18). With details about the efforts of the Parliament in facilitating several works in the Institute over the past session, and the ex-Vice President's insights on the Parliament's plans for the future, here is a peek into the working of one of the premier student bodies on the campus.**

The ex-Vice President mentioned that taking up pending initiatives like the construction of Cafe Coffee Day and the Indoor Sports Complex (a 20-crore project) occupied the focus of the Parliament. The primary working domain of the students' body is the general welfare of the students in the Institute, which is why he felt that making these facilities available was aptly the central aim of the Parliament. Speaking on the same, the ex-VP said, "We wanted to stay more focused on general welfare because whenever we talk about the Students' Parliament, it is mostly about general welfare. After all, we have to serve the student community of IIT (BHU)."

The Parliament is now in its fourth session. One major aspect where the Parliament has focused is constructive feedback. Feedback has been encouraged and asked for through emails in order to overcome the Parliament's shortcomings in certain aspects as felt by the students. The PaTH

(Parliament To Hostels) initiative had been introduced for this very reason and was seen as a very progressive measure. The major grievances produced before the Parliament by the students have been considered and taken up right away. In the words of Sai Teja, "We noted the grievances of people and these were put in front of the college administration. Together, we tried to solve these things right away. There were a lot of things that the student community was dissatisfied with and we tried to resolve those, which was the core idea of this initiative."

PaTH allowed specific hostel-wise problems to be noted by the Parliament. Short-term problems were immediately looked into, while a pronounced problem such as infrastructure is under scrutiny and is being worked upon. As far as academic concerns go, the Parliament worked towards getting all the student DUGC representatives under one umbrella and also to address the course structure concerns of the

students. Departmental problems were communicated by the student DUGC representatives to the committees of the Parliament and enhancing the efficiency of the DUGCs under the UG Affairs Committee of the Parliament through consultations with the administration has been a work in progress. The Parliament has been working on academic reforms as well. However, these are long-term plans as every academic reform is deliberated in the Senate before passing. When questioned about the working of the Parliament towards effective changes in the existing curriculum, the ex VP said, "If students are not satisfied with something, they can eventually raise this in front of the DUGC committee of their respective branch. In this way, it will get into the loop and the Parliament will get to know about this, followed by the DoAA." This was the reason behind improving the working of the DUGC effectively and with due haste.

Continuous progress was visible in the

form of development of pavements on various roads inside the campus. Such projects had been persistently pushed forward by the Parliament. The successful establishment of Cafe Coffee Day in the campus was yet another validation for the effective functioning of the students' body by actively engaging with the Institute administration and conveying the details about the needs of the students. Elucidating the idea of the Indoor Sports Complex, Sai Teja Reddy mentioned that this idea had been worked upon in previous sessions of the Parliament but without much success. Funds have already been allotted under the 2017-2018 session of the Parliament and the development has begun, with the main idea being to bring different sports arenas under one roof. The Students' Parliament helped the Institute in ensuring that minor projects like canteen establishment and

development of standards are not overlooked.

Among unique projects, the last session of the Parliament saw the introduction of Peddle Zoomcar which has flourished in the campus and has been received very well by the students. Another project that had received much appreciation is the Yourdost project to facilitate the mental well-being of students in the college. In this regard, he said, "If you see the stats, there are 5-10% students who are somewhat in need of help; who are not able to cope up with mental stress. We were very focused on this so that these people can also express themselves and be happy within the college." Psychologists had been inducted to tend to the students in distress. Adding further, he said, "Yourdost has statistics and many kinds of questions, but it is all confidential. It has a policy that it will not disclose any name. They strategize

things and give a report. Whether that's a successful thing or not is subjective. Even if 10 people are benefited by this, it can be considered successful because 10 people from our college are becoming better, right?"

Finally, concluding the interview, he explained the objective of the Parliament over the past one year:

"We tried making our campus happier. The inclusive growth of all the students was what we yearned for. Even if the students were not a part of the Gymkhana or a part of any council—and there were a lot of students like that—we cannot isolate them. If a student in any particular section was not happy, we tried not to ignore that person. That's why we needed to have a comprehensive plan for inclusive growth—the growth of all the students."

## एक दृष्टिकर्ता की स्मृति में: इंजीनियरिंग कॉलेज के प्रथम प्राचार्य प्रो. सी.ए. किंग

"न्यूजलेटर टीम महामना मालवीय फाउंडेशन के महासचिव डॉ. यू.डी. तिवारी को उनके कीमती समय और यह आलेख साँझा करने के लिए हार्दिक धन्यवाद देती है।"



बी.एच.यू. इंजीनियरिंग कॉलेज के प्रथम प्राचार्य प्रो. किंग विश्वविख्यात विद्वान थे। अपनी कार्यक्षमता एवं समर्पित सेवाओं द्वारा उन्होंने देश में काफी प्रशंसा अर्जित की थी। इंजीनियरिंग कॉलेज, (बेंको) की नींव से लेकर उसका पूरा ढाँचा खड़ा करने में उनकी महत्वपूर्ण भूमिका रही थी। उन्हें 18 अगस्त 1918 को मेकेनिकल विभाग के प्राध्यापक एवं कॉलेज के प्राचार्य-पद पर नियुक्त किया गया था।

इसके पहले वे शिवपुर इंजीनियरिंग कॉलेज बंगाल में प्राध्यापक रहे थे। वहाँ से चलने से पूर्व उन्होंने बी.एच.यू. इंजीनियरिंग कॉलेज की योजना व पाठ्यक्रम तैयार कर लिये थे। यहाँ पहुँचते ही उन्होंने अपनी योजना के साथ 10 लाख रुपये का अनावर्ती (नन-रेकरिंग) एवं पाँच वर्ष के लिये 1 लाख 20 हजार रुपये का आवर्ती (रेकरिंग) बजट प्रस्तुत किया। डिग्री कोर्स के लिये जो पाठ्यक्रम तैयार किये थे, वह ब्रिटिश विश्वविद्यालयों के स्तर के थे। प्रो.किंग की देखभाल में सबसे

पहले 50 हजार रुपये की लागत से एक वर्कशॉप का शेड निर्मित हुआ, जिसमें डेढ़लाख रुपये के उपकरण एवं मशीन स्थापित किये गये थे। जनवरी 1919 में इस शेड का उद्घाटन हुआ। फरवरी से इसमें सबसे पहले आर्टिजन (मिस्त्री/कारीगर) कोर्स के अन्तर्गत कारपेन्टरी की कक्षा शुरू हुई। जुलाई 1919 से डिप्लोमा कोर्स और मेकेनिकल एवं इलेक्ट्रिकल में डिग्री कोर्स की कक्षाएँ आरम्भ हुईं।

प्रो. किंग अपनी विद्वत्ता, अध्यापन शैली, प्रशासनिक दक्षता, मिलनसारिता, उदारता, बहुमुखी प्रतिभा और अन्य तमाम गुणों के लिये विश्वविद्यालय स्टाफ एवं विद्यार्थियों के बीच काफी लोकप्रिय थे। वे एक कुशल अभिनेता, दक्ष पेन्टर, उपन्यासकार, व्यावहारिक इंजीनियर और 'भगवद्गीता' के प्रशंसक एवं अध्येता थे। वे आयरिश थे, उनकी मातृभाषा अंग्रेजी थी, किन्तु वे बंगला और हिन्दी भी अच्छी तरह बोल लेते थे। वे शुद्ध शाकाहारी थे। चुरुट का उन्हें शौक था।

वे अक्सर पैन्ट-शर्ट पहनते थे, पर कभी-कभी रेशमी कुर्ता और धोती भी धारण कर लेते थे। उन्हें नित्य व्यायाम का भी शौक था। अवकाश मिलने पर अपने ऑफिस में भी अंग-संचालन कर लेते थे। उन्हें सेन्ट्रल हिन्दू कॉलेज के वार्षिकोत्सव पर विद्यार्थियों को ड्रिल कराते हुये भी देखा जाता था। विश्वविद्यालय में वे अपनी पत्नी के साथ रहते थे।

महामना ने प्रायोगिक शिक्षा पर काफी बल दिया था। इसे ध्यान में रख प्रो. किंग ने इंजीनियरिंग कॉलेज के शैक्षणिक स्वरूप में इसे विशेष स्थान दिया। वे विद्यार्थियों द्वारा ही उपकरणों/मशीनों को संचालित कराये जाने के पक्ष में रहते थे। उनका कहना था—"My boys must be allowed to handle every instrument because otherwise how are they going to learn the subject". वे डिग्री कोर्स में हीटइंजन्स तथा प्रायोगिक मेकेनिकल की, जिसे अभियांत्रिकी विज्ञान की नींव माना

जाता है, नियमित कक्षाएँ लेते थे, और किसी भी कक्षा में अपना व्याख्यान कभी नहीं छोड़ते थे। पूज्य मालवीय जी भी अपने विद्वान व समर्पित अध्यापकों के पक्ष में प्रशंसा के दो शब्द कहने से कभी नहीं चूकते थे। प्रो.किंग के विषय में उन्होंने 19 फरवरी 1919 को अपने दीक्षान्त भाषण में कहा था—“A number of work shops have been constructed and the Engineering College is going on splendidly under the zealous superintendence and guidance of Mr. King, the Principal”.

विश्वविद्यालयों के निरीक्षण के पश्चात् सर टी. हालैण्ड ने, जो भारतीय औद्योगिक कमीशन के (1916-1918) के अध्यक्ष रहे थे, कुलपति मालवीय जी को सम्बोधित अपने मार्च 1920 के एक पत्र में लिखा था—“The Engineering College, which is the most developed of all the units, interested me especially, because you have had there to face the question of compensating for the absence of large engineering works in the immediate neighbourhood. That practical training on commercial lines is essential for engineering and all technological study is now generally accepted. Mr. King combines enthusiasm as a teacher, knowledge of academic methods and experience as a practical engineer in a way that is rare. You are safe in reposing trust in him.”

प्रो. किंग ने अपने ज्ञान, चरित्र एवं आदर्श से अपने विद्यार्थियों के जीवन-निर्माण में अहम भूमिका निभाई। वे अपने विद्यार्थियों को अपने प्राण से भी अधिक प्यार करते थे। एक बार इंजीनियरिंग के कुछ छात्र शहर के सिनेमाघर में फिल्म देखने गये। वापसी में एक जगह कुछ बदमाशों ने उन्हें घेर लिया। इसकी सूचना फोन पर किसी ने प्रो.किंग को दी। किंग साहब ने फौरन अपनी रिवाल्वर निकाली और मोटर से अकेले चल पड़े। घटनास्थल पर पहुँच कर उन्होंने अपनी रिवाल्वर तान दी, और विद्यार्थियों से कहा—“My boys come out and follow

me.” सभी विद्यार्थी सकुशल वापस आ गये। प्रो. किंग बड़े दयालु और परोपकारी स्वभाव के थे। किंग साहब एक बार गंगा किनारे घूमने गये। कोट पहने थे, जाड़े का दिन था। वापस लौटे तो देखा गया कि उनके शरीर पर कोट नहीं है। पूछने पर उन्होंने बताया कि घाट पर एक बृद्ध बहुत काँप रहा था, उसी को दे दिया।

प्रो. किंग के जेहन में गरीब विद्यार्थियों के प्रति एक सहयोगात्मक आत्मीय सोच निरन्तर बनी रहती थी। इस मामले में वे महामना की दयालुता से काफी प्रभावित थे। उन दिनों विश्वविद्यालय में प्रवेश पाने वाले ज्यादातर विद्यार्थी गरीब घर के ही होते थे। विश्वविद्यालय की साधारण सी फीस भी दे पाना सबके लिये संभव नहीं था। 31 मार्च, 1925 को विश्वविद्यालय सिनेट ने विद्यार्थियों में अनुशासन बनाये रखने के उद्देश्य से कुछ नियम निर्धारित करना चाहा। इसके तहत बैज या गाउन भी धारण करने का सुझाव आया। कुलपति मालवीय जी सिक्के के आकार के मेटालिक बैज के पक्ष में थे, जिसपर 'बी.एच.यू.' अंकित हो। कई सदस्यों ने गाउन के पक्ष में राय दी। कैम्ब्रिज में प्रचलित एकेडेमिक गाउन एवं कैप का भी हवाला दिया गया, जिसे वहाँ के विद्यार्थियों को धारण करना होता था। प्रो. किंग ने, जो सिनेट के सदस्य थे, कहा कि—“यूनिफार्म की चर्चा बन्द की जाय। विद्यार्थियों में अनुशासन बनाये रखने के लिये यह कतई आवश्यक नहीं है। हमें इस तथ्य को नहीं



प्रो. चार्ल्स किंग द्वारा बनाई गई कलाकृति

अतिरिक्त आर्थिक बोझ वहन करने में सक्षम नहीं। अपने बच्चों को पढ़ाने के लिये अभिभावकों को काफी मुश्किलें उठानी पड़ती हैं, माताओं को अपने गहने तक बेचने पड़ते हैं। अतः उनपर अतिरिक्त बोझ डालना बुद्धिमत्तापूर्ण नहीं है। विश्वविद्यालय भी अभी इस स्थिति में नहीं कि वह अपनी ओर से गरीब विद्यार्थियों के लिये निःशुल्क गाउन उपलब्ध कराये।” मामला अन्ततः महामना द्वारा सुझाये गये बैज पर आकर समाप्त हो गया।

प्रो. किंग अपने सहयोगी अध्यापकों के सुख-दुःख के प्रति भी काफी संवेदनशील रहा करते थे। अंग्रेजी विभाग के पूर्व प्राध्यापक स्व. प्रो. रामशंकर सिंह ने अपने संस्मरण में लिखा है कि—“प्रो. किंग को उनकी योग्यता एवं दायित्वों के अनुरूप 2100 रुपये प्रतिमाह वेतन दिया जाता था। उन दिनों ब्रिटिश प्राध्यापकों के वेतन इसी स्तर के हुआ करते थे। हिन्दू विश्वविद्यालय में उन दिनों वरिष्ठ प्राध्यापकों के वेतन 750/- रुपये मासिक हुआ करते थे। प्रो. किंग के ही समय में प्रो. एस.एस. गैरोला भी इंजीनियरिंग कॉलेज के वरिष्ठ प्राध्यापक थे। एक दिन प्रो. किंग इस सोच में पड़े कि प्रो. गैरोला अपना खर्च कैसे चलाता है? अपनी इस जिज्ञासा के साथ वे मालवीय जी के पास पहुँचे और पूछा—“पण्डित जी, आप गैरोला को मुझसे कम वेतन देते हैं, जबकि हम दोनों एक ही काम करते हैं। वह अपना खर्च कैसे चलाता होगा?” इस पर मालवीय जी ने कहा—“तुम गैरोला से ही पूछ लेना, और मुझे भी बताना।” किंग साहब के पूछने पर प्रो. गैरोला ने कहा—“मुझे जो वेतन मिलता है, उसमें से कुछ अपने व्यक्तिगत खर्च के लिये रख लेता हूँ, कुछ पारिवारिक खर्च के लिये घर भेज देता हूँ, और जो बचता है, उसे वीमा के प्रीमियम रूप में जमा कर देता हूँ। मेरा खर्च अच्छी तरह चल जाता है।” यह सुनकर प्रो. किंग को विस्मय हुआ। महामना जी से मिलकर उन्होंने बताया—“गैरोला इज क्वाइट हैप्पी।” तब मालवीय जी ने पूछा—“तुम अपने वेतन से कितना बचा लेते हो?” इस पर प्रो. किंग ने कहा—“नहीं बचता, सब खर्च हो जाता है।” तब मालवीय जी ने हँस कर

कहा-‘You understand, why I pay you more than that of Gairola?’ (अब तुमने समझा कि गैरोला की अपेक्षा तुम्हें अधिक वेतन क्यों देता हूँ?)

