

Campus diary

September - October 2017

<http://www.iitb.ac.in/en/activities/campus-diary>

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

IIT Bombay Celebrates Teacher's Day



Chief Guest Dr. Srikumar Banerjee, Chancellor of Homi Bhabha National Institute, BARC, Prof. Devang Khakhar, Director, IIT Bombay and Prof. S.P. Sukhatme, Ex-Director, IIT Bombay with the awardees on the Teacher's Day.

Commemorating the birth anniversary of noted philosopher, educationist and statesman Dr. Sarvepalli Radhakrishnan, IIT Bombay celebrated Teacher's Day on September 5, 2017 at the Institute campus.

Dr. Srikumar Banerjee, Chancellor of Homi Bhabha National Institute, BARC, Trombay was the Chief Guest on the occasion.

Dr. Banerjee conferred the **Prof. S.P. Sukhatme Excellence in Teaching Awards (2017)** and **Dr. P. K. Patwardhan Technology Development Award (2016)** as a recognition to the contribution made by the faculty members of IIT Bombay in the field of teaching and research during the function. Before the presentation of every award, a short citation on the proud recipient was also read out.

The list of the awardees is as follows:

Recipients of Prof. S.P. Sukhatme Excellence in Teaching Awards (2017):

Prof. P. V. Balaji, Department of Biosciences & Bioengineering
Prof. D.N. Singh, Department of Civil Engineering
Prof. Santanu Banerjee, Department of Earth Sciences
Prof. Malhar A. Kulkarni, Department of Humanities & Social Sciences
Prof. Alok Porwal, Centre of Studies in Resources Engineering
Prof. Phani Tetali, Industrial Design Centre
Prof. Raghavan B. Sunoj, Department of Chemistry
Prof. P. Jayadeva Bhat, Department of Biosciences & Bioengineering

Prof. Rashmi S. Patil, Centre for Environmental Science & Engineering
Prof. Yogesh M. Desai, Department of Civil Engineering
Prof. Virendra Sethi, Centre for Environmental Science & Engineering
Prof. Deepankar Choudhury, Department of Civil Engineering
Prof. Suryendu Dutta, Department of Earth Sciences
Prof. Surajit Bhattacharyya, Department of Humanities & Social Sciences
Prof. Pratul Kumar Saraswati, Department of Earth Sciences

Dr. P. K. Patwardhan Technology Development Award (2016) was awarded to **Prof. Shaibal K. Sarkar and his team members**, Department of Energy Science and Engineering.

Recipients of Departmental awards for excellence in teaching are:

Prof. Prabhu Ramachandran, Department of Aerospace Engineering
 Prof. Anirban Banerjee, Department of Biosciences and Bioengineering
 Prof. Venkatesh K V, Department of Chemical Engineering
 Prof. Ranjan Kumar Malik, Department of Chemical Engineering
 Prof. Anindya Datta, Department of Chemistry
 Prof. Suvarn Kulkarni, Department of Chemistry
 Prof. P. Vedagiri, Department of Civil Engineering
 Prof. Nagendra Rao Velaga, Department of Civil Engineering
 Prof. Purushottam Kulkarni, Department of Computer Science & Engineering
 Prof. Ajit Arvind Diwan, Department of Computer Science & Engineering
 Prof. Trilok Nath Singh, Department of Earth Sciences
 Prof. Dinesh K Sharma, Department of Electrical Engineering
 Prof. Sarvanan Vijayakumar, Department of Electrical Engineering
 Prof. Kishore Chatterjee, Department of Electrical Engineering
 Prof. Rangan Banerjee, Department of Energy Science and Engineering
 Prof. Ratheesh Radhakrishnan, Department of Humanities & Social Sciences
 Prof. Vaijayanthi Sarma, Department of Humanities & Social Sciences

Prof. Raja Mohanty, Department of Industrial Design Centre
 Prof. Swapneel A. Mahajan, Department of Mathematics
 Prof. Ananthnarayan Hariharan, Department of Mathematics
 Prof. Milind D. Atrey, Department of Mechanical Engineering
 Prof. Tanmay K. Bhandakkar, Department of Mechanical Engineering
 Prof. UN Gaitonde, Department of Mechanical Engineering
 Prof. MJNV Prasad, Department of Metallurgical Engineering & Materials Science
 Prof. Narasimhan K, Department of Metallurgical Engineering & Materials Science
 Prof. P. Ramadevi, Department of Physics
 Prof. Punit Parmanand, Department of Physics
 Prof. Gajendra Kumar Adil, SJM School of Management
 Prof. Sahana Murthy, Educational Technology
 Prof. R. Nagarajan, Centre of Studies in Resources Engineering

The Teacher's Day function also witnessed a cultural performance by the students of the Institute as a mark of gratitude to their teachers. The event was attended by Deans, Heads of Departments, faculty members and students in large numbers.