प्रो. किंग अपने विद्यार्थियों में काफी घुले-मिले रहते थे। कॉलेज के वार्षिकोत्सव पर छात्रों के साथ खाते-पीते और गाते-नाचते थे। विद्यार्थियों के हाथों को अपने हाथों में डाल कर कॉलेज का यह समवेतगान (‘कोरस’)-‘Hand in hand we go together.’ पूरी मस्ती के साथ गाते थे।

प्रो. किंग को पेन्टिंग का बहुत शौक था, और वे बहुत उत्कृष्ट पेन्टिंग करते थे। उनके बनाये कुछ पेन्टिंग्स विश्वविद्यालय के आई.आई.टी. निदेशालय एवं आई.आई.टी. मेन लाइब्रेरी की गैलरी में देखे जा सकते हैं। इन आयल पेन्टिंग्स में प्रो किंग ने बनारस के घाट, पुराने खण्डहर, सूर्योदय-सूर्यास्त के प्राकृतिक दृश्य, अन्धड़-तूफान का जीवन पर

असर, पर्वत व झरने, रेगिस्तान में ऊँटों की सवारी, बन्दरगाह पर खड़े पाल वाले जहाजों के बेड़े, आदि को बहुत सफाई के साथ उकेरे हैं। इन चित्रों को देखने से ऐसा लगता है कि प्रो. किंग को प्रकृति से गहरा लगाव था, वे उसके अराधक थे, और उनकी अभिरुचि काफी उन्मुक्त, सौन्दर्यपूर्ण और कलात्मक थी। इंजीनियरिंग कॉलेज में प्रो. किंग की स्मृति में हर साल ‘प्रो. किंग मेमोरियल फाइन आर्ट्स प्रदर्शनी’ लगाई जाती है।

यहाँ मॉडल प्रदर्शनी की परम्परा प्रो. किंग के समय में ही शुरू हुई थी। वे यहाँ जब तक रहे, उसका संचालन स्वयं करते रहे। ‘कॉलेज डे’ पर सभी विद्यार्थी तथा स्टाफ सदस्य समवेत रूप में उस मैदान में एकत्र होते हैं, जिसे आज ‘चार्ल्स किंग मेमोरियल पैवेलियन ग्राउण्ड’ कहा जाता है। यहाँ से मार्च पास्ट निकलता था, जो मालवीय भवन तक जाकर महामना को श्रद्धाँजलि अर्पित कर

समाप्त होता था। इस तिथि को कॉलेज के सभी विद्यार्थी एवं स्टाफ सदस्य एक साथ चाय-जलपान करते थे। दूसरे दिन विद्यार्थियों द्वारा गायन तथा मनोरंजन के कार्यक्रम आयोजित होते थे। इसकी तैयारी कराने में भी प्रो.किंग की महत्वपूर्ण भूमिका होती थी। तीसरे दिन ‘इंजीनियरिंग मॉडल प्रदर्शनी’ आयोजित होती थी, (जो अब भी होती है)। इस प्रदर्शनी में विद्यार्थी अपनी सोच से स्वयं द्वारा विकसित नया मॉडल प्रस्तुत करते थे। इसे तैयार करने के लिये वे दिन-रात एक कर देते थे। इसमें भी प्रो. किंग का भरपूर सहयोग रहता था। रामपुर हॉल में मॉडल-निर्माण के समय कुलपति मालवीय जी की अचानक उपस्थिति से विद्यार्थियों का उत्साह और बढ़ जाता था।

## Learning the Lessons of Life: Reminiscing the White House in Banaras Hindu University

*In any person's career, the college life is inarguably one of the most enlightening experience; it introduces him/her to a variety of thought processes and teaches through example on how one should live in a pluralistic society with a feeling of mutual respect towards each other. With a century-old heritage, Banaras Hindu University has always engendered this noble way of living by nudging every one of its fraternity to maintain harmony with the environment, the people around, and ultimately with himself/herself. One of our alumni, Shri Padmadeo Ojha in the following article titled, 'White House in Banaras Hindu University' shares such an incident.*

Colour plays a vitally important role in the world we live in. It can sway one's thinking, change actions, and cause reactions. The houses we live in and the buildings we work in play a role too.

Those who have visited the campus of Banaras Hindu University must have admired the eye-soothing uniform colour of all the buildings. Colleges, hostels, offices, residential houses, even the hospital, the University Temple and

the Central Library are all painted with the same colour—a subtle mix of light pink and creme, with lines of a darker shade on the cornices and crowns. Some may call this colour 'saffron', but I am not too sure, one way or the other. All I know is that all of us—students, teachers and the staff of the University simply loved this colour. Whenever we returned to the University from homes after a vacation, the first sight of this colour attracted us and reminded us of an intense emotional bond. We were told, by the older generation, that this was the favourite colour of Malaviyaji and he had all the buildings of the University painted in the same colour; all barring one. Let me tell you the story of how I came to know about this exception for the first time.

It was mid-September of 1965 and India was fighting a fierce war with Pakistan on the Western Front. Students of our batch had just entered the Campus, in their second year, of the then College of Engineering (BENCO) having completed the first year at Kamachha. The academic session had

started dot on schedule, on July 9, and the classes were being held with absolute regularity. War situation was discussed amongst us only in the hostels or perhaps in the College Canteen, but seriousness towards studies was not affected. We must remember that this was the period of absolute tranquillity in the environment of the University (which was disrupted by the students' unrest about a year later; that is a different story).

What I recall vividly is the constant anxiety and worry clearly evident on the faces of friends whose families were in the war zone, in J&K and Punjab. Also, those friends who had relatives in the armed forces were disturbed. Television was not there in those days, and All India Radio broadcasts were the only source. Apparently, in spite of regular classes, our concentration in studies was wavering. And to make things worse, the final examination was scheduled a month later. As per rules in those days, a percentage of marks obtained in final examinations was also taken into account while preparing the last year's

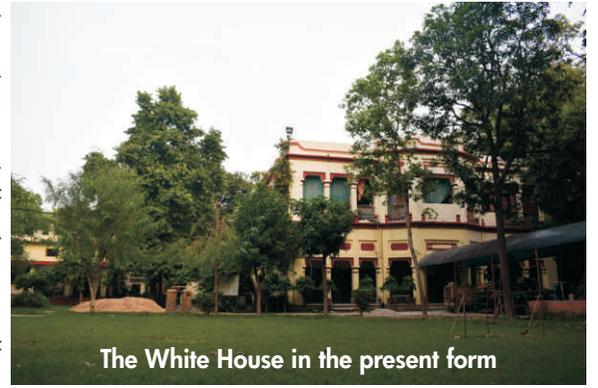
result, which made it crucial. **So, under the leadership of final year and pre-final year students, a delegation of about 50-60 students went to meet the Principal, Prof. M Sengupta, at his residence, to request him to postpone the examination (in view of the tense atmosphere prevailing due to the Indo-Pak war)**

Although I was only a fresher and no one asked me to join the team, I tagged along on my own, just out of curiosity. **When the delegation, with me sheepishly at the tail end, reached the Principal's bungalow, Prof. Sengupta came out to meet us, although he was a bit unwell at that time. Seniors talked to him for a few minutes, he listened patiently and then nodded his head emphatically with an audible "No-No". He admonished us for even thinking in these lines when our Motherland needed bright young engineers more intensely than ever. He gave the example of the 1962 war with China when our College had to cut short the vacations for bringing out engineers six months in advance, for the period 1964-65. The leaders in our team had nothing to say on this, and we came back with mixed feelings; our respect and affection for our Principal had gone up a notch higher.**

But yours truly, stationed on the outer periphery of the crowd, was wondering all the time on a different intriguing

question—"Why is our Principal's bungalow painted white, while every other building is painted pinkish creme?". Later, when I inquired, a senior student explained to me, with a lot of passion, that Prof. Charles A King, an eminent engineer, administrator and educationist, had come to BHU at the specific request of Malaviya Ji, to help establish the Engineering College in 1919 and be its first Principal. Considering the sensibility of Prof. King—a Christian and an Englishman, Malviya Ji had his residential building painted white. Since then, this building, as a residence of all subsequent Principals, had remained white, perhaps as a tribute to the memory of the first occupant. That is why this bungalow was popularly known throughout the Campus as 'White House'. I bowed my head once again to the magnanimity of Mahamana Malaviyajiji and was overwhelmed by yet another example of the graciousness of his big heart and sensitive mind.

As for now, with a heavy heart and a bitter mind, I watch news channels today and compare the petty-mindedness of the present generation of opinion makers, on both sides of the aisle, quarrelling amongst themselves and insisting for the prevalence of their own choices.



The White House in the present form

### About the Author

Padmadeo Ojha graduated from Institute of Technology, BHU in the year 1969. After completing his Mechanical Engineering degree, he joined Steel Authority of India Ltd (then Hindustan Steel Limited) at their Durgapur Steel Plant in 1969, as a fresh Engineer Trainee and worked there in various capacities till retirement as General Manager in 2005. After retirement from DSP, he worked for about four years on the construction of a new Coke Oven Battery, at IISCO Steel Plant in Burnpur during its modernisation.

After completing his innings as a Steel Engineer, he is now retired and living a relaxed life, working on his hobby of writing.

## ‘‘ध्येय-वाक्य’’ Shri Padmadeo Ojha



इसे मैं अपना परम सौभाग्य मानता हूँ कि बाबा विश्वनाथ की नगरी काशी में, उनकी कल्याणमयी छत्रछाया में, मुझे उच्च शिक्षा प्राप्त करने का सुअवसर मिला। काशी हिन्दू विश्वविद्यालय (BHU) से, अभियान्त्रिकी में स्नातक की उपाधि 1969 में प्राप्त करके, नियति के सम्मुख शीश झुकाते हुये, ‘स्वर्णभूमि’ बंगाल को मैंने अपनी कर्मभूमि बनाया। किन्तु महामना के आदर्शों की जो घुट्टी मेरी मातृ-संस्था (Alma Mater) नेपिलायीथी, वह मेरे रगरग में इस तरह बस गयी थी कि हृदय, मस्तिष्क और भावनात्मक रूप से मैं काशी, वहाँ की शिक्षा, वहाँ की संस्कृति और वहाँ के अपने मित्रों से क्षणमात्र

के लिये भी अलग नहीं हुआ। सोने में सुगन्ध आज की तकनीकी ने प्रदान कर दिया और एकबार फिर, लगभग 50 वर्षों के उपरांत, हम सभी मित्र आपस में निकट सम्पर्क में आ गये हैं। लगता है जवानी के वे दिन फिर लौट आये हैं। अवगढ़दानी की ही ये कृपा है। यह ‘जवानी’ थोड़ी लम्बी हो। सभी मित्रों की ओर से महादेव से हमारी यह याचना है।

हम लोगों की मातृ-संस्था – भारतीय प्रौद्योगिकी संस्थान (IIT BHU) के पूरे छात्र सारे विश्व में विभिन्न क्षेत्रों में अपने विशिष्ट अवदान के कारण महत्त्वपूर्ण स्थानों पर हैं और आदर पाते हैं। सभी, किसी-न-किसी रूप में, आपस में और अपनी प्रेरणास्रोत

मातृ-संस्था से जुड़े रहने का प्रयास करते हैं। इसी प्रयास की एक कड़ी में 1969 के स्नातक मित्रों का एक अनौपचारिक संगठन हमलोगों ने बनाया है; पिछले साल हमलोग दिल्ली में मिले। देश-विदेश से लगभग पचास साथी आये, अधिकांश अपनी पत्नी के साथ। बहुत आनन्द आया, लगा 50 वर्षों का अंतराल घड़ियों में मिट गया। वहीं, विभिन्न माध्यमों से, निरंतर जुड़े रहने का निश्चय भी लिया गया।

कुछ दिनों पहले हमारी मित्रमंडली में एक चर्चा छिड़ी कि हमारी मातृ-संस्था के ‘ध्येय-वाक्य’ (motto) का स्रोत क्या है। अपने छात्र जीवन में हम सबने इन सिद्धांतों को

सहजरूप से आत्मसात तो कर लिया परन्तु इनके बारे में गहन अध्ययन का न तो समय मिला और नहीं आवश्यकता महसूस हुई। अब थोड़ी फुरसत है तो पुनरावलोकन की इच्छा जागृत हुई। मित्रों ने यह दायित्व मुझे सौंपा; शायद यह सोचकर कि संस्कृत भाषा का मुझे साधारण ग्यान है। इस सम्बन्ध में जो मैं जान पाया हूँ, वह यहाँ सभी मित्रों से साझा करना चाहता हूँ।

1. काशी हिन्दू विश्वविद्यालय का ध्येय वाक्य है :-

### विद्याअमृतमश्नुते

यह 'ईशावास्योपनिषद्' के एक श्लोक से लिया गया है। पूरा श्लोक इस प्रकार है।

### विद्याम्चाविद्याम्चयस्तद्वेदोभयम्सह

अविद्यायामृत्युमृतीर्त्वाविद्ययाअमृतमश्नुते॥  
श्लोक का भावार्थ है - वह, जो विद्या और अविद्या दोनों को एक साथ जानता है, वह अविद्या के द्वारा मृत्यु की सीमा को पार कर जाता है तथा विद्या के द्वारा अमरत्व को प्राप्त करता है।

विद्वान् लोग इस पर अनेक प्रकार से अनेक विश्लेषण करेंगे। अतएव हम अपना ध्यान "विद्याअमृतमश्नुते" पर ही केंद्रित करते हैं। भाव यह है कि विद्या (जो सम्भवतः शिक्षा-दीक्षा और ग्यान का सम्यक-सर्वहितकारी

मिश्रण है) से अमृत की प्राप्ति होती है। अर्थात् विद्या को प्राप्त करने वाला अमृतपायी की भाँति अमरत्व को पा लेता है, अक्षय हो जाता है।

संकेत है कि हम जो विद्या ग्रहण कर रहे हैं वह अक्षुण्ण है, अविभाज्य है और अनश्वर है। अतएव हमारी एकाग्र और समग्रचेष्टा विद्योपार्जन पर ही केंद्रित होनी चाहिये।

2. भारतीय प्रौद्योगिकी संस्थान (IIT BHU) का ध्येय-वाक्य है :-

### योगः कर्मसुकौशलम्

यह पवित्र ग्रंथ 'गीता' से लिया गया है, जिसके दूसरे अध्याय का पचासवाँ श्लोक है :-

### बुद्धियुक्तोजहातीहउभेसुकृतदुष्कृते।

### तस्माद्योगाययुज्वस्वयोगः

### कर्मसुकौशलम्॥50॥

अर्जुन को उपदेश देते हुए, उनको न्याय के लिये युद्ध करने के अपने कर्तव्य की ओर प्रेरित करते हुए, भगवान् श्री कृष्ण कहते हैं- समभाव की बुद्धि रखने वाला (मनुष्य) इसी जीवन में सत्कर्म और दुष्कर्म (पुण्य और पाप) दोनों का त्याग कर देता है। इसलिये (हेअर्जुन!) तुम 'योग' में जुड़ो। कर्म में कुशलता ही 'योग' है।

'योग' को परिभाषित करना कठिन है।

शास्त्र-ग्याता विद्वान् इसकी व्याख्या और विवेचना अनेक प्रकार से करते हैं। योग का शाब्दिक अर्थ है 'जोड़ना'। एक व्याख्या के अनुसार-आत्मा को परमात्मा से जोड़ने की प्रक्रिया ही 'योग' है। यहाँ उतनी विस्तृत विवेचना आवश्यक नहीं है। हमारी समझ और प्रस्तुत संदर्भ के लिये योग सर्वाधिक वांछनीय, अपने कर्तव्य पालन और मानव-सेवा का सर्वोत्तम मार्ग है। यही मार्ग ईश्वर की भक्ति या पूजा भी है जो हमें परमपिता परमेश्वर से जोड़ता है।

और अपने निर्धारित कर्म में (कर्तव्य में) दक्षता-प्रवीणता-ही 'योग' है। हमारे संस्थान का, इस ध्येय-वाक्य के माध्यम से, यह संदेश है कि-यहाँ की शिक्षा-दीक्षा ही एकाग्र और सम्पूर्ण मनोयोग से आत्मसात करें। वही जीवन के सभी पुरुषार्थ (स्वार्थ और परमार्थ) को प्राप्त करने में सफलीभूत होगा।

यदि इसी ध्येय-वाक्य को प्रकारान्तर से अँग्रेजी में लिखा जाय तो कह सकते हैं- "WORK IS WORSHIP" और हमारे संस्थान का ध्येय-वाक्य (motto) अपने पुराने रूप (BENCO) में ही था। मुझे आशा है सभी मित्रों को यह आलेख पसंद आयेगा।

## Centenary Celebrations: Commemorating the century-old legacy of BHU

With 2019 marking the 100th year since Shri Malviya Ji established BHU, the Institute fraternity is enthralled by this magnificent achievement. This event is being celebrated not just in the Institute but also in other parts of the world where its alma mater have marked their presence. Accordingly, the year 2018-2019 is earmarked as the Centenary year. The inauguration ceremony of this event took place on 22 February 2018 in the Swatantrata Bhawan. Many distinguished alumni of the Institute, spanning almost the past 60 years, graced the event. The special attraction of this summit was the reunion of the 1968 alumni. This rare occasion

witnessed the rekindling of golden memories. Following are the excerpts of this and many more happenings at the inaugural event.

As a part of these Centenary Celebrations, IIT (BHU) Varanasi launched the Centenary Initiatives on 22 February 2018 in the Swatantrata Bhawan.

The day became much more special due to the Golden Jubilee Alumni Meet of 1968

batch organised by Student Alumni



**Interaction Cell of IIT (BHU).** Prof. R.K. Mishra, Chairman Organising Committee, Centenary Celebrations welcomed Prof. Rajiv Sangal, Director, IIT (BHU) Varanasi; Prof. A.K. Tripathi, Dean Resource and Alumni; Alumni of 68' batch; faculty members and the students present in the Swatantrata Bhawan with a short speech in which he briefly explained how our Institute took birth in hostile social and political situations and became the lighthouse that not only guided the students of our nation but seeded the expansion of academic system after independence.

**Mr. Rahul Sharma, Managing Director of Amazon Services, who is also an alumnus of 1982 Computer Engineering Department, made an announcement regarding NASSCOM meeting held in Hyderabad. He also briefed the audience about the signing of a MoU between the Institute and Amazon for India's first AI Amazon lab which will work towards the development of India.**

He elaborated on three major objectives of this collaboration. The first one being the need for learning AI (Artificial Intelligence) to solve the emerging and pertinent problems of India. The facility would also help build capacity amongst the faculty of interdisciplinary

departments in using AI and machine learning to solve problems related to agriculture and medicine by collaborating with other departments and schools of BHU. The third, which filled the auditorium with ecstasy was giving a 100 Dollar credit on Amazon Web Services for the entire 5,600 students of IIT (BHU) Varanasi every year. He noted that the student fraternity could not be left behind, in the spirit of giving back to the Institute by Alumni Association of the IIT(BHU)

Prof. A.K. Tripathi, Dean Resource and Alumni, then made some announcements regarding Centenary Initiatives. He explained how every department was asked to put forth their centenary initiatives for the coming century, identifying their best projects and keeping in mind the needs of the nation. He also opined that these initiatives need to be aligned with and supported by Corporate Social Responsibility programs of various organisations. The centenary initiatives were launched and unveiled in an exhibition outside the main hall of Swatantrata Bhawan where everyone could witness them. The Alumni of 1968 batch blessed the students and teaching fraternity and wished them success in their endeavours to work on those initiatives and hoped

that eventually, those efforts would bring good name and fame for the institution, alumni and all the stakeholders of the institute. After that, Honourable Director, Prof. Rajeev Sanghal unveiled the Centenary Celebrations' logo which was designed by the students in a way to reflect the vision of the Institute regarding science and technology for the upcoming century. It was followed by the launch of centenary initiatives and celebrations. The Alumni also talked about various scholarships the Alumni Association had given in the recent past and how the number would increase soon. Multiple programs for the betterment of student fraternity like Student Innovation and Research (SIR) which attempt to cultivate an innovative mindset through financial and technical support for student-defined projects and research activities were also among the other topics that were discussed. In the end, Ayush Jain, Head of Student Alumni Interaction Cell acknowledged the Director, Deans, organising committee of Centenary Celebrations and the Alumni of 1968 with his small speech. An informal cultural programme presenting the best of Kashiyaatra marked the end of the programme.

## Preparing the world for the future through sustainable development: **Solar Organic Rankine Cycle Plant**

"Vision without action is merely a dream. Action without vision just passes the time. Vision with action can change the world!" – **Joel Arthur Barker**

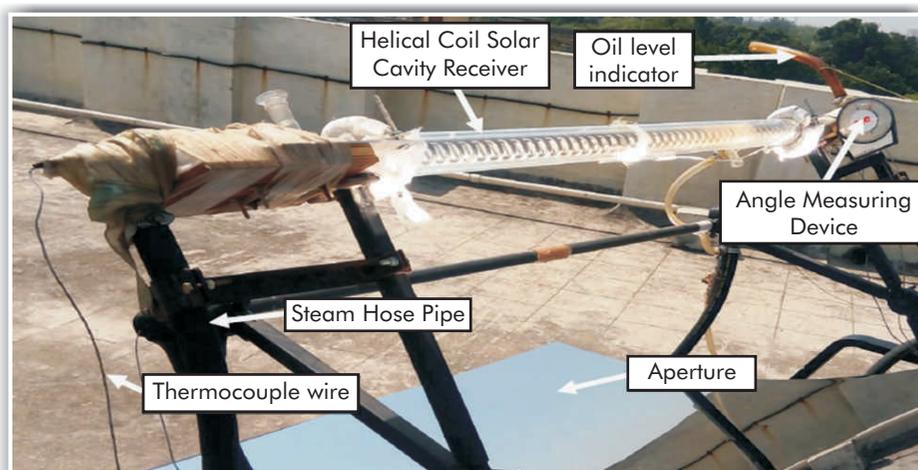
With the world facing an imminent catastrophe of climate change with its already evident effects of decimation, the world of Science and Technology is looking for sustainable methods of development. One key area of focus for such a progress is the energy sector. The transition from being overly reliant on fossil fuels to a Renewable energy dependant environment is of paramount importance for our very survival. In this regard Prof.S.K.Shukla from the Department of Mechanical Engineering, IIT (BHU) Varanasi has developed a newfangled energy system. Here are the details about it.

**This story is about a low-cost solar thermal power plant that requires no operator and negligible maintenance with effective performance.**

In the present scenario, a massive demand for energy and economy necessitates the development of various energy resources, either conventional or nonconventional. Despite the rapid depletion of fossil fuel across the world, billions of people are yet devoid of the comfort offered by electricity. If the consumption of fossil fuel continues at the current rate, the future generation is bound to suffer from the acute shortage. The associated global warming and ozone layer depletion caused due to the intensive application of fossil fuels forces us to look for solar based systems. One such system is an Organic

Rankine Cycle (ORC) plant which is modular and scalable. It can be easily transported, assembled and commissioned readily at the site, may it be in small industrial units or "micro-grids" for remote and isolated areas. The heat-energy converter of the ORC plant is a hermetically sealed unit with a few moving parts. This technology now turns out to be proven and available to all. The plant requires no operator, the maintenance cost is negligible over long periods, and the unit can be operated and monitored remotely. The design, technologies, and materials proposed to be used being mostly indigenous, it acquires a significant improvement over the traditional units used earlier for large plants. Thus it provides acceptable performance at a low capital cost. The

solar energy available for almost 295 days a year in India is utilised by an array of sun-tracking parabolic-trough collectors. The functionality and performance of such newly developed low-temperature ORC unit comprising of helical coil solar cavity receiver based parabolic trough concentrator (PTC) were investigated at CERD, Mechanical Engineering, IIT(BHU), Varanasi. The PTC comprised of a blackened helical coil made up of two concentric borosilicate glass cylinders with vacuum in annulus kept at the focal line that maximised the conversion of energy received from the sun into useful heat and eventually electricity.



Line concentrating helical coil solar cavity receiver at CERD, Mechanical Engg. IIT (BHU), Varanasi

This work was carried out by Prof. S.K.Shukla from the Department of Mechanical Engineering, IIT (BHU). Prof. Shukla is former Pro-Vice Chancellor of Ranchi University and working in the field of Thermal Engineering and Renewable Energy Technology since last 19 years. He is a recipient of UGC-TEC Consortium Agreement Award 2010 in Sustainable Energy by University Grants Commission, New Delhi, India. Recently he has been awarded by Japanese Society for Promotion of Sciences, JSPS Fellow Award 2014-15 for Visiting GIFU University, Japan.

## Clearing the hurdles: Solving an Industrial Problem by Tapping the Power of Waste Materials

“Engineering or Technology is all about using the power of science to make life better for people, to reduce cost, to improve comfort, to improve productivity.” –Mr.N.R.Narayana Murthy.

The greatness of engineering is in its ability to tackle real-life problems. Proving this adage once again, a group of researchers from the Department of Civil Engineering, IIT (BHU) Varanasi have come up with a novel solution to efficiently utilize the waste material produced during the processing of Zinc Ore. The following article elucidates their work.

### Development of solidified, immobilized, sustainable, durable low-cost bricks from hazardous Jarosite waste

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This research is focused on exploring and evaluating practical as well as economical ways for safe utilization of the hazardous jarosite waste. **(Solid waste residues produced from hydrometallurgy operations involved in the extraction of Zinc)**. The jarosite waste is generated worldwide from zinc smelters but the major source of jarosite waste is released from Australia, Spain, Canada, Finland, China, USA, Holland, Mexico, France, Yugoslavia, Korea, Norway, Belgium, India, Germany, Argentina, and Japan, in which about **0.25 million tons and 0.60 million tons** jarosite is being released annually from India and European Union respectively. Jarosite contains a high concentration of toxic elements (lead, zinc, sulphur, cadmium, chromium and copper) which are susceptible to leaching. Because of the presence of these heavy and toxic

metals in the waste and their leachability, jarosite falls under the hazardous waste category as per the prevailing standards. It poses a serious problem for disposal due to the release of toxic elements, which ultimately contaminate the soil, groundwater, aquatic life, and human health.

The team made an attempt to explore the possibilities for the utilization of hazardous jarosite waste [stabilized with inorganic waste additives such as ground granulated blast furnace slag (iron industries by-product)] for development of durable, solidified/stabilized as well as immobilized products which reduce the contamination of the soil and groundwater as well as are economical substitutes for the conventional constructional materials. The duo developed a brick size product which fulfils the minimum requirement of compressive strength (>3.5 MPa) and water absorption limits (<20%) as per the **Indian Standards manual (IS: 12894:2002) for unfired bricks**. Apart

from the above accomplishment, leachate study was conducted as per the Toxicity Characteristic Leachate Procedure (TCLP) and it was found that the heavy metals presented in jarosite waste are immobilized due to solidification. The durability of products was also checked as per Freezing-Thawing study and it was observed that product is durable in nature. Thus, this research work promotes the efficient utilisation of jarosite waste which can be further used in various applications of civil engineering such as embankment, foundation material, for making subgrade for roads, as a brick and paver blocks etc. For the development of low cost long-term durable bricks, the author got **Institute Best Project Award 2018 (IIT (BHU) Varanasi)** and was felicitated with a gold medal on the Institute day-2018. The research concept has been under **filing for a patent.**



The brick made out of jarosite waste



Gold Medal awarded to the author

## Innovate to Change: Developing a Low-Cost Prefilled Dual-Chamber Syringe

We need approaches to the solutions that aren't just arithmetic and additive but are in some sense logarithmic. This will require us to reach across historic boundaries and unlock the potential of collaboration across the usual disciplines. Jeffrey S. Flier, MD – Dean of the Faculty of Medicine, Harvard University.

The dynamic world of today is facing sophisticated problems that require individuals not just to think outside of the box, but to forget that there is a box. With such a mind-set, applying the scientific expertise to develop technologies that can cater to the needs of the world around us is the need of the hour. A research group from the Tissue Engineering and Biomicrofluidics Laboratory (TEBM) of IIT (BHU) Varanasi consisting of Mr Ajay Sahi and Ms Snehalata Rai along with their supervisor Dr. Sanjeev Mahto have taken a step forward in this direction by combining the techniques of Biomicrofluidics and 3D Printing to come up with an indigenously designed Double-Chamber Syringe. Here is the story of their journey shedding some light on the motivation behind their work as well as the underlying theory behind this invention.

Developing countries including India have many rural places that still lack proper facilities for medication, their storage, and use. Drugs, which cannot be administered via oral medication due to gastrointestinal intolerance and other side effects on organs, are delivered through parenteral routes, e.g. intramuscular, intravenous, subcutaneous etc. Certain therapeutic drugs for parenteral administration are most commonly presented in vials either as a liquid formulation or as a freeze-dried powder. However, as the administration from the vial requires many handling steps, it is prone to errors, even when carried out by trained professionals. The different packaging of drugs and their diluents becomes expensive and difficult to transport and administer due to less skilled professionals in rural areas, high cost of storage, and chances



Sanjeev Kumar Mahto with his research scholars Mr Ajay Sahi and Ms Snehalata Rai.



Prefilled dual-chamber syringe

of the early expiration of solutions when already in the premixed state. Prefilled

syringes are invented by IIT (BHU) to overcome such limitations. Researchers from Tissue Engineering and Biomicrofluidics (TEBM) laboratory, School of Biomedical Engineering under the supervision of Dr. Sanjeev Kumar Mahto have invented a dual chamber prefilled syringe with the help of 3D printing. The internal separator of both the compartments is made up of a biocompatible material that can be pierced with the help of a stick provided inside plunger that will ultimately allow mixing of drug and diluent, which is further ready to be delivered to the

patient. One of the significant advantages is that it will reduce packaging and biomedical wastes. Dr. S. K. Mahto with his research group has also filed a patent for this healthcare innovation.

Following are the highlights of the dual chamber syringe:

1. Adjustable volume dispensing facility: In this product, the volume of both the chambers is adjustable as per the requirement.
2. Corrosion free: The materials used to prepare this product are biocompatible and economical as

well as they are non-corrosive to the chemicals/drugs formulations inside the chambers.