Prof. S.P. Sukhatme Excellence in Teaching Awards (2017)



*Prof. P.V. Balaji,
Department of Biosciences and Bioengineering*



*Prof. D.N. Singh,
Department of Civil Engineering*



*Prof. Santanu Banerjee,
Department of Earth Sciences*



*Prof. Malhar A. Kulkarni,
Department of Humanities and Social Sciences*



*Prof. Alok Porwal,
Centre of Studies in Resources Engineering*



*Prof. Phani Tetali,
Industrial Design Centre*



*Prof. Raghavan B. Sunoj,
Department of Chemistry*



*Prof. P. Jayadeva Bhat,
Department of Biosciences and
Bioengineering*



*Prof. Sanjeev Chaudhari, Head,
Centre for Environmental Science and
Engineering receiving the award on
behalf of Prof. Rashmi S. Patil*



*Prof. K.V.K. Rao, Head, Department of
Civil Engineering receiving the award
on behalf of Prof. Yogeshkumar M.
Desai*



*Prof. Virendra Sethi,
Centre for Environmental Science and
Engineering*



*Prof. Deepankar Choudhury, Depart-
ment of Civil Engineering*



*Prof. Santanu Banerjee, Department of
Earth Sciences receiving the award on
behalf of Prof. Suryendu Dutta*



*Prof. Surajit Bhattacharyya,
Department of Humanities and Social
Sciences*



*Prof. Pratul Kumar Saraswati,
Department of Earth Sciences*

Dr. P. K. Patwardhan Technology Development Award (2016)



*Prof. Shaibal K. Sarkar,
Department of Energy Science
and Engineering*

Shanti Swarup Bhatnagar Prize 2017 To Prof. Naresh Patwari



Prof. Naresh Patwari, Department of Chemistry, bags prestigious Shanti Swarup Bhatnagar Award 2017

Prof. G. Naresh Patwari, Department of Chemistry, has been selected for Shanti Swarup Bhatnagar Prize 2017 in Chemical Science. His name for the award was announced in the presence of Hon'ble President of India Shri. Ram Nath Kovind during the Foundation Day function of the Council of Scientific and Industrial Research (CSIR) on September 26, 2017 in New Delhi. The Shanti Swarup Bhatnagar prize is named after the Founder Director of CSIR late Dr. (Sir) Shanti Swarup Bhatnagar and is known as the 'Shanti Swarup Bhatnagar (SSB) Prize for Science and Technology'. This prize is considered as the most prestigious scientific prize of the country.

On the declaration of the name for the prize, Prof. Devang V. Khakhar, Director, IIT Bombay expressed his pleasure and said, "I am very happy and proud of Prof. G. Naresh Patwari for being selected for Shanti Swarup Bhatnagar prize. This is the top scientific award of India and is testimony of great work done by IIT Bombay faculty members".

Every year, 8-10 scientists, below the age of 45, are selected across institutions by the CSIR and awarded for outstanding scientific

work in the last five years. The award consists of cash prize of Rs. 5.00 lakhs for notable and outstanding research in the following disciplines: (1) Biological (2) Chemical (3) Earth, Atmosphere, Ocean and Planetary (4) Engineering (5) Mathematical (6) Medical and (7) Physical Sciences.

Prof. Patwari did his schooling from rural Telangana and then completed his BSc from Osmania University. Following post graduation from the University of Hyderabad in 1994, Prof. Patwari completed his PhD from the Tata Institute of Fundamental Research in 2000. He also did two postdoctoral stints at Tohoku University and University of Illinois Urbana-Champaign. He joined IIT Bombay in April 2003 as Assistant Professor in the Department of Chemistry. In 2007, he became Associate Professor and since June 2012, Prof. Patwari is working as Professor in IIT Bombay.

Dr. Patwari's interests are primarily focused on molecular aggregation. His research work uses laser based experiments to understand how the molecules interact among themselves and how these interactions alter

properties of individual molecules. His research group investigates plethora of interactions which vary due to the nature of molecules involved, termed as hydrogen-bonding and pi-stacking.

Prof. Patwari expressed his happiness on selection for Shanti Swarup Bhatnagar prize. Speaking about his research, he said, "The experiments are combined with theoretical modeling to nature of these interactions and I apply these results to understand larger phenomena in chemistry and biology, such as structure of proteins and DNA. This research has led to formulating some rules for understanding and at times predicting how given two molecules will interact".

In the recent times, Dr. Patwari's research is involved in providing alternate description of these interactions in-terms of electrical fields that molecules exert on each other. The electric field description of interaction between molecules is conceptually very similar to hybridization that is taught in high school chemistry. Dr. Patwari is also very passionate about wildlife and enjoys morning walks in IIT Bombay campus watching birds by the Powai lake.

IIT Bombay's Techfest Conducts Cyclothon

In its efforts to make people aware about adopting a better, healthy and heart-friendly lifestyle, Techfest, IIT Bombay conducted a cycling marathon on October 1, 2017 in the campus and saw participation of more than **2000 enthusiasts**, the highest in the history of Techfest. The tagline for the event was: "Pedal for a better heart!"

Prof. Saurabh Lodha, faculty advisor for Techfest, was the chief guest for the event. He addressed the crowd at the start point and then flagged off the 15 km long cyclothon. It ended at the open air theatre arena. The events were graced by **Mr. Vipul Gupta**, famously known as **Abrook** from **Aarambh** aired on Star Plus. He congratulated Techfest for the initiative and emphasized on the increasing cardiovascular diseases amongst youngsters.