3. Precise and complete delivery: The plunger is adjusted in a manner for complete delivery of drug without any loss.
4. Cost-effective: The design and the biomaterials used are economically viable.
5. Easy to use and handle: Intuitive and straightforward to use for low skilled healthcare workers or self-injection.

## Saving Countless Lives: A Nano-medicine for Malaria

We cannot wear the same clothes in scorching Sahara and the nerve-numbing Antarctica. Similarly, in a world of such immense size, filled with various pestilent diseases, it does not work, at least as of today to apply a single medicine as a panacea. Many times, even for the same disease, a method that applies in a part of the world becomes redundant elsewhere. The prominence of this fact can be understood through the works of the Murrays (Christopher, Anne, Nigel, and Megan) in 1975, who through their studies found out that the nutritional medicines being administered in Sub-Saharan Africa were actually making the people over there, prone to Malaria due to the presence of Iron (Fe) in them. This illustrates the need to treat the world at a micro level. A team of researchers from IIT (BHU) Varanasi, lead by Prof. Pradip Paik have taken a significant stride in this direction by developing a new anti-malarial drug (A Nano-medicine capable of self-controlling the doses for optimal treatment) that has a huge potential. Here is a look into their workings.

Malaria being one of the most life-threatening distempers to humankind causes annually about 216 million cases and 445,000 deaths across the globe according to the World Health Organization (WHO, 2017). *P. falciparum* is a unicellular protozoan parasite of humans, which is the deadliest species of *Plasmodium* and causes malaria in humans. It is transmitted through the bite of a female *Anopheles* mosquito and is responsible

for roughly 50% of all malaria and causes the disease's most dangerous form called *falciparum* malaria. Thus, it is regarded as the deadliest parasite in humans causing a conservative estimate of one million deaths every year. This parasite is mostly resistant to a number of presently available antimalarial drugs and is a challenge for treatment. Till date, only one vaccine in the world is available against *P. falciparum* and is known as RTS, S. The vaccine shows partial protection against malaria in young children and it is only developed for use in Africa for the African children. If used outside Africa, additional studies will be needed before the vaccine can be recommended for the treatment. In this respect, it is essential to save the humankind and the rest of the world from malaria.

Dr. Pradip Paik and his team designed and developed polymeric nano-capsules based nanomedicine containing commonly used antimalarial drugs in his laboratory. This nanomedicine is capable and empowers to tune the doses for malaria treatment in a limited period and controls the body temperature. It is also capable of self-controlling the doses of medicine at different essential conditions and body temperature. Dr. Paik of IIT(BHU) also reported that, based on the self-dose deciding capabilities of their nanomedicine, which can work as a 'time-temperature clock' (release medicine with time and body temperature), the malaria treatment could be effectively monitored. Furthermore, their



nanomedicine increases the stability, bioavailability, as well as the effectiveness of the medicine and, accelerates the efficiency of treatment. This nanomedicine as a whole has excellent efficiencies in killing the *P. falciparum* infection in RBCs, and the efficiency is very high compared to the previously reported nano-formulation and medicines. In conclusion, it can be said that in-house designed nanomedicine by Dr. Paik and his group is unique, remarkable and pioneering and can be used in treating malaria more efficiently.

Dr. Pradip Paik, is an Associate Professor in the School of Biomedical Engineering, IIT (BHU) and is a Chemist, Chemical technologist and Material Scientist work in Healthcare, Therapeutic technology and its applications.

# Preparing the guardians of knowledge for tomorrow: **The Teaching-Learning Cell**

## (Faculty Development Programme)

The real strength of any educational institute lies in the capabilities of its faculty members and students. They are the wheels which drive it to the summit and make it a paradise for learning. To perform such tasks of paramount importance efficiently, they need to be equipped with the requisite skills and also mentored and assisted as and when required. At IIT (BHU), the Teaching-Learning Cell undertakes this task and ensures the smooth functioning of the entire academic environment. In this edition, we bring you a summary of the various activities they have accomplished in the last academic session.

The Teaching-Learning Cell (TLC) is one of the most

dynamic parts of the Institute which continues to function in all its glory since its inception in June 2013, when it was re-cast from Centre for Education Technology (CET). Its revered vision is to be a cell for facilitating studies, R&D and implementation of innovative teaching-learning methodologies/technologies under the teaching-learning process of the institute. It covers all the aspects of teaching, pedagogy, laboratory projects, assessments etc. TLC at IIT (BHU) has conducted several programmes for the capacity building of faculty and students as per its mandate. Some of the highlights of the programme are depicted in the table presented here.

The Faculty Development Program was one such striking

feature. Under the aegis of Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNMTT) Scheme by the Ministry of the Human Resource Development, Government of India, the Teaching Learning Centre (TLC) of IIT (BHU) organised the Faculty Development Programme during the period 14 May-02 June 2018. It targeted the newly recruited faculty who have joined IIT (BHU) after 29 June 2012 [conversion from IT, BHU to IIT (BHU).] This was a continuation of the initiative started during 12th – 17th January 2018. The goal of this induction training programme is to orient them on various generic aspects of teaching-learning, instructional methodologies, assessment and evaluation techniques, ICT

S. No.	Program Name	Date	Beneficiaries
1.	Induction Training of Faculty (MHRD Mandate) covering two core modules	12-17 January 2018	78
2.	FDP on Additive Manufacturing: Theory and Practice	02-08 February 2018	21
3.	Micro-teaching practice, feedback, and reflections	26 February 2018 12 March 2018 19 March 2018	15
4.	3 Days Workshop on "Innovative Design & Manufacturing Education" for Lab Staff & Students with the support of IIITDM, Kancheepuram.	07-09 April 2018	103
5.	Half-day workshop to share best practices by awardees of Curriculum and Instructional Innovation grant and MOOC grant.	21 April 2018	12
6.	Induction Training of Faculty (MHRD Mandate) covering the core and 12 modules	14 May-02 June 2018	82



FDP on Additive Manufacturing : Theory and Practice



Prof. Deepak Phatak conducting a session during the Faculty Development Programme

enabled teaching-learning, and equip them with the knowledge of University rules and regulations, basics of governance and administration, and other related topics which are essential for their academic career.

Blessed by the presence of renowned personalities, the programme was a spectacular feast of knowledge sharing. Brilliant minds from across the country including Prof. M.R. Ravi (IIT Delhi), Dr. R.K. Gupta (IIM-Lucknow), and Prof. P.V.M. Rao (IIT Delhi) came to the session and shared their experiences. Dr. Deepak Garg [Khalsa College (Delhi Univ.)], Prof. Rajiva Raman (B.H.U.), and Prof. V.V. Menon (Retired Professor, IIT (BHU)) were also among the fellow speakers. The programme was glorified with yet another captivating personality, Prof. Deepak Phatak, a Padma Shri awardee.

## Learning from the Pioneers: Fulbright Specialist Project at the Department of Mechanical Engineering, IIT (BHU)

In March 2018, Prof. Anil Kumar Agrawal from the Department of Mechanical Engineering as a host faculty invited Dr. Manu K. Vora (IIT (BHU), Varanasi Alumnus, B. Tech. (Honors), Chemical Engineering, 1968) to deliver his Fulbright Specialist Project sponsored by the United States-

India Educational Foundation (USIEF), New Delhi, India and US Department of State.

Dr. Vora accomplished the following as a part of his Fulbright Specialist Project:

1. Conducted "**Risk Management for Organizational Excellence**"

workshop (25 hours over five days) with 21 attendees.

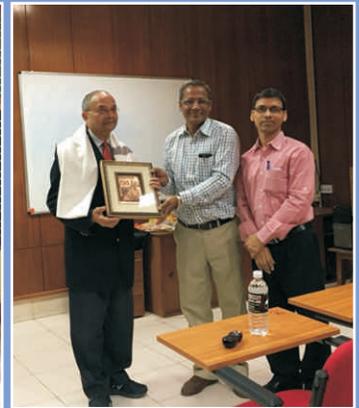
2. Delivered five sessions on "**Recipe for Success at a University and in Professional Careers**", a career development talk to 195 Students.
3. Delivered four sessions on

**"Create Magic in the Classrooms for Students' Engagement"**, an Innovative educational practice with 54 Faculty and Research Scholars.

Dr. Manu Vora is the Chairman and President of Business Excellence, Inc., USA. He has 43 years of leadership experience guiding Fortune 500 companies in US Baldrige Performance Excellence Framework. In the last 25 years as an Adjunct Faculty, he has taught Operations Management courses in business schools globally. He is connected with over 80 educational institutes worldwide. He holds Ph.D., M.S. (both from Illinois Institute of Technology, Chicago), and B. Tech. (Honors) in Chemical engineering from IIT (BHU), and an MBA with marketing management. He has delivered over 770 presentations globally including Two TEDx Talks (IIT BHU and Illinois Institute of Technology, Chicago) and published 70 scholarly articles. He was the recipient of the 2015 Distinguished BHU Alumnus Award.



Prof. P.K. Mishra,  
Prof. S.N. Upadhyay,  
Dr. M. Vora-Chem. Engg



Risk Management Workshop Attendees- Mech. Engg Dr. Manu Vora,  
Prof. P.K. Singh, Prof. K.K. Pathak-Civil Engg.



Dr. M.K. Singh, Dr. Neeraj Tripathi,  
Dr. M. Vora - FSS&A-BHU



Dr. Manu Vora and  
Prof. Naveen Kumar-IOS-BHU



Students' Parliamentarians with Dr. Manu Vora

# FACULTY ACHIEVEMENTS

**R.K. Saket** from the Department of Electrical Engineering was awarded the Gandhian Young Technological Innovation Award by the honourable President of India at Rashtrapati Bhavan, New Delhi, India on 19 March 2018. He was also awarded the Tata Trusts's Design Impact Award for Innovation and Social Entrepreneurship by Dr. Ratan N. Tata on 24 July 2018.

**Rajiv Prakash** from the School of Material Science and Technology is selected as a panel member of DRDO Aerospace Resources Panel (ARP-AR & DB)-2018.

**J. Basu** from the Department of Metallurgical engineering was awarded Excellence in Microscopy Award of Electron Microscope Society of India (EMSI) this year in the Month of July at Bhubaneswar.

**B.N. Dwivedi** of Department of Physics is an Editorial Board Member for Scientific Reports, a Nature group research journal.

**B.K. Shrivastva** from the Department of Mining Engineering was awarded the Prof. S.K. Bose Memorial Award for 2017-18

**Yogesh Velankar** from the faculty of Humanistic Studies was selected by MHRD as a Mentor and Performance Auditor under the third phase of Technical Education Quality Improvement Program (TEQIP – III), a Central Sector Scheme of Government of India with support from the World Bank.

**Vinod Tiwari** from the Department of Pharmaceutical Engineering was invited as "IBRO FACULTY" during International Brain Research Organization (IBRO) School (3rd IBRO/APRC Chandigarh Neuroscience School). He was also invited as "Resource Person" during Continuing Education Programme in Pharmacy (CEP-2018) which is supported by Pharmacy Council of India, New Delhi.

**Devendra Kumar** from the Department of Ceramic Engineering

became a member of CSIR Expert Group on the theme 'Mining, Minerals, Metals and Materials.' He became Chairman, Advisory Committee, Central Glass and Ceramic Research Institute, Khurja Center, Khurja. He also became Convener, Flat and Coated Glass Subcommittee, CHD 10:6 of Glass, Glassware and Laboratory ware Sectional Committee, Bureau of Indian Standards (BIS), New Delhi.

**Pradip Paik** from the School of Biomedical Engineering won "Outstanding Scientist Award" in Biomedical Engineering (VIRA 2018).

**Ankit Gupta** from the Department of Civil Engineering was awarded 'Achievement Award for Academician' under category D of the Vishwakarma Awards 2018 by the Construction Industry Development Council (CIDC) on 07 March 2018 at New Delhi. He also became a member of G-3 Technical Committee, Indian Roads Congress for a period of three years (2018-2020)

**Abhishek Kumar Srivastava** from the Department of Physics became the review editor for Solar and Stellar Physics, Frontiers in Astronomy and Space Sciences (Open Access). He received the best poster award (2 best posters) for Sun and Solar System along with Dr D. Oberoi (NCRA-TIFR) in the XXXVI Astronomical Society of India Meeting at Osmania University, Hyderabad on 8 February 2018.

**Brahmeshwar Mishra** received Lifetime Achievement Award in Pharmaceutics Specialization by Venus International Foundation on 11 August 2018 during the Fourth Annual Research Meet and Venus International Research Award 2018 Ceremony held at Chennai.

**Nikhil Saboo** from the Department of Civil Engineering won the "Young Scientist in Civil Engineering," conferred by the Centre for Advanced Research and Design, Venus International Foundation in August 2018. He published research papers in the Journal of Materials in Civil

Engineering, ASCE and the Indian Highways, Indian Roads Congress.

**N.C. Karmakar** from the Department of Mining Engineering became a Member of Expert Appraisal Committee (EAC) for Non-Coal Mining, Ministry of Environment & Forest and Climate Change (MoEFCC), Govt. of India, for 3 years (from Dec 2015 to Nov 2018). He also became Chairman, Project Review & Steering Group (PRSG) for the project "Development of Digital Mine using Internet of Things for North East Region of India", Ministry of Electronics & Information Technology (MeitY), Govt. of India [from July 2017 till the end of the project (continuing)].

**Kishor Sarawadekar** from the Department of Electronics Engineering was conferred the "Outstanding Scientist in Electronics Engineering" Award under the Engineering Discipline by the Venus International Foundation, Chennai.

**Ashutosh Kumar Dubey** from the Department of Ceramic Engineering won MAHE Award for Young Scientist/Academic Faculty - 2018 by the Society for Biomaterials and Artificial Organs (India).

**S.K. Shukla** from the Department of Mechanical Engineering became Editorial Board Member for the journals, Journal of Thermal Engineering and Applications; Journal of Refrigeration, Air Conditioning, Heating and Ventilation and Advisory Board Member for the journal Petroleum and Fuel Technology.

**Sanjay Singh** from the School of Material Science and Technology won the Young Scientist Medal of Indian National Science Academy (INSA).

**Sanjay Kumar Singh** from the Department of Computer Science and Engineering co-authored a book entitled, 'Animal Biometrics Techniques and Applications' published by Springer.

**Sanjay Kumar Pandey** from the Department of Mathematical Sciences

became Adjunct faculty for the Odd Semester (July-December) 2018-19, IIT-Naya Raipur, Chhattisgarh.

**Santosh K. Singh** from the Department of Electrical Engineering received a second best paper award for the paper entitled 'Extended Buck-Boost Derived Hybrid Converter' presented

in IAS Annual Meeting 2017 held at Cincinnati, USA.

**Pradeep Kumar Mishra** has been selected as the Chairman, Committee for the formulation of disposal standards for Textile Industries at Ganga Basin Central Pollution Control Board, Government of India.

**Girija Shankar Mahobia** from the Department of Metallurgical Engineering won Long service (8 years) honour in Hostel sector by Chairman-Council of wardens, IIT (BHU).

## Invited Talks

**Amitesh Kumar** from the Department of Mechanical Engineering delivered lectures on "Fundamentals of CFD" at NIT Rourkela during 03-05 July 2018.

**Lavanya Selvaganesh** from the Department of Mathematics gave a Series of 11 Lectures for one week (from 28 May - 1 June 2018), in the ACM Summer School at PSG College of Technology, Coimbatore during 21 May - 8 June 2018.

**Yogesh Velankar** from the Department of Humanistic Studies gave an invited lecture at National Institute of Technical Teachers' Training and Research (NITTTR), Kolkata, India in June 2018.

**Vinod Tiwari** from the Department of Pharmaceutical Engineering and Technology delivered a lecture in the Continuing Education Programme in Pharmacy-2018 at Gurukul Kangri Vishwavidyalaya, Haridwar during 16-18 August 2018. He also delivered a lecture at the Center for Continuing Education (CCE) in NIRMA University, Ahmedabad on 31 August 2018.

**Devendra Kumar** from the Department of Ceramic Engineering gave a Key Note Address at National Conference On Advanced Materials and Nano Technology (AMN-2018) held between 15-17 March 2018 in IIIT Noida. He also delivered an Invited Talk at Workshop on Ceramic leadership and New Technologies and Global Ceramic Leadership Roundtable on 27 February 2018, Firozabad.

**Girija Shankar Mahobia** from the Department of Metallurgical Engineering delivered a lecture on 'Welding Metallurgy' at DLW Varanasi on 14 August 2018.

**Abhishek Kumar Srivastava** from the Department of Physics delivered an invited talk in the session, Sun and the Solar System I in the XXXVI Astronomical Society of India Meeting at Osmania University, Hyderabad on 08 February 2018.

**Brahmeshwar Mishra** from the Department of Pharmaceutical Engineering and Technology delivered invited talks during FDP at Ashoka Institute of Technology & Management, Varanasi on 01 February 2018; At a workshop in Faculty of Ayurveda, IMS, BHU on 06 February 2018; During the Fourth Winter Programme for Faculty at UGC HRDC, BHU, Varanasi on 03 March 2018; At the 80th Orientation Course for Faculty at UGC HRDC, BHU, Varanasi on 10 August 2018.

**Chandana Rath** from the School of Material Science and Technology delivered a lecture as part of QEIP at the Department of Physics, CEIT, Bhubaneswar during 24-27 April 2018,

**N.C. Karmakar** from the Department of Mining Engineering delivered a talk in a one-day Workshop on 'Sustainable Development' organised by The Institution of Engineers (India), Varanasi Local Centre.

**M.S. Muthu** from the Department of Pharmaceutical Engineering and Technology delivered invited talk at the Twelfth Edition of International Conference on Nanopharmaceutics and Advanced Drug Delivery held during 16-17 August 2018 in Dublin, Ireland.

**Anil Kumar Singh** from the Department of Computer Science and Engineering delivered two FDP

lectures of Natural Language Processing and Computational Linguistics at YCCE, Nagpur, during 10-15 July 2017. He also gave several lectures on Machine Translation and Computational Linguistics at the QIP-CEP Workshop on Experimental and Empirical Linguistics, 2017 held at IIT Delhi during 9-15 July 2017.

**Indrajit Sinha** from the Department of Chemistry delivered an invited expert talk under the TEQIP-III scheme at the Rewa Engineering College in Rewa on 13 April 2018.

**Kishor Sarawadekar** from the Department of Electronics Engineering delivered an Expert Lecture in TEQIP-III sponsored one-week FDP on Emerging Issues in VLSI Design, at SMVDU, J&K, during 07-11 May 2018. He was also an Invited Speaker in TEQIP-III sponsored Five Day Short Term Training Program on Algorithms and Architectures for High-Efficiency Video Processing Systems, at NIT Surathkal, Karnataka, during 20-24 August 2018.

**Rajiv Prakash** from the School of Material Science and Technology gave an invited talk at a meeting conducted by Indo-US Science and Technology Forum at Saha Institute of Nuclear Physics, Kolkata during 02-04 January 2018.

**Rajiv Kumar Mandal** from the Department of Metallurgical Engineering gave an invited talk in EMSI-2018, at Bhubaneswar on 19 July 2018.

**Krishna Kant Pathak** from the Department of Civil Engineering gave an invited talk during the one-week Faculty Development Program on

Total Quality Management at Rajkiya Engineering College, Azamgarh on 08 June 2018.

**Rajesh Kumar** from the Department of Mechanical Engineering delivered four lectures in Faculty Development Programme (FDP) on Optimization Techniques and its Engineering Applications held at M.I.T.S Gwalior during 15–19 March 2018. He also gave a Guest Lecture in Faculty Development Programme (FDP) on Instructional Design Delivery System Embedded with Useful/State of the Art Software Tools during 27 August – 01 September 2018 at JSS Academy of Technical Education, Noida.

**Sanjeev Kumar Mahto** from the School of Biomedical Engineering delivered an invited talk in a two-day '3D Printing Workshop', sponsored by Indo-US Science and Technology Forum at SASTRA University, Thanjavur district, Tamil Nadu, India during 16-18 August 2018.

**Tanmoy Som** from the Department of Mathematical Sciences delivered two talks at Department of Mathematics, NIT, Silchar during 10-14 August 2018.

**S.K. Shukla** from the Department of Mechanical Engineering was an invited Speaker at Shambhunath Institute of Engineering & Technology (SIET), Allahabad, U.P on 2 February 2018. He was the Chief Guest and Speaker in IEI Seminar on "Advancement on Solar Thermal Technologies", at Shri Rama Murthy Smarak College of Engineering and Technology, Bareilly, U.P on 31 August 2018.

**Sanjay Singh** from the School of

Material Science and Technology delivered an invited talk at Indian Institute of technology, Mandi during 02-04 April 2018.

**Sanjay Kumar Pandey** from the Department of Mathematical Sciences delivered an invited talk at the Second International Conference organised by Inderprastha Engineering College (IPEC), Ghaziabad, India on 04-06 January 2018. He also delivered an invited talk at 22nd International Conference of International Academy of Physical Sciences (CONIAPS XXII) organised by Faculty of Science, Dr. Ram Manohar Lohia Avadh University during 13-15 April 2018.

**Ashutosh Kumar Dubey** from the Department of Ceramic Engineering gave a lecture at the International Conference on Bio Materials, Bio-Engineering, and BioTheranostics (BioMET 2018), held during 24-28 July 2018 at Vellore Institute of Technology (VIT), Vellore. He delivered a lecture at the 'New Materials for Healthcare: Idea Generation Workshop (Conclave)' on May 06, 2018 organised by Tata Steel's New Materials Division and Center for Excellence on Biomaterials for Orthopedic and Dental Applications, IISc, Bangalore

**Hari Prabhat Gupta** from the Department of Computer Science and Engineering gave a lecture at Alpen-Adria-University Klagenfurt, Austria on 22 June 2018.

**Pradeep Kumar Mishra** from the Department of Chemical Engineering and Technology delivered a lecture in National Workshop on "Skilling under GOBARDHAN" organised by the

Ministry of Drinking Water and Sanitation along with Ministry of Skill Development & Entrepreneurship on 30 July 2018. He was the Chief Speaker at Ganga Pollution Prevention Unit of U.P. Jal Nigam, Bhagwanpur, Varanasi on 05 June 2018. He was the Chief guest and speaker at the meeting jointly organised by CEPC (Carpet Export Promotion Council & CPCB (Central Pollution Control Board), in New Delhi. He also delivered a lecture at NCL, Singrauli on 17 February 2018. He gave a Keynote Lecture at Shambhunath Institute of Technology, Allahabad, U.P. on 09 March 2018. He delivered an invited talk at Rajkiya Engineering College, Azamgarh, U.P on 17 March 2018.

**Satya Prakash Tewari** from the Department of Mechanical Engineering delivered guest talks at Ashoka Institute of Technology and Management, Varanasi on 25 and 28 June 2018. He also delivered invited talks at Shri Ram Murti Smarak College of Engineering and Technology, Unnao, UP on 26 and 27 June 2018.

**Somak Bhattacharyya** from the Department of Electronics Engineering delivered an invited talk at the IEEE Computer Society India Symposium at Bodhgaya on 17 March 2018.

**M.K. Verma** from the Department of Electrical Engineering talked about "Job opportunities in Electrical Engineering" at Aakashwani, Gyanbani, Mehmoorganj, Varanasi on 27 August 2018.

## Short Term Courses/Workshops/Conferences Conducted

**Kaushik Chattopadhyay** from the Department of Metallurgical Engineering conducted a QIP sponsored short term course on 'Mechanical Properties and Deformation Behaviour of Structural Materials' from 27 August - 01 September 2018.

**Lavanya Selvaganesh** from the Department of Mathematical Sciences

co-ordinated an AICTE Sponsored QIP & CEP Short Term Course on "Advances in Graph Theory with Applications in Network Sciences" from 06-11 August 2018.

**Yogesh Velankar** from the Department of Humanistic Studies organised workshops of Pedagogical Techniques and Teaching and Learning Methods, Faculty Induction

Programme Workshop, Central University of Haryana, Haryana, India in June 2018; Pedagogical Techniques and Teaching and Learning Methods, Faculty Induction Programme Workshop, Indian Institute of Science Education and Research, Bhopal, India in June 2018; Fundamental Principles and Practices for Effective Teaching and Learning,

Faculty Induction Programme Workshop, Indian Institute of Information Technology Design and Manufacturing, Kancheepuram, India in May 2018; Learning Outcomes and Pedagogical Approach, Faculty Induction Programme Workshop, Indian Institute of Science Education and Research, Pune, India in May 2018; He co-ordinated Invited Workshops of Outcome-Based Education under TEQIP III, Islamic University of Science and Technology, Jammu & Kashmir, India in March 2018; Professional Communication Strategies, Intercultural Sensitivity, and Overcoming Engineering Challenges under TEQIP III, Indira Gandhi Institute of Technology, Odisha, India in March 2018.

**Somak Bhattacharyya** from the Department of Electronics Engineering organised an AICTE Sponsored Short Term Course on "Recent Advances on Passive and Active Components at High Frequencies" between 25-30 June 2018.

**Anil Kumar Singh** from the Department of Computer Science and Engineering organised a CEP Workshop on Experimental and Empirical Linguistics, between 04-11 June 2018.

**Hari Prabhat Gupta** from the Department of Computer Science and Engineering conducted a Summer Workshop on Machine Learning Applications to IoT at IIT (BHU) Varanasi during 01 June-16 July 2018.

**Sukhada** from the Department of Humanistic Studies organised a three-week long summer workshop on Verbal Awareness and Computation (VA□C) for 6th-8th standard students from Kendriya Vidyalaya, BHU, Varanasi from 14th May - 2nd June 2018 with the help of the colleagues from HSS and CSE (IITBHU).

**S.K. Shukla** from the Department of Mechanical Engineering organised a One Day Brain Storming Workshop on Nuclear Energy for Food Security and Rural Development at the Seminar Hall, Mechanical Engineering Department on 17

February 2018.

**Pradeep Kumar Mishra** from the Department of Chemical Engineering and Technology convened a 02-day Innovation Summit at IIT (BHU) Varanasi from 27-28 March 2018. He coordinated a 12 days' Workshop cum training programme on Biogas Technology Development, Implementation and Substrate Analysis in association with German Biogas Association and Indian Biogas Association during 02-13 July 2018. He conducted Start-ups Showcasing and Sensitization Programme for Students of Rajarshi School of Management & Technology, Varanasi at MCIE on 25th August 2018.

## Hands-on Science and Mathematics Workshop at Department of Physics

Department of Physics, IIT (BHU) [Convener of the workshop Prof. Debaprasad Giri] in association with Hindi cell of the Institute organised one day Science Workshop "Hands-on Science and Mathematics" for School students and teachers from rural areas of Varanasi on 2nd May, 2018 from 10 AM to 5 PM. Apart from 100 school students & teachers from ten different schools of Varanasi, our student volunteers from Science & Technology Council and Social Service Council of Gymkhana, many enthusiastic kids from campus participated in the workshop. Mr. Manish Jain of Creative learning initiative (CLI), IIT-Gandhinagar conducted the workshop in Hindi.

## Talent Management and Career Progression Training for BSNL Executives at Department of Mechanical Engineering, IIT (BHU), Varanasi

**Prof. Anil Kumar Agrawal** from the Department of Mechanical Engineering, as a Programme Co-ordinator, conducted one week training programme for BSNL executives on **Talent Management and Career Progression** at IIT (BHU). A total of **240 senior executives** from **22 telecom circles** and Advanced Level Telecom Training Centre (**ALTTC**), Ghaziabad, an apex training centre of BSNL, attended the programme.

Training programme was conducted in **Eight batches** with **30 participants each** during **October 2017 to March 2018**. Training programme covered **21 pertinent topics** from diverse fields ranging from **Management, Legal, Psychology, Language and Self-help**.



Prof. A. K. Agrawal with BSNL executives during the session



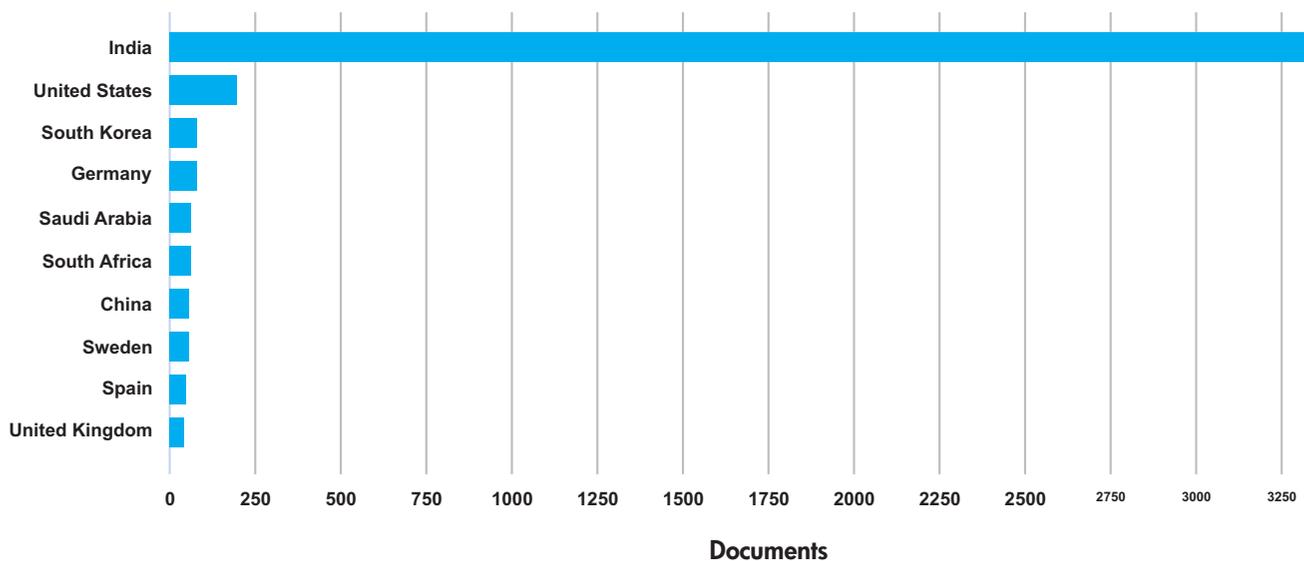
Prof. S. K. Sharma distributing certificates to participants

# Publications

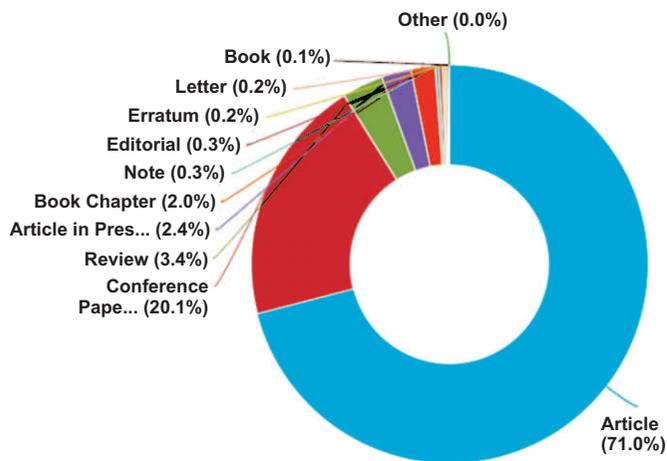
IIT (BHU) is striving for excellence by promoting a culture of research and innovation in the campus. So far, about 700 papers have been published till August this year.