Participation of enthusiasts in cycling marathon

After a BMX show, a zumba workshop was conducted by Zumba instructor **Ms. Padmavati Iyengar** and her group. It got all the participants on their feet and was a great success. Guests and artists were later handed over the mementos. Participants were encouraged to follow healthy rules of diet and food for a healthy heart. Free health checkups were conducted to check glucose level, blood pressure and BMI tests. The cyclothon was free of cost for persons above 12 years of age. 1000 free T-shirts were distributed along with basic refreshments during the cyclothon. Bike rental facilities were provided on campus.

IIT Bombay Organizes Seminar For Library Professionals



(L-R) Prof. S.V. Kulkarni, Associate Dean (IPS-II), Prof. A.K. Suresh, Deputy Director (AIA), Dr. Medha Joshi, President, IASLIC Kolkata and Dr. Ranjit Kumar Das, Incharge, Central Library on the dais

A seminar for library professionals on the theme of "*Challenges of Information Needs and Innovative Services in Digital World*" was jointly organized by Central Library of IIT Bombay, Indian Association of Special Libraries and Information Centres (IASLIC) and Health Library Association of India (HLAI) at IIT Bombay on September 16, 2017. Library professionals from various parts of the country participated in the seminar. It was conducted in three technical sessions: (I) Personalized needs of users, (II) Expectations, services and LIS skills and (III) Digital libraries and new skills.

IIT Bombay Celebrates Hindi Pakhwada



(centre back row) Mr. K.V. Reghuthaman, Deputy Registrar (Admin II) along with the winners of various competitions of Hindi Pakhwada

Like every year, the Hindi Cell conducted Hindi Pakhwada during September 1-14, 2017. A total of six different competitions including Hindi Kahani Lekhan (story writing), Hindi Anuwad (translation) and Hindi singing competition were held.

Prizes were distributed to winners of various competitions in an event organized on September 14, 2017.

Dr. Ravindra Katyayan (eminent thinker and head of Hindi Department at Maniben Nanavati Women's College - affiliated to SNDT Women's University Mumbai) was the chief guest on the occasion. Mr. K. V. Reghuthaman, Deputy Registrar (Admin-II) and Mrs. Vaishali Bahulkar, Hindi Officer of IIT Bombay also addressed the gathering during the event.

Name of the award winners of competitions organized during Hindi Pakhwada

Hindi Story Writing on September 1, 2017

Sr. No.	Name	Award
1	Mrs. Varsha Kosta	First
2	Ms. Shamal Mahadik	Second -1
3	Mr. Ravindra Gaikwad	Second -2
4	Mr. Sachin Janu	Third -1
5	Mr. Jitendra Jain	Third -2
6	Mr. R. D. Shinde	Consolation
7	Mr. H. P. Virghat	Consolation
8	Ms. Pratima Kamble	Consolation
9	Mr. Anusuya Soni	Consolation

Hindi translation on September 4, 2017

Sr. No.	Name	Award
1	Mr. Akhilesh Pathak	First
2	Mrs. Varsha Kosta	Second
3	Ms. Shamal Mahadik	Third

4	Mr. Sudhir Dhoble	Consolation
5	Mr. Dharmendra Chaurasia	Consolation
6	Mr. Ashok Gupta	Consolation
7	Mr. Jitendra Jain	Consolation

Hindi song singing on September 8, 2017

Sr. No.	Name	Award
1	Mrs. Chaitali Amrute	First
2	Ms. Prajakta Acharekar	First - 1
3	Mrs. Sugandhi vinjamur	Second
4	Mr. Rohidas Gaikwad	Third
5	Mrs. Rachana Shirishakar	Third - 2
6	Mr. Pramod Ghanekar	Consolation
7	Mrs. Sanjivani Birare	Consolation
8	Mrs. Riya Dandekar	Consolation
9	Mr. Malik Ram Verma	Consolation

Hindi Pustak Charcha And Book Exhibition



Prof. Karunashankar Upadhyay, Head of Hindi Department, University of Mumbai, addressing the audience during the Hindi Pustak Charcha (Book Reading) on "Rashmi Rathi"

The Central Library and Hindi Cell of IIT Bombay jointly organized a one-day Hindi Pustak Charcha (Book Reading) on "Rashmi Rathi" written by Rashtrakavi Mr. Ramdhari Singh 'Dinkar' on September 11, 2017 in the Central Library. A five-day Hindi book exhibition was also organized during September 11-15, 2017 to encourage visitors to read Hindi books.

The exhibition was inaugurated by **Prof. A. K. Suresh**, Deputy Director (AIA) jointly with **Prof. Karunashankar Upadhyay**, Head of Hindi Department, University of Mumbai on August 11, 2017 in presence of **Prof. P. Ramadevi**, Convener Library Committee, **Dr. Ranjit Kumar Das**, In-Charge, Central Library and

Mrs. Vaishali Bahulkar, Hindi Officer of IIT Bombay. Vaishali Bahulkar, Hindi Officer of IIT Bombay.

Prof. A.K. Suresh advised the audience to comply with the Official Language Policy of the Government of India in day-to-day work and emphasized that in order to learn a language for effective communication, it is good to read and also discuss the literary work in that language.