## Documents by country or territory

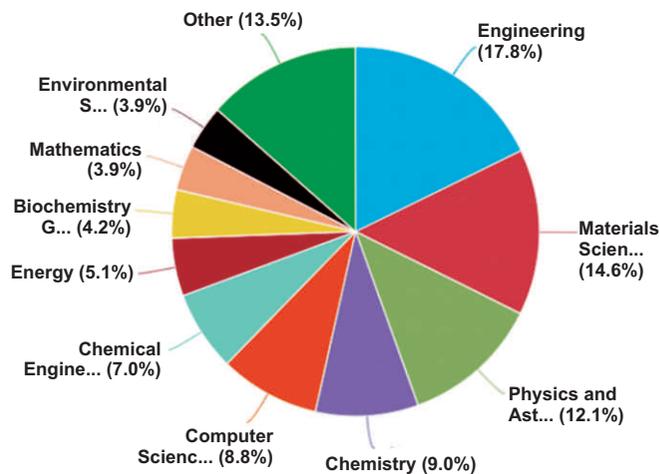
Compares the document counts for up to 15 countries/territories



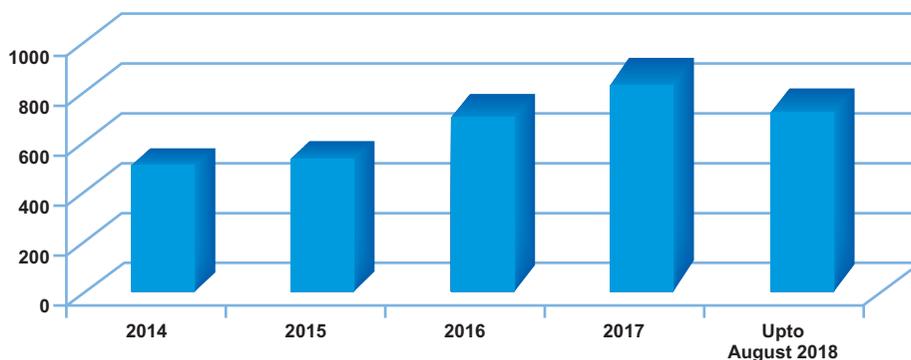
## Documents by type



## Documents by subject areas



## No of research papers published in respective years



Reference : [www.scopus.com](http://www.scopus.com)

## List of Sponsored Projects Sanctioned from Jan 31<sup>st</sup> Aug, 2018

Sl. No.	Title of Project	Name of PI/Co-PI	Date of Sanction	Agency	Duration	Value of the project (in Lakhs)
1	Electronics Structurer Evolution across Quantum Critical Point in Li(Ti <sub>1-x</sub> V <sub>x</sub> ) <sub>2</sub> O <sub>4</sub>	Swapnil Patil	15-03-2018	SERB	03 Yrs	55
2	Robust Adaptive Mesh Methods for Singularly Perturbed Problems in Ordinary and Partial Differential Equations	Sunil Kumar	20-03-2018	SERB	03Yrs	20.95
3	Collection of self-propelled particles in inhomogeneous environment: Numerical & Analytical Studies	Shradha Mishra	21-03-2018	SERB	03Yrs	24.59
4	Design Development & characterization of Porous Ti/SiO <sub>2</sub> composite with tailored microstructure fabricated by powder metallurgy using rice husk and source as a space holder for orthopaedic application	Kalyani Mohanta	27-03-2018	DBT	1.5 Yrs	15.60
5	Insitu electron microscopy at the atomic scale for understanding nucleation growth and interfaces of omega phase	Joysurya Basu	14-03-2018	SERB	03 Yrs	65.84
6	Optimization of recovery of valuable metals from waste printed circuit boards (WPCBs) through a modified hydrometallurgical route	Kamalesh Kumar Singh	17-05-2018	UGC	02 Yrs	10.16
7	The sun under the microscope-Anintegrated research activity to maximize the science return from a new generation of missions to study the sun	Abhishek Srivastava	16-05-2018	UGC	02 Yrs	19.28
8	Schwarz Waveform Relaxation Methods for Singularly Perturbed Parabolic Problems	Sunil Kumar	28-05-2018	SERB	03Yrs	6.60
9	Noval Electrode Materials for Reversible Alkali-Ion (Li <sup>+</sup> / Na <sup>+</sup> ) Capacitors and Pseudocapacitors	Preetam Singh	08-06-2018	SERB	03 Yrs	36.65
10	Mix Energy Source Electric Vehicle Charging System Design and Its Impact on Indian Smart-distribution grid	R.K. Singh	30-06-2018	DST	03 Yrs	94.49
11	Flow and segregation of granular materials out of hoppers and two & three-dimensional devices	Vishal Mishra	09.03.2018	CST-UP	3 Years	10.44
12	Development of low-cost sodium-ion battery: Fabrication and application of NASICON based electrodes	Rajiv Prakash	08.03.2018	DST	3 Years	82.89
13	Understanding the mechanism of action through cell biology and upgradation of the herbal drug in solution and biodegradable patch for the treatment of diabetic foot ulcer	Pralay Maiti	06.02.2018	BIRAC	1.5 Years	28.60
14	Elastocaloric effect measurement setup to study the caloric effect in shape memory alloys	Sanjay Singh	31.03.2018	UGC-DAE	1 Year (extendable to 3 Years)	2.39 (for 1 <sup>st</sup> year)
15	Pharmacology of natural drugs in obesity and eating disorders	Sairam Krishnamurthy	07.05.2018	Natreon Inc.	2 Years	26.54
16	Development of anticorrosive paints	Pralay Maiti	14.05.2018	Harind Chemicals & Pharmaceuticals Pvt. Ltd.	1 Year	1.20
17	A robust medical image forensics system for smart health care	Dr. Tanima Dutta	30.08.2018	SERB	2 Years	14,07,870
18	Study, Design and Implementation of Frequency selective Metasurfaces for Microwave Applications	Dr. Somak Bhattacharya	24.07.2018	SERB ECRA	3 Years	46,70,620
19	Radio nuclide sensing platform based on functionalized polymer having nanochannels using accelerator	Dr. Pralay Maiti	05.07.2018	BRNS DAE	3 Years	34,16,000
20	Minimizing hystercsis in magnetic shape memory heusler alloys for reversible magnetocaloric effect	Dr. Sanjay Singh	24.08.2018	SERB	3 Years	48,39,838

## List of MoUs signed by IIT (BHU) between February and August 2018

S. No.	Particulars	Date
1	Indian Institute of Technology, Roorkee, Uttarakhand	27.02.2018
2	Indian Institute of Technology, Kanpur, Uttar Pradesh	23.07.2018

## List of Patents filed from January to 2<sup>nd</sup> August 2018

S. No.	Name of Inventor	Title of the Invention	Department
1	Prof. Sanjay Singh, Mr. Vijay Kumar M.R.	COMPOSITION OF RESVERATROL-LOADED HYBRID NANOPARTICLES AND A METHOD OF PREPARATION THEREOF	Pharmaceutics
2	Prof. Pralay Maity, Sudipta Senapati.	A NANOCARRIER FOR DELIVERING GENETIC MATERIALS AND A METHOD OF PREPARATION THEREOF	SMST
3	Dr. Bhupendra Singh, Lakshya Mathur, Sandeep Kumar Gautam, Devendra Kumar	A METHOD FOR SYNTHESIS OF CERIUM(IV) PYROPHOSPHATE COMPOUNDS	Ceramic Engg.
4	Dr. Tanima Dutta, Dr. Hari Prabhat Gupta and Mr. Sabyasachi Mohanty	A SYSTEM AND METHOD FOR GENERATING REAL-TIME TEXT PRESERVED OIL PAINTING USING SMART-DEVICE	Computer Science Engineering
5	Dr. Nand Kishore Prasad, Prof. R.K. Mandal, Manas Srivastav.	TRIVALENT AI+3 DOPED MAGNETITE AND A METHOD OF PREPARATION THEREOF	Metallurgical Engg.
6	Dr. Sanjeev Kumar Mahto, Suruchi Poddar, Agrawal Piyush Sunil.	A THREE-DIMENSIONAL POROUS PSYLLIUM HUSK-BASED COMPOSITE SCAFFOLD	Biomedical Engg.
7	Dr. P.K. Roy, S.K. Saddam Hossain.	A METHOD OF MANUFACTURING SYNTHETIC WOLLASTONITE BY UTILIZING WASTE MATERIALS	Ceramic Engg.
8	Mr. Mukesh Suthar, Dr. P.K. Roy.	METHOD OF MANUFACTURING COMBINED TYPE HUMIDITY SENSOR BASED ON TUNGSTEN DOPED Y-TYPE BARIUM HEXAFERRITE	Ceramic Engg.
9	Prof. Pralay Maity, Sudipta Senapati.	FUNCTIONALIZED GRAPHENE OXIDE BASED NANOPROBES	SMST
10	Deepshikha Shekhawat, Dr. P.K. Roy.	HIGH ENERGY, HIGH CURIE TEMPERATURE FERRITES FOR HIGH POWER APPLICATIONS	Ceramic Engg.
11	Prof. Rajiv Prakash, Vinita, Narsingh R. Nirala	A PORTABLE TEST KIT FOR DETECTION OF GLUCOSE IN BIOLOGICAL FLUIDS AND A METHOD THEREOF	SMST
12	Prof. Rajiv Prakash, Vinita, Narsingh R. Nirala	A PORTABLE BIOSENSING SYSTEM AND METHOD FOR VISUAL DETECTION OF GLUCOSE IN BIOLOGICAL FLUIDS	SMST
13	Prof. Rajiv Prakash, Dr. Rajiv Kumar Pandey	A POLYMER OR 2-D NANO-COMPOSITE FILM AND A METHOD OF PRODUCTION THEREOF	SMST
14	Prof. Pralay Maity, Sudipta Senapati, Ajit V. Parihar, Sadhana Swaraj, T.P. Chaturvedi	A BIOACTIVE GLASS AS AN ORTHODONTIC ADHESIVE AND A METHOD OF PRODUCTION THEREOF	SMST & FDS, IMS BHU
15	Alok Prakash, Bindu Kumari, Dr. Shiru Sharma, Dr. Neeraj Sharma	EMG SENSOR FOR PROSTHETIC HAND CONTROL	Biomedical Engg.
16	Dr. S. Krishnamurthy, Mr. Pankaj Paliwal	FORMULATION OF SILVER CONTAINING BIOACTIVE GLASS	Pharmaceutics

17	Prof. Pralay Maity, Anupma Gaur, Shivam Tiwari, Dr. Sanjay Kumar Rai, and Chandan Kumar	A BIO-WASTE POLYMER HYBRID WITH HIGH ENERGY HARVESTING EFFICIENCY	SMST & Biomedical Engg.
18	Dr. P.K. Roy, SK Saddam Hossain.	FABRICATION OF CERAMIC BOARD THROUGH SOLID-STATE SINTERING METHOD BY UTILIZING WASTE MATERIALS	Ceramic Engg.
19	Dr. P.K. Roy, S.K. Saddam Hossain.	FABRICATION OF CERAMIC BOARD THROUGH ROOM TEMPERATURE CURING PROCESS BY UTILIZING WASTE MATERIALS	Ceramic Engg.
20	Prof. Pralay Maity, Anupma Gaur, Shivam Tiwari, and Chandan Kumar.	NANOHYBRID WITH HIGH ENERGY HARVESTING EFFICIENCY	SMST & Biomedical Engg.
21	Chayan Gupta, Prof. Arun Prasad.	A STABILIZED GREEN PRODUCT/COMPOSITION FROM HAZARDOUS JAROSITE WASTE AND PROCESS OF PREPARATION THEREOF	Civil Engg.
22	Dr. Rakesh Srivastava, Sharmila Shankar, Dr. Sushant Kumar Srivastava	COMPOSITIONS AND METHODS FOR REDUCING CELL VIABILITY	Pharmaceutics
23	Dr. Rakesh Srivastava, Sharmila Shankar, Dr. Sushant Kumar Srivastava	METHODS FOR TREATING CANCER AND METABOLIC SYNDROME	Pharmaceutics
24	Dr. Sanjeev Kumar Mahto, Suruchi Poddar.	A MICRO-FLUIDIC PLATFORM FOR LOW-DENSITY CULTURE OF CELLS AND A METHOD FOR CONTROLLING THE SAME	Biomedical Engg.
25	Akhilesh Kumar Yadav, Dr. Aarif Jamal.	A METHOD TO REDUCE SUSPENDED PARTICULATE MATTER IN AIR	Mining Engg.
26	Dr. Jyoti Prasad Chakraborty.	A SYSTEM FOR REDUCING HEAT LOSS IN BRICK KILNS	Chemical Engg.
27	Prof K. K. Shukla, Jayadeep Pati.	A DEVICE FOR MODELLING SOFTWARE CLONE EVOLUTION ACROSS DIFFERENT VERSIONS AND A METHOD THEREOF	Computer Science & Engineering
28	Dr. Kalyani Mohanta.	POROUS SILICA SHAPES AND MANUFACTURING PROCESS THEREOF	Ceramic Engg.

## Patents Published between February and August 2018

(Till 02 August 2018)

S. No.	Name of Inventor	Title	Department
1	Dr. M. R. Majhi; SK Saddam Hossain & Aman Bhardwaj	A Biomass Composition for Thermal Insulation and Method of Manufacturing the same	Ceramic Engg.
2	Prof. Pralaymaity; Sunil Kumar	A Method for Controlled Biodegradation of Biopolymer using Inorganic Salt and Product Thereof.	SMST
3	S.K. Saddam Hossain; Lakshya Mathur & Dr. M. R. Majhi	A Composition for Bricks from Waste Materials and Method of manufacturing the Same	Ceramic Engg.
4	Dr. Bhupendra Singh	A Solution Phase Synthesis for Doped/ Undoped Cerium (IV) Pyrophosphate Compounds of Different Morphologies	Ceramic Engg.
5	Dr. Bhupendra Singh	A Process for Preparing Pyrophosphate-Carbonate Composite Ionic Conductors and Product Thereof.	Ceramic Engg.
6	Dr. Ravindranath Chowdary Chandra; Manajit Chakraborty	A System for Channelling and Encasing Conditioned Air Around Processing Unit and the method Thereof.	Computer Science & Engineering

7	SK Saddam Hossain; Lakshya Mathur; Dr Preetam Singh & Dr M. R. Majhi	A Method for Preparing tiles and Composition Thereof.	Ceramic Engg.
8	Prof. Pralay Maity; Arpan Biswas; Manori Amarajeewa & Dr Manoranjan Sahu	A Method for Stabilizing An Ayurvedic Wound Healing Formulation	SMST & IMS (Ayurveda)
9	Prof. P. K. Srivastava; Neha Srivastava; Manish Srivastava & Dr P. W. Ramteke	A Process for Producing Ph Independent Cellulase and Product Thereof.	Chemical Engg. & Delhi Univ.
10	Dr P. K. Roy; Dr K.B.R. Verma & Dr Bharti Ponraj	Lead-Free Piezoelectric Ceramics with Enhanced Piezoelectric and Strains Properties and Method Thereof.	Ceramic Engg
11	Dr P. K. Roy; Deepshikha Shekhawat	A Process to Produce High Energy Strontium Based Permanent Magnet and A Product Thereof.	Ceramic Engg

### List of Faculty Members joined in IIT(BHU) between 01.01.2018 and 05.09.2018

S. No.	Name of Employee	Designation	Deptt./School	Date of Joining
1	Dr. Shinde Vijay Maruti	Assistant Prof.	Chemical Engineering	12.01.2018
2	Dr. Abhishek Mudgal	Assistant Prof.	Civil Engineering	14.02.2018
3	Dr. Soumya Ranjan Mohanty	Associate Prof.	Electrical Engineering	27.06.2018
4	Dr. N. Krishna Swami Naidu	Assistant Prof.	Electrical Engineering	07.05.2018
5	Dr. Laltu Chandra	Associate Prof.	Mechanical Engineering	18.06.2018
6	Dr. Ajinkya Nandkumar Tanksale	Assistant Prof.	Mechanical Engineering	23.07.2018
7	Dr. Bratindranath Mukherjee	Assistant Prof.	Metallurgical Engg.	09.02.2018
8	Dr. Randhir Singh	Assistant Prof.	Metallurgical Engg.	17.05.2018
9	Dr. Ashok Kumar Mondal	Assistant Prof.	Metallurgical Engg.	04.06.2018
10	Dr. Amit Kumar Verma	Assistant Prof.	Mining Engineering	01.05.2018
11	Dr. Shreyans Kumar Jain	Assistant Prof.	Pharmaceutics	15.03.2018
12	Dr. Vinod Tiwari	Assistant Prof.	Pharmaceutics	02.04.2018
13	Dr. Ashish Kumar Agrawal	Assistant Prof.	Pharmaceutics	21.05.2018
14	Dr. Arindam Indra	Assistant Prof.	Chemistry	01.02.2018
15	Dr. V. Ramanathan	Assistant Prof.	Chemistry	27.04.2018
16	Dr. Rakesh Kumar Singh	Associate Prof.	Physics	28.06.2018
17	Dr. Somnath Nag	Assistant Prof.	Physics	27.01.2018
18	Dr. Sunil Kumar Singh	Assistant Prof.	Physics	19.02.2018 (AN)
19	Dr. Gauhar Abbas	Assistant Prof.	Physics	15.03.2018
20	Dr. Awaneesh Kumar Singh	Assistant Prof.	Physics	10.05.2018
21	Dr. Bidya Binay Karak	Assistant Prof.	Physics	16.05.2018 (AN)
22	Dr. Pavan Kumar Aluri	Assistant Prof.	Physics	21.06.2018

23	Dr. Anil Kumar Thakur	Associate Prof.	Humanistic Studies	15.02.2018
24	Dr. Sanjukta Ghosh	Associate Prof.	Humanistic Studies	15.02.2018
25	Dr. Ajit Kumar Mishra	Associate Prof.	Humanistic Studies	14.03.2018
26	Dr. Nirmalya Guha	Associate Prof.	Humanistic Studies	28.05.2018
27	Dr. Vinita Chandra	Associate Prof.	Humanistic Studies	16.07.2018 (AN)
28	Dr. Amrita Dwivedi	Assistant Prof.	Humanistic Studies	08.02.2018
29	Dr. Swasti Mishra	Assistant Prof.	Humanistic Studies	08.02.2018
30	Dr. Manhar Charan	Assistant Prof.	Humanistic Studies	22.02.2018
31	Dr. Puneet Kumar Bindlish	Assistant Prof.	Humanistic Studies	24.02.2018
32	Dr. Shukhada	Assistant Prof.	Humanistic Studies	20.02.2018
33	Dr. Shail Shankar	Assistant Prof.	Humanistic Studies	18.06.2018
34	Dr. Kavya Krishna K R	Assistant Prof.	Humanistic Studies	19.03.2018
35	Dr. Vishwanath Dhital	Assistant Prof.	Humanistic Studies	26.03.2018
36	Dr. Vikash Kumar Dubey	Professor	Bio-chemical Engg.	17.05.2018

### List of faculty members, who retired/resigned during 01.01.2018 and 05.09.2018

S. No.	Name of Employee	Designation	Department	Date of Retirement/Relieving
1	Dr. R. B. Mishra	Professor	Comp. Sci. & Engg.	31.01.2018
2	Dr. A. K. Jha	Professor	Mechanical Engg.	30.06.2018

## हिंदी टंकण का 5 पूर्ण कार्य दिवसीय अल्पावधि प्रशिक्षण कार्यक्रम

संस्थान में केंद्रीय हिंदी प्रशिक्षण संस्थान, राजभाषा विभाग, गृह मंत्रालय, भारत सरकार के माध्यम से “हिंदी टंकण का 5 पूर्ण कार्य दिवसीय अल्पावधि प्रशिक्षण कार्यक्रम” का आयोजन दिनांक 06.08.2018 से 10.08.2018 तक प्रथम वर्ष संगणक प्रयोगशाला, मैकेनिकल इंजीनियरिंग विभाग में किया गया। उक्त 5-दिवसीय प्रशिक्षण कार्यक्रम का संचालन श्री दिलीप कुमार साहू, सहायक निदेशक, हिन्दी शिक्षण योजनाएँ राजभाषा विभाग, गृह मंत्रालय, जबलपुर ने किया। इस कार्यक्रम में संस्थान के कुल 36 गैर-शैक्षणिक कर्मचारियों ने प्रशिक्षण प्राप्त किया। उक्त कार्यक्रम के अंतर्गत निम्न प्रशिक्षण दिये गए :

### 1. पहला दिन

( दिनांक 06.08.2018 )

कार्यक्रम का शुभारंभ श्री राजन श्रीवास्तव, संयुक्त कुलसचिव (प्रशासन) के अध्यक्षीय संबोधन के साथ हुआ। उन्होंने उक्त प्रशिक्षण कार्यक्रम के संचालक के रूप में आए श्री दिलीप कुमार साहू, सहायक निदेशक का स्वागत किया तथा गैर-शैक्षणिक कर्मचारियों के लिए हिन्दी टंकण के ज्ञान का महत्त्व बताया। इसके पश्चात् श्री दिलीप कुमार साहू ने 5-दिवसीय प्रशिक्षण कार्यक्रम के पाठ्यक्रम से प्रशिक्षार्थियों को अवगत कराया।

कार्यक्रम के पहले सत्र में प्रवेश तथा परीक्षा फार्म भरना तथा केंद्रीय हिन्दी प्रशिक्षण संस्थान हिन्दी शिक्षण योजना के अंतर्गत

चलाए जा रहे विभिन्न पाठ्यक्रमों का परिचय दिया गया। दूसरे सत्र में कम्प्यूटर का बेसिक आपरेशन, जिसमें फ़ाइल खोलना, सेव करना, रिबन टैब का परिचय एवं प्रयोग, डोक्यूमेंट का फार्मेटिंग आदि के बारे में सभी को बताया गया। सभी प्रशिक्षार्थियों को पाठ्यक्रम से संबंधित अभ्यास हेतु प्रशिक्षण पुस्तिका दी गई।

### 2. दूसरा दिन

( दिनांक 07.08.2018 )

उक्त प्रशिक्षण कार्यक्रम के दूसरे दिन सहायक निदेशक उपरोक्त ने सभी प्रशिक्षार्थियों को यूनिकोड फॉन्ट के बारे में बताया तथा इसके महत्त्व पर प्रकाश डाला। उन्होंने कम्प्यूटर में द्विभाषी सुविधा सक्रिय करने तथा सभी के कम्प्यूटर में इसे सक्रिय कर मानक

(इनस्क्रिप्ट) कुंजीपटल के माध्यम से टंकण करने की जानकारी दी। साथ ही मानक (इनस्क्रिप्ट) कुंजीपटल के माध्यम से हिन्दी टंकण का अभ्यास करवाया गया।

### 3. तीसरा दिन

(दिनांक 08.08.2018)

उक्त प्रशिक्षण कार्यक्रम के तीसरे दिन मानक (इनस्क्रिप्ट) कुंजीपटल (कुल 09 ड़िल) का अभ्यास करवाया गया। उसके अंतर्गत प्रशिक्षण पुस्तिका में दिये गए हिन्दी में लेख, कहानी, हस्तलेख का कंप्यूटर में टंकण करवाया गया। कुंजीपटल के होम कीज़ पर व्यंजनों को टाइप करते समय शिफ्ट कुंजी (वक) के प्रयोग के बारे में बताया।

### 4. चौथा दिन

(दिनांक 09.08.2018)

उक्त प्रशिक्षण कार्यक्रम के चौथे दिन प्रशिक्षक महोदय द्वारा प्रशिक्षार्थियों के गति का मापन किया गया तथा गति हेतु कुंजीपटल पर अंगुलियों को सही तरीके से रखना तथा प्रत्येक कुंजी (key) पर अंकित स्वर, व्यंजन तथा मात्राओं को अभ्यास के माध्यम से याद कर गति बढ़ाने की जानकारी दी गई।

### 5. पांचवा दिन

(दिनांक 10.08.2018)

उक्त प्रशिक्षण कार्यक्रम के पांचवें दिन प्रशिक्षक महोदय ने हिन्दी में सारणी, पत्र एवं हस्तलेख के नियमों का परिचय कराया तथा

सभी को एक सारणी, एक पत्र तथा एक हस्तलेख टाइप करने का कार्य दिया। सभी प्रशिक्षार्थियों द्वारा कंप्यूटर पर टाइप किये गए सारणी, पत्र तथा हस्तलेख का मूल्यांकन प्रशिक्षक महोदय द्वारा किया गया।

इस प्रशिक्षण कार्यक्रम के अंतिम दिन श्री राजन श्रीवास्तव, संयुक्त कुलसचिव (प्रशासन), श्री दिलीप कुमार साहू, सहायक निदेशक एवं श्री गंगेश शाह गोंडवाना, सहायक कुलसचिव (प्रशासन)-प्रथम ने सभी प्रशिक्षार्थियों को प्रमाण-पत्र प्रदान किया।

श्री दिलीप कुमार साहू, सहायक निदेशक महोदय ने केंद्रीय हिन्दी प्रशिक्षण संस्थान द्वारा उक्त हिन्दी टंकण प्रशिक्षण प्राप्त कर्मचारियों के लिए आयोजित की जाने

वाली परीक्षा के रूपरेखा के बारे में बताया। परीक्षा का आयोजन संस्थान में वर्ष 2019 के प्रारम्भ में किया जाएगा। कार्यक्रम का समापन श्री दिलीप कुमार साहू को धन्यवाद ज्ञापन के साथ हुआ।



## Students Achievements

Anant Jain and Divyansh Gautam were awarded First Prize in Oral Presentation in students' seminar on Metallurgy and Materials Engineering- "Behind the Teacher's Desk" - 2018 held at CSIR-National Metallurgical Laboratory (NML), Jamshedpur. They also Received Best Solution Award for Industrial Problem-Solving Contest in the students' seminar on Metallurgy and Materials Engineering-"Behind the Teachers' Desk" -2018 organised jointly by TATA Steel, CSIR-NML and IIM Jamshedpur Chapter.

In Codechef Long Challenge held every month, Dhiraj Singh secured an All India Rank 1 (Global rank 8), All India Rank 1 (Global Rank 7), All India Rank 1 (Global Rank 5) in the months of

December in 2017, January, and May 2018 respectively.

Prashant Pandey has been awarded the "Shyama Prasad Mukherjee Fellowship" by CSIR, Govt. of India.

Pratyush Choudhary has been selected for an internship at MIT Sloan and NUS B School. He is currently pursuing an internship under IE B School (Spain) and Cambridge Judge Business School.

Subrato Chakravorty presented a research paper titled, "Nash Equilibrium Strategy for non-cooperative games with interval type-2 fuzzy games" with Dr. Debdas Ghosh as corresponding author in IEEE International Conference on Fuzzy Systems (FUZZ-IEEE) 2018. It will be published in IEEE-Explore as a part of the conference proceedings.

Suraj Panigrahi has been awarded J N Tata Endowment for Higher Studies Award, 2018 and the Erasmus Mundus CEMACUBE Scholarship.

Kundan Kadam was a member of the Indian Youth Delegation to China sent by the Ministry of Youth Affairs and Sports, Govt of India.

The team of Rishabh Agarwal and Prakhari Gupta I won the First Prize (Gold Medal) for the best undergraduate project on Institute Day.

The team of Atif Sufyaan, Shambhav Tyagi, Vedant Kumar, and Vishant Batta won the Third Prize in the Innovation Challenge Competition held during Cognizance-the technical fest of IIT Roorkee.

The team of Vishant and Atif Sufyaan

secured the Second position in the Social Case Study Challenge Competition held during Tryst-the technical fest of IIT Delhi.

Saddalagari Raghavendra was selected for the prestigious AVERY DENNISON FOUNDATION INVENT PROGRAM AWARD.

Parth Sharma was selected by Ministry of Youth Affairs and Sports, GOI to represent India in South Korea as a part of a 25-member Indian Delegation to South Korea comprising National Awardees, Youth Leaders, Government officials and selected students from IIMs, AIIMS, NLS, etc.

Yash Shukla was selected for the Chennupati and Vidya Jagadish Endowment Scholarship Program to undertake research internship at the Australian National University from May to July 2018.

Gaurav Somani secured an All India Rank 2 in GATE (Metallurgical Engineering) 2018.

Kshitiz Beranwal achieved an All India Rank 54 in GATE (Civil Engineering) 2018.

Arpit Bhardwaj's work titled "A closed-form solution and comparison for a one-dimensional orthorhombic Quasicrystal and crystal plate", got

selected for the 13th World Congress on Computational Mechanics held at New York from 22-27 July 2018.

Matte Kashi Vishwanadh won the First Prize for poster presentation at the Fourth Nirma Institute of Pharmacy International Conference (NIPiCON-2018) held at Nirma University, Ahmedabad, Gujarat.

Mohammad Azad Khan's debut novel "Second Crush" (ISBN: 978-171-7983268) published through Amazon KDP achieved an e-book rank 90 within a period of 5 days.

## Fostering innovation at IIT (BHU) Varanasi: Culmination of the E-Cell, IIT (BHU) Varanasi

Rightly said by Peter Drucker, "The best way to predict the future is to create it." In the era of technological advancement, every product is becoming concise and every service, more efficient. Digitisation and globalisation demand the youth to be well updated with the market trends and

business analytics. Older ways of learning are being

replaced by interactive applications of topics learnt. Opportunists seek for a chance, whereas entrepreneurs make new chances. In view of the rising consciousness towards entrepreneurship and startups, IIT (BHU) Varanasi has recently established an Entrepreneurship cell or E-Cell.