Abhyuday Launches Career Counseling Helpline



Career Guidance App for the underprivileged launched by Abhyuday, the social body of IIT Bombay

With a vision to enable and empower the underprivileged students to help them make better career choices in life, CCC- the Career Counselling Campaign- App was launched on October 7, 2017 by Abhyuday. Helpline no. 022 33574589 is noble service provided by Abhyuday, the social body of IIT Bombay which was established with vision to channelize the youth towards India's social challenges.

Prof. Kameshwari Chebrolu, Department of Computer Science and Engineering, IIT Bombay, was

the lead of the App. She explained its intricacies and how students could make themselves useful by signing up as volunteers. A helpline number linking the volunteers with the users can be used to ask queries related to science, commerce, arts and other streams. Once resolved, the volunteers can get back to the users - the only necessity being that users have a phone on which they can be contacted. The helpline will enable a student of any class to register a query through the helpline number for the specified stream. The query would be resolved by a registered volunteer having the necessary knowledge and experience of that particular stream.

Dr. Pradnya Sarvade, Additional Director General of Police, Maharashtra, was the chief guest during the event. She highly appreciated work of team for taking this noble cause as initiative and stated that it will not just transform their lives but it will also help volunteers in their development. Educationalist & Growth Coach Dr. Reeta Shah and founder of Green Communities Foundation Mr. Kedar Sohoni also graced the occasion. They congratulated Abhyudaya and exhorted the students to volunteer in huge numbers to help fulfill the potential of numerous underprivileged students. The event was attended by over 200 volunteers from all over the city, who were eager to get started and transform the lives of millions of students by helping them make better career decisions. The event included talks on "How technology can be used for the betterment of the society" and "Fighting away the loopholes in Indian Education System."

Abhyuday Organizes Blood Donation Camp



Blood donation camp organized by Abhyuday

Abhyuday, social initiative wing of IIT Bombay, organized a blood donation camp on September 23, 2017 inside the campus for students, faculty, staff and residents in collaboration with Blood Connect. The drive witnessed blood donation from around 442 people. A team of doctors from JJ Hospital visited the campus for the same.

The blood collected during the camp has a potential to save up to 1326 lives. At the blood donation camp, a blood stem cell donation registry was kept, where over 110 registrations for blood stem cell donation were received. Started 5 years back, Abhyuday is a first-of-its-kind student's body in India with

a reach of 20,000+ college students across 250+ colleges across the country and more than 150 eminent personalities working in the social space.

Student Wellness Centre Performs Street Play



Student Wellness Centre team performing a street play during World Mental Health week

The Student Wellness Centre of IIT Bombay celebrated the World Mental Health Week by performing a thought-provoking street play, **Dil Ki Baat**. Performed by the counsellors, staff and students, the play was showcased on October 10 and 11, 2017 at SJMSOM foyer, hostels 15, 16, 12, 13, 14 and 10. It urged the students to share their problems with someone, instead of carrying the burden or bearing any stigma and trying to handle everything on their own.

Coupled with two songs and some great performances, **Dil Ki Baat** evoked an enthusiastic reaction from the students who expressed that it touched a chord with them. The performance concluded with a message from Ms. Amita Tagare, Incharge, Student Wellness Centre, urging students to come out of their digital world and interact with supportive members.

IIT Bombay Launches Executive Education Complex

Renowned venture capitalist, CEO of Providian Financial Corporation and IIT Bombay alumnus **Dr. Shailesh J. Mehta** and his wife **Ms. Kalpa Mehta** unveiled the plaque of Executive Education Complex in IIT Bombay on September 6, 2017. The architect made a presentation on the Executive Education Complex. This was followed by discussion.



Dr. Shailesh J. Mehta and his wife Ms. Kalpa Mehta unveiled the plaque of Executive Education Complex in IIT Bombay

Opening Of Taiwan Education Centre (TEC) At IIT Bombay

Taiwan Education Center (TEC) was inaugurated at the Pre-Engineering Transit Building in IIT Bombay campus on September 22, 2017. It will enhance the educational collaboration between IIT Bombay and Taiwan.

Mr. Chung-Kwang Tien, the Ambassador of Taipei Economic and Cultural Center in India was the Chief Guest on the occasion.

Prof. Devang V. Khakhar, Director, IIT Bombay,

Prof. Prasanna M. Mujumdar, Deputy Director (Finance and

External Affairs), **Prof. Rajiv Dusane**, Dean (International Relations), **Prof. S. Bhargava**, HoD, SJMSOM, **Mr. Wei-Chung Wang**, Senior Advisor for the Global Affairs office of NTHU, **Mr. Michael Lin**, Director, Taipei World Trade Center and **Ms. Anita Lee**, In-Charge, Taiwan Education Centre at IIT Bombay also graced the occasion.



Inauguration of Taiwan Education Centre in the Institute

IIT Bombay Celebrates “Yeh India Ka Time Hai”



IIT Bombay celebrated “Yeh India ka Time hai” on September 2, 2017 to observe 70 years of freedom and 75 years of Quit India Movement. A Fusion Rock concert was organized in the Institute. **Manish J. Tipu’s** Neo Gharana, a fusion rock band (famous for Gangs of Wasseypur and Qissa), thrilled the audience. A Manthan (panel discussion) on the topic of “New India” was organized prior to the event.

Fusion rock concert at the Institute

Team Shunya Set For Solar Decathlon 2018

A team from IIT Bombay had successfully built a fully-functional, well-furnished house with three rooms, a kitchen sufficient lighting and air conditioning. The house runs on solar energy using rooftop solar panels. It does not use any electrical energy from the grid but is capable of generating and feeding excess energy to the grid on a bright sunny day. The name of this fascinating team of passionate young engineering and architecture students is “**Team SHUNYA**” where SHUNYA stands for ‘Sustainable Habitat for an Urbanizing Nation by its Young Aspirants’. The team took part in Solar Decathlon Europe, 2014 and got “*Honorable mention in Sustainability*”. The team secured highest points in innovation in engineering and made innovations in the fields of solar-powered appliances, photovoltaic systems and house simulations. Another remarkable highlight is that the team has patented a solar air heater in which maximum temperature of 220°C can be reached.

Team SHUNYA of IIT Bombay is now set for the next challenge – to participate in Solar Decathlon 2018 to be held in Dezhou, China. It is the only team from India to have been selected in Solar Decathlon, 2018.

Solar Decathlon is an international competition in which teams from various countries compete to build a fully-functional solar-powered house by applying cutting-edge technologies and innovations in a month-long competition and make a live model of the house on the competition site within just 12 days. The U.S. Department of Energy Solar Decathlon also designated as ‘The Olympics of Solar Powered Houses’ challenges collegiate teams to design, build and operate solar-powered houses that are cost-effective, energy-efficient and attractive.

For Solar Decathlon China (SDC) 2018, the ‘**Project Solarise**’ of Team SHUNYA will showcase a solar powered ground+1 floor villa of 2000 square feet area for a family of six people, which uses an unconventional innovative HVAC system. The villa will be completely automated and built using hybrid construction. With amazing lessons from the past, Team SHUNYA is designing a house as per the climatic conditions of Amaravati, the capital of Andhra Pradesh, to demonstrate energy-efficient solar housing. As Amravati will be a green field construction on the banks of Krishna River, Team SHUNYA looks forward to use this opportunity to demonstrate housing options for future smart cities. ‘Project Solarise’ will be an amalgamation of traditional architecture, contemporary interior designs, modern lifestyle and futuristic amenities infused in a single house.

The ‘Net Positive Energy House’ has been designed with thorough research about the climatic and geographical conditions of the place. Passive solar



Built by IIT Bombay students, this house can generate energy



architecture is the central design tenet with the aim of reducing the requirement for artificial thermal and lighting control as far as possible. The cost can also be brought down. This project will also introduce hybrid construction in the realms of Indian housing, diverging from the conventional building industry. The scientific principles of Vastu Shastra have also been employed for arriving at the spatial arrangement of various rooms according to the time of the day. The house would be easy to erect and transport. In future, the ‘Net Positive Energy’ house designed by Team SHUNYA will be an asset for the upcoming smart city projects in different parts of the world.

Since its selection, the team has made significant progress in the design and engineering of the house. In order to justify the decision to create a house for the Indian middle class, the team decided to ensure that the house appeals to the sensibilities of the widest range of Indian home owners. An active attempt has been made to provide as much functionality as possible at the lowest cost while meeting with the international competition standards.

The members of Team SHUNYA are not mere engineers and architects, but technocrats with young innovative minds imprinted with the responsibility of fulfilling social obligations and with the inextinguishable desire to serve humanity. As Team SHUNYA represents India in Solar Decathlon China 2018, it will be yet another feather of success in the technological advancement of the country in solar housing with its rich scientific minds.

IIT Bombay Hosts INTERACT 2017 Conference



Glimpses of INTERACT 2017 Conference

The Human-Computer Interaction Professionals Association of India (HCIPAI) in association with IIT Bombay and UNESCO's International Federation for Information Processing (IFIP) organized 'INTERACT 2017 Conference' during September 25-29, 2017 in IIT Bombay campus. The theme of INTERACT 2017 - Global Thoughts, Local Designs - was designed to let HCI researchers respond to challenges emerging in the new age of global connectivity, where they often design products for users who are beyond their borders belonging to distinctly different cultures. The conference focused its attention on four areas: India, developing countries, students and research.

INTERACT 2017 not only provided a platform to explore these challenges and opportunities, but also makes it easier for people from developing countries to participate through the various grants. The pre-conference (September 25-26, 2017) included Workshops, Field Trips, and Doctoral Consortium; and a three-day main technical program (Sep 27-29) included Keynotes & Talks, Courses, Papers (Full & Short), Demos, Posters, Panels, Case Studies, Industry Tracks, and the consortia (Student Research and Student Design), etc. The Student Design and Research consortia showcased work of undergraduate and masters students. The Doctoral consortium gave a space to researchers early in their PhD to get feedback from the leading experts in the field. Prof. Anirudha Joshi and Prof. Girish Dalvi of Industrial Design Centre, IIT Bombay were the general Co-chairs of the Conference. Prof. Albrecht Schmid, Human Computer Interaction and Cognitive Systems at the University of Stuttgart delivered the key note address.