With the motto of "Help will always be given to those who seek it," E-Cell's objective is to connect the entrepreneurs of IIT (BHU) with the flourishing startup ecosystem. The students will now get an all-around platform to tap their hidden talents and showcase it to the world through their novel innovations. Entrepreneurship cell will work in this direction to create an ecosystem where students are encouraged and guided to fine tune their prowess in the areas of their interest. Its activities will include nurturing business ideas, conducting market analysis, finding investors and incubating start-ups. Through various activities, it will bring synergy amongst various design, innovation and incubation activities of the institute.

For smooth functioning of E-Cell, a hierarchical composition structure is planned involving various committees with a core

team of 7 members. The well-organised structure will make sure that every interested individual is endowed with proper guidance and mentoring.

The various functional teams under E-Cell are as follows:

- Start-up Assistance Program
- Strategic Relations
- Communications
- Events
- Web and Branding
- Advisory Committee

The team would try to bridge the gap between the entrepreneurs and the skilled personnel they require (like app/web developers, content writers, graphic designers etc.) Moreover, the budding startups will also get in touch with investors, incubators and venture capitalists for funding purposes. The student community of IIT (BHU) Varanasi may also get industrial exposure by interning at the budding startups of E-Cell during vacations especially, which would also enhance the productivity of these startups. For being established as an entrepreneurship hub, root shaking activities such as offline/online competitions, workshops, guest talks, seminars, webinars and industrial visits are being planned. Partnership with companies and collaboration with external organizations will provide a professional touch to the body. The aspiring entrepreneurs will get a wholesome exposure of creativity and analytical thinking right from the ideation stage to startup launch.



Mr. Abhishek Gupta, Founder, T-Labs,  
at the inauguration ceremony of E-Cell

# Technex'18

The 79th edition of Technex, the annual techno-management festival of IIT (BHU) Varanasi, was organised in the Institute during 16-18 February 2019. Being one of the Asia's oldest college festival, it is a three-day extravaganza of fierce competition between different self-made machines, guest lectures, science & technology workshops, various exhibitions, fun-filled evenings and many more. With its ever-growing network, this year it saw participation from over 700 colleges from all over India.

A pre-event under the name "Technex Zero" was organised keeping various technologies harming the environment in mind. It was held to promote and spread awareness about environment-friendly technologies. A guest lecture by Jean-Baptiste Kempf (President and The developer of VideoLAN ) marked the initiation of the fest. To add to its ever-rising tales, this year, a think talk by a Nobel laureate Ada Yonath (Nobel prize in chemistry) was held under the 'Think Talk' series. Besides, other stalwarts like Ajay Bhatt (inventor of USB), Pawan Agrawal (CEO, Mumbai Dabbawalas), Ajit Balakrishnan (CEO & Founder, Rediff.com), Vinayak Marathe (Senior VP, Reliance) delivered stimulating & influencing lectures to young minds from all over the country. Companies like Reliance, Wipro, VM Ware, and British Council conducted interactive conferences to showcase the future of technology and to inform people about various traits they seek in their young employees.

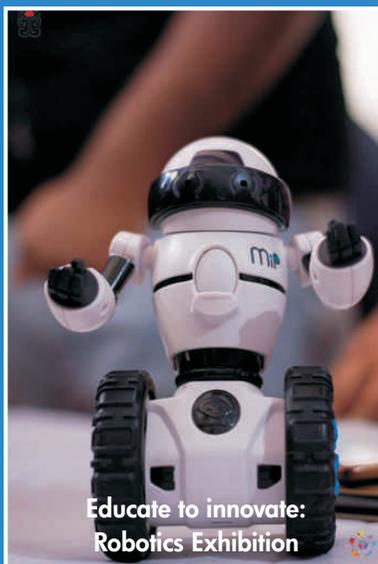
The participants competed in 40 various competitions in several fields such as robotics, aeromodelling, astronomy etc. Technex'18 with its motto "Innovation is Contagious" offered challenging problem statements to its participants. With a total of 25 lakh as its prize money, this motivated the participants to come up with innovative solutions. Exhibitions have been a part of Technex since long, but Technex'18 took it a notch higher. It had eight of them in all, with the highlights being the 3D printing pen and the lunar rover. It hosted workshops for the participants on several latest technologies like Amazon Alexa. The most awaited Prof. Veer Bhadra Mishra Memorial Airshow was

arranged on the last day of the fest. Different types of RC planes, drones were hovering in the sky, performing stunts and other eye-catching feats.

Technex'18 also hosted different fun-filled activities which involved laser tag and bungee basketball. Standup comedy by Abish Mathew was exhilarating. It hosted a silent disco and movie premiere under the name 'Kaleidoscope', and a guftagu by Piyush Mishra marked the end of all the hustle and bustle around the college. The satisfaction derived from the fest was evident in the words of Yash Sharma, Convenor, Technex'18, who when asked about his experience said, "It was a year that had us on edge, you either fall, or you learn to fly-we flew high!"



**Ada Yonath, Winner of the Nobel Prize in Chemistry (2009)**



**Educate to innovate:  
Robotics Exhibition**



**Raging Minds**



**A student manoeuvring a Drone**

# Gymkhana Councils: Activities

IIT (BHU) Varanasi through several clubs under the ambit of Gymkhana works relentlessly to contribute towards the all-round development of the students. Every student of the institute can develop his skills in any field and get hands-on experience by actively participating in the various activities organised by the clubs. They constantly mentor the student fraternity through various interactive workshops. Contingents from the institute also represent the college at various national level events. The able structure of Gymkhana helps the effective participation of students in these activities.

## Film and Media Council

Mohammad Zeeshan (member of the Photography Club) stood 1st in Online Competition held by Moustache Hostels and GoStops, the cultural festival of IIT Patna and was also among the top finalists in Open Photography Contest, Saarang, the annual cultural fest of IIT Madras. Dhananjay Bhuvarya (member of the Photography Club of FMC) secured the First position in Namami Gange, an online competition held by the Government of India.

Cine Club showed outstanding performance in MNIT film fest which was held from 02-04 Feb 2018. They bagged the best short film and best direction award for the movie "Masoom." Another benchmark was set by the Cine Club with 200K+ views of the Campus Tour, IIT (BHU), Varanasi, a video about the life in the Institute.

Animation Club of IIT (BHU) stood second in Cinematic Trailer and won the second prize for another event FX'ED at BITS Hyderabad held on 25 March of this year.

## Activities

With the FMC Weekend sanctioned an Institute Festival status, plans are underway to invigorate the passion among students fraternity to celebrate their prowess in design, photography, cinematography, animation, and media aspects.



## Science and Technology Council

### Achievements

The Aero Modelling Club (AMC) secured the fourth position in Autonomous quadcopter event at Inter IIT Tech Meet. Seven teams qualified for the second round in Boeing, an event in Kshitij, a Techno-Management fest of IIT KGP. Navneet Kumar and Aakash Lokhande won the second and third prizes respectively in Glid-a-rama, Techniche 2018. Nasir Afroze, Neil and Shekhar from the Business Club were the winners of Sales Olympics organized by Techniche 2018, IIT Guwahati while the runner-ups were Ashwin, Ayush Abhinav, and Anirudh Shivam. The Club of Programmers helped the students in their pursuit of programming. Its efforts can be seen through the following achievements. A team of 2 members, Suyash Shukla and Abhinav Patel won Bronze Medal in Inter IIT Event (Fiducial Co-ordinates). A total of 13 teams qualified for the ACM-ICPC Regionals held across 5 different sites. Another team of 3 senior undergraduates - Bharat Khanna, Ishank Arora, and Ayush Kedia won the GS Quantify Contest held by Goldman Sachs and 6 more teams were selected as Significant Contributors. Pranjal Jain, the Joint Secretary of the Club, qualified for the Top Coder Collegiate Cup held in Bangalore and won the 2nd place. A group of 3 students - Pranjal Jain, Himanshu Singh and Debrup Roy Chowdhury won Insomnia - the Coding Contest during Avishkar, the fest of NIT-Allahabad. Dhiraj Singh, a member of

the club stood first at all India level in the Code Chef Long Challenge. The Club of Sustainability and Innovation was quite active with its efforts to promote the culture of innovation among the students to serve the purpose of sustainable development. Its endeavours lead to some outstanding performances. Two club members Anurag Nidhi and Sagar Singh presented their projects entitled "Cataract Detection" and "Number Plate Recognition" at IIT Madras and received great feedback from the jury. For his project based on Smart Dustbins, another member of the club, Shashwat Agarwal received first prize among 1300 entries in Best Innovation Category of Solve4India 2018 (a case study event organized by Digital India foundation and MyGov). At Tryst, the technical festival of IIT Delhi, two students Atif Sufyaan and Vishant Batta stood second in Sashakt, a Social Entrepreneurship event while Anmol Agarwal stood third in Cabinet. Atif Sufyaan and Vishant Batta stood third in Innovation Challenge event organized under Cognizance, IIT Roorkee. The Robotics Club displayed a mesmerizing performance in Kshitij, an annual techno-management fest of IIT KGP, bagging second and third positions in STAX (Autonomous Event) as well as the third position in Line Follower. In Techfest, IIT Bombay, the club secured the fourth spot in Line Follower. The club also managed to secure the fourth spot in Warehouse Inventory at Inter IIT Tech Meet, IIT Madras. The club, representing IIT (BHU), secured the first position in Escalade Prelims Round organised by Techniche, IIT Guwahati. Vaibhav Chauhan and Snehal, through the Society of Automotive Engineers Club, participated in Burnout, Techniche, IIT Guwahati and won the second prize. The club also secured the fifth position at PowerDrift at Cognizance, IIT Roorkee.

## Activities

1. Technical and Rural outreach club and Green Club were merged to form Club of Sustainability and Innovation with the objective to promote interdisciplinary work in the fields of sustainability and innovation.
2. Business Club was established in



Finance to expand the working domain to Economics, Finance, Data Analytics, and Consulting.

- Students through the Club of Programmers (CoPS) are developing a hostel portal for the institute. To enhance the prowess of the students in the open-sourcedevelopment, they organised CoPS SOC (Summer of Code) during the summers.



## Games and Sports Council

At Aavhan, the annual sports festival of IIT Bombay, The Aquatics team won the silver in 4x50 Medley Relay whereas Karthik Gajjala stood fourth in the 200m Backstroke event. Coming to the Chess team, on the same occasion, Abhishek Ganesh stood in the Tenth position out of 208 participants while Ankit Goel stood second in the rating category

1400-1600. At the same venue, the Power lifting team added to the tally when Parash Sonowal, Pawan Suryawanshi, and Akash Aggarwal bagged Gold, Silver and Silver respectively. The Athletics Team(Men) won Relay Bronze at the same event.

IIT (BHU) Varanasi began its chase at the Inter IIT Sports Meet held in IIT Madras by securing the second position in the March Past Event. At the same event, the Football team amassed the Gold Medal. Parash Sonowal and Pawan Kumar bagged the Silver and Bronze Medals respectively at the same venue. The Athletics team (Men) continued the chase for excellence with Nitish Kumar winning the Bronze in 110m Hurdle at the same event. The Athletics Team (Men) team was the second runner-up at the Sportech, the sports festival of IIT Delhi.

The women's Basketball team bagged a Bronze Medal followed with a Silver by the Kho-Kho Team (Men) at Udgosh, the annual sports festival of IIT Kanpur. The Handball Team added to this with a Gold Medal.

The Football team bagged Silver Medal in DLW Five-A-Side Tournament and the Varanasi B-Division Football League. The Powerlifting team won the Gold and Bronze at the District Weightlifting Competition (Varanasi).

### Activities

- Construction of two Lawn Tennis, Volleyball, and Basketball courts each was completed.
- Construction of a Multipurpose Indoor Stadium, Swimming pool and the refurbishment of Hockey stadium are under consideration.



## Cultural Council

### Achievements

The Western Music Club secured the second position in rock band competition at Elixir 2018 (IMS BHU). At Alcheringa, IIT Guwahati, the Lit Club won the third and fourth positions in English Debate Adjudication. The trip to Anwasha, IIT Patna brought glory to the college as the club bagged the first position in Satanz Tantrum- The Rock Band Competition. At Alcheringa, our Fine Arts Club team secured second position in the State of Dress, first and third positions in Rangoli and 2 third positions in Lip Art. They also participated in two online events namely, Doodle Pad and Minimalist grabbing first and second positions in the latter. The Dance Club bagged

Anwasha with a magnificent performance. The Varanasi Edition of TATA Crucible was also held at IIT BHU on 25 May 2018 with Ankit Kumar and Yash Bhaduria from the Quiz Club securing the second position. At Anwasha, Theatre Club participated in Street Play Competition "MAIDAN-E-JUNG" by presenting "FAANSIVAAD" and bagged the first Position among all the teams.

### Activities

The Cultural Weekend or 'Cult Weekend' was organized by the Cultural Council from 30 March to 01 April for the first time with the aim of creating a platform for enthusiasts to present their love for art and culture. The weekend was a great success with all clubs providing something entertaining for the onlookers.

The Masquerades club organized "KSHITIJ" in which various sub-events like a stage play, mono-acts, mime competition etc were held. Shilpi Marwaha, an actress from the movie "Raanjhanaa", came as a guest and performed an act "A Woman Alone".

"JHANKAAR", the event organized by the Dance Club of IIT (BHU) Varanasi was a great success. The club conducted an intra-college group dance competition. A workshop was conducted by the famous dancer Mr. Durgesh Karlad as a part of the event which brought umpteen learning opportunities for the budding dancers.

The Fine Arts Club conducted FAC Open under Cult Weekend. A workshop on Brush Lettering by Ms. Pragya Gulatee and a workshop on Doodling by Mr. Peela Karthik were organized by the club for the enthusiastic learners. The competition events included Sketching, Scroll making, Poster making and Soap carving. An informal event of tattoo making was also held for the participants. An Art Exhibition 'The Canvas' was organized for the first time ever at LC which showcased more than 200 artworks of the club members along with a Live Painting on 30th March.

The Banaras Litfest, conducted by the Lit Club saw various competitions this year. The Parliamentary Debate was conducted for the first time at the Inter-College level and saw a number of enthralling discussions. The Hindi and English Poetry Slams were a huge success too. IIT (BHU) stood second in English Poetry Slam and English Debate Adjudication at the event.

The Quiz club hosted six quizzes during the Cultural Weekend covering domains ranging from current affairs to pure trivia. The India and SpEnt (Sport and Entertainment) quiz were conducted by the eminent quiz master Mr Somnath Chanda.



### Social Service Council

Due to the persistent efforts of the volunteers of KashiUtkarsh, pedalling almost ten kilometres to reach the bastiss, young children like Ayush Keshari along with several others in Lahartarabasti cleared the Navodaya Entrance Exam with flying colours.



**Ayush Keshari**



Gram Mela, a government scheme awareness camp, was organized by Sahyog Club for the first time on 13<sup>th</sup> January 2018 in Seergaonbasti, just a km away from Seer gate. The event made people know about the central and state government schemes, particularly in the domain of Women Empowerment, Digital India, Scholarships, Career Counselling and Skill India. The program witnessed various NGOs and some government officials voluntarily helping in making the event successful.

In the series of initiatives to develop the interest of children in villages towards studies and making a connection with them along with their teachers, a wall painting drive was also



organized by Sahyog Club on 3<sup>rd</sup> February at Gopalpur Government primary School, Varanasi. The different drawings included map of India, mathematical tables, alphabets, numbers, pictures depicting good habits, the name of months and every other figure, which is supposed to be there, as they are in rich private schools. The seven-hour effort of the volunteers was successful when volunteers also involved children by taking their hand prints on the wall and making a tree.