Human-Computer Interaction (HCI) deals with the aspects of how humans interact with a digital device or digital product. The value that these concepts of HCI and UX bring to the software development process have gained tremendous importance in the past two decades. The software industry has also realized that better designs and better UX not only bring happy customers but also higher revenues.

The conference provided a window of learning and networking with academicians, researchers, scholars, professionals and students. The Human-Computer Interaction Professionals Association of India (HCIPAI) has added to this process by hosting the 'India HCI Conference' for more than a decade in different parts of the country. HCIPAI is a non-profit organization founded to spread awareness, practice and knowledge of HCI and UX in India.

The HCIPAI in association with IIT Bombay and UNESCO's International Federation for Information Processing (IFIP) organized the 'INTERACT 2017 Conference' on September 25-29, 2017 in IIT Bombay campus. The earlier editions were held predominantly in Europe and Africa over the past 20 years and this was the first time the conference came to India. The principal host for the conference was the IDC School of Design at IIT Bombay.

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The Student Design and Research consortia showcased work of undergraduate and masters students. The Doctoral consortium gave a space to researchers early in their PhD to get feedback from the leading experts in the field.

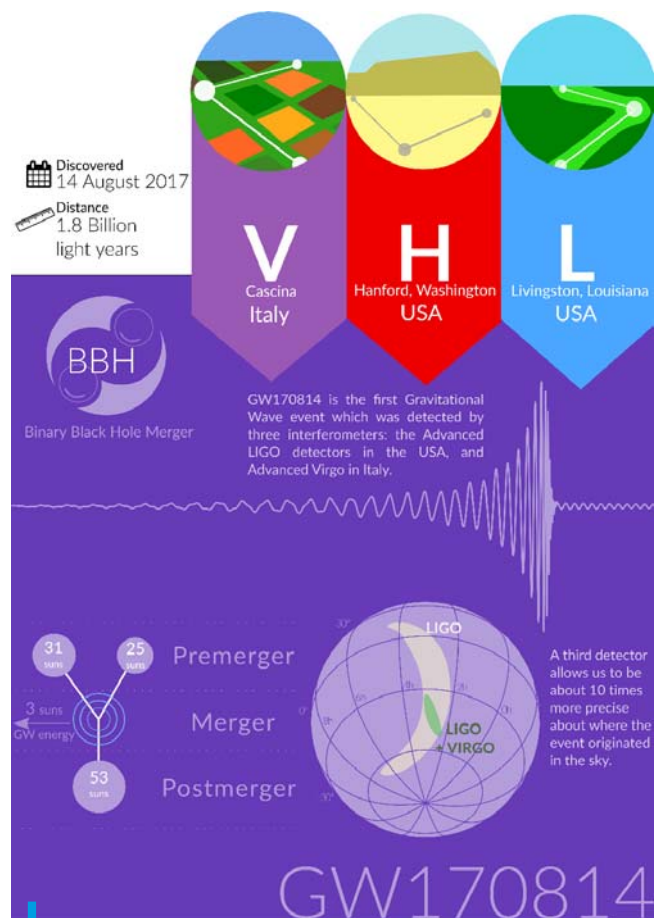
LIGO-Virgo Detection

The LIGO observatories in the USA observed the gravitational-wave signals from yet another merging black hole pair. This time, LIGO was joined by the Virgo observatory from Europe, which significantly contributed to the improved localization of this astronomical source in the sky, and enabled new tests of Einstein's theory based on the polarization of gravitational waves. Prof. Archana Pai and Prof. Varun Bhalerao of the Department of Physics, IIT Bombay were also a part of the international team that discovered gravitational waves.

This event, detected on August 14, 2017, is the fourth detection of a merging binary black hole system. Three such events were detected by the twin LIGO detectors in the past (first two events in 2015 and the third one in January 2017). It is the first time that such a detection is being confirmed by a third detector. The Virgo detector started collecting data on August 1, 2017, and was soon bestowed with a detection, jointly with LIGO.

The signal was produced by the merger of two massive black holes, weighing 31 and 25 times the mass of the Sun at a distance of 1.7 billion light years away from us. An energy equivalent to the mass of three Suns was radiated as gravitational waves in this energetic astronomical event. These detections of gravitational waves from merging black hole pairs allow us to map out the distribution of black holes in the universe and to do precision tests of Einstein's theory of General Relativity. Results from this detection are presented in a new paper accepted for publication in the journal Physical Review Letters.

The LIGO-Virgo collaboration includes more than a thousand scientists from many different countries, setting a great example in international scientific cooperation. The recent publication has 40 authors from 13 Indian institutions. Over the last three decades, Indian scientists have done foundational work in various aspects of gravitational-wave science, including theoretical calculation of expected signals from astronomical sources, developing sophisticated data analysis techniques for searching weak gravitational-wave signals in noisy data and devising techniques to combine data from multiple detectors. The current Indian team in the LIGO-Virgo collaboration has made direct contributions to the extraction of the properties of the astronomical source from the data and to the first tests of Einstein's theory using these observations. The Indian contribution to this emerging frontier will grow significantly in the future, with the materialisation of the LIGO-India observatory, which is being built on Indian soil. This is expected to bring manifold improvements to the source localisation accuracy.



Graphical representation of LIGO-VIRGO

LIGO is funded by the NSF, and operated by Caltech and MIT, which conceived and built the project. Financial support for the Advanced LIGO project was led by NSF with Germany (Max Planck Society), the U.K. (Science and Technology Facilities Council) and Australia (Australian Research Council) making significant commitments and contributions to the project. More than 1,200 scientists from around the world participate in the effort through the LIGO Scientific Collaboration, which includes the GEO Collaboration. Additional partners are listed at: <http://ligo.org/partners.php>.

The Virgo collaboration consists of more than 280 physicists and engineers belonging to 20 different European research groups: six from Centre National de la Recherche Scientifique (CNRS) in France; eight from the Istituto Nazionale di Fisica Nucleare (INFN) in Italy; two in The Netherlands with Nikhef; the MTA Wigner RCP in Hungary; the POLGRAW group in Poland; Spain with the University of Valencia; and EGO, the laboratory hosting the Virgo detector near Pisa in Italy.

Research In Focus

A Versatile And Evolving Pseudomonas Sp. Microbial Degradation Of Carbaryl: Evolution And Application

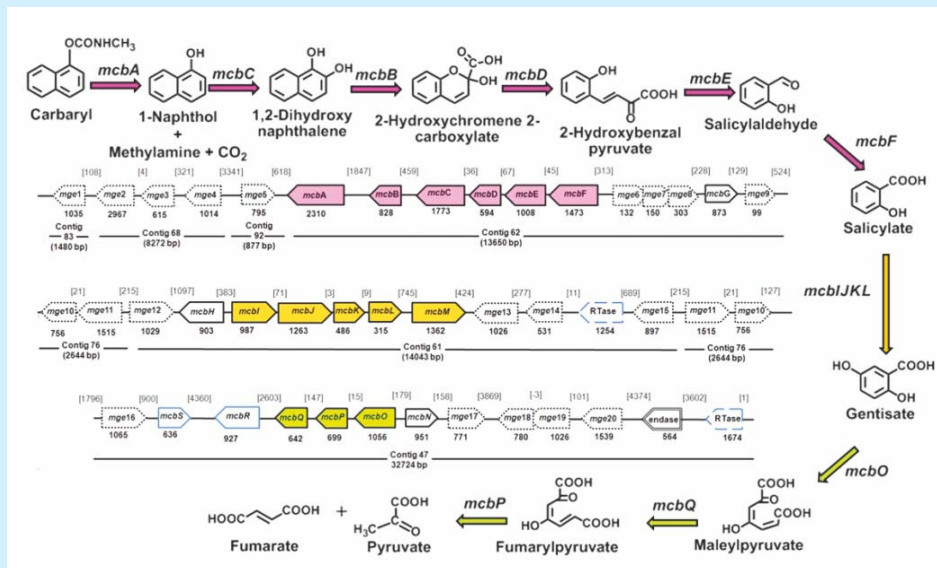


Fig. Carbaryl degradation pathway and genetic organization in *Pseudomonas* sp. strain C5pp

Carbaryl is widely used as a pesticide in the agricultural field since 1958. Apart from the desired effects, the toxicity of carbaryl to beneficial organisms like bees, earthworm and marine fishes is a cause of concern. Its extensive usage has led to environmental pollution. Within a decade of carbaryl application in the agricultural field, many microorganisms with ability to degrade it were isolated. *Pseudomonas* sp. isolated from soil in the lab converts carbaryl into cell biomass via. 1- naphthol, salicylate, gentsitate to TCA cycle intermediates by utilizing it as a sole source of carbon and energy.

Genome analysis reveals that this ability has evolved in the must have been acquired by gene-exchange and has underwent evolutionary changes to make the process efficient. This study helps to understand the molecular mechanisms involved in the assembly and evolution of metabolic pathway for recently introduced compound like carbaryl in the environment. As the pathway has been observed to be segmented and are independently controlled, genetic engineering tools can be employed to construct a single chassis strain which will be effective against array of aromatic compounds. As a proof-of-concept, *E. coli* when transformed with one such segment could utilize gentsitate and convert it into biomass. The strain also carries genes involved in nitrogen metabolism and suggests that carbaryl can also be utilized as a source of nitrogen. Therefore, bioremediation of carbaryl is possible even in the nitrogen deficient soils. This property makes this strain capable of removing carbaryl completely from the contaminated sites. A *Pseudomonas* strain C7 has also been isolated, which can perform the activity of remediating carbaryl in the presence of varying concentration of salt. Though with the increasing concentration of salt, the growth of the bacteria is slowed, nevertheless, carbaryl is completely degraded. This strain can be introduced in the saline inflicted ecosystems contaminated with carbaryl.

Prof. Prashant Phale,
 Department of Biosciences and Bioengineering, pphale@iitb.ac.in

Virasat Concerts At IIT Bombay

The Classical and Folk Arts Club of the Institute, named Roots, conducts yearly concerts under the banner of **Virasat**. These concerts bring the greatest Indian musicians and dancers to our campus, and expose the students to the Indian tradition in the best possible manner. These concerts have previously featured legendary artists like Pt. Ajoy Chakraborty, Ustad Wasifuddin Dagar, Pt. Vishwa Mohan Bhatt, Ashwini Bhide Deshpande, and more.

These concerts were conducted in association with SPICMACAY - Society for Promotion of Indian Classical Music and Culture among Youth. SPICMACAY is a non-political, nationwide, voluntary movement with an intention to increase awareness



Rajasthani folk music concert by Bhutte Khan Manganiyar and his group

about Indian heritage. For this, the most accomplished artistes of the country render programmes of Indian classical music and dance, folk, poetry, theatre, traditional paintings, crafts, yog primarily in schools and colleges.

This year, Virasat had 4 concerts over 3 days. It featured a great lineup of artists. It started with a



Kathak performance by Pandita Uma Dogra and her students

Hindustani vocal recital by Pt. Satyasheel Deshpande, a veteran Hindustani musician, on the first day. It moved on to a very energetic Rajasthani folk music concert by Bhutte Khan Manganiyar and his group, who have been very active in spreading the traditional Indian folk music across the world. On the third day, a beautifully orchestrated Kathak dance concert by Pandita Uma Dogra and her students was performed, followed by a mesmerising flute concert by Pt. Ronu Majumdar, a highly popular name in Hindustani music.



Flute concert by Pt. Ronu Majumdar

IIT Bombay Top Among Indian Universities In QS Asia University Rankings

Indian Institute of Technology Bombay (IIT Bombay) has moved one step up from 35th rank last year to 34th rank this year in the Quacquarelli Symonds (QS) Asia University Rankings. Overall, the Institution improved on its 2016/17 performance by one place. Earlier in June this year, the Institute was ranked 179th in the QS World University Rankings, showing an improvement in its 2017 performance by 40 places.

The results of Asia University Rankings were released on Monday, October 16, 2017 by QS, a British company. IIT Bombay ranks one in India, with an overall score of 75.7 out of 100. The Institute has score of 88.1 in academic reputation, 97.5 in employer reputation, 44.5 in faculty student ratio, 96.3 in staff with PhD, 89.6 in papers per faculty, 9.7 in international

faculty, 6.3 in international students, 10.9 in inbound exchange students, 9.1 in outbound exchange students, and 41.4 in citations per paper. Among these ten parameters, Employer Reputation indicated the strongest one for IIT Bombay with a rank of 21 globally.

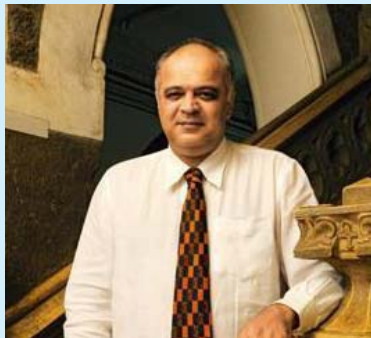
Speaking on the performance of the Institute, Director Prof. Devang Khakhar said, "I am glad that IIT Bombay continues to rise in the rankings. This is a reflection of the excellent work being done by faculty and students of the Institute".

The Institute performed among the top 8% in the QS Asia University Rankings. Considering there are approximately 11,900 universities globally, this made IIT Bombay one of the top 1.0% universities in Asia.

Institute Colloquium / Lectures



Prof. Abhay Deshpande, Department of Physics and Astronomy at Stony Brook University (SUNY), New York delivered an Institute Lecture on *‘Proton, whence comest thou spin?’ - The deep mysteries of the spin structure of the proton and enlightening solutions suggested by the gluon* on September 15, 2017



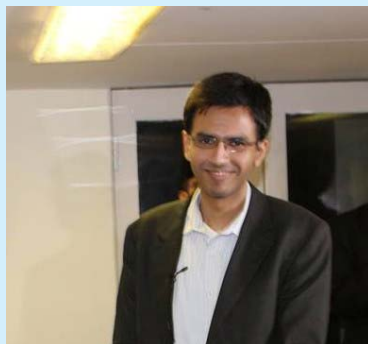
Dr. Yug Mohit Chaudhry, Senior Advocate High Court of Bombay delivered an Institute lecture on *‘The Death Penalty: From the perspective of the Constitution, Police, Courts and Executive’* on September 26, 2017



Prof. Thomas Blom Hansen, Professor of Anthropology, Stanford University, California delivered an an Institute Lecture on *‘How India Works. Caste, Community and Capitalism’* on October 27, 2017



Mr. Anant Goenka, Executive Director, Indian Express Group delivered an Institute Lecture on *‘Relevance of print media and the challenges ahead’* on September 26, 2017. The talk was organized by INSIGHT, IIT Bombay



Dr. Abhinav Chandrachud, Advocate Bombay High Court and Author of Republic of Rhetoric: Free Speech and the Constitution of India delivered an Institute lecture on *‘On the Right to Privacy’* on October 28, 2017.



Dr. Lalit Kumar Anande, Chief Medical Officer, Group of TB Hospitals (Mumbai), TB Hospitals Sewri Mumbai gave a talk on *‘May I Help You’ - a campaign for ‘How Not To Be a TB Patient’* on October 9, 2017



Dr. Howard Stone, Princeton University, delivered an Indira Foundation Distinguished Lecture on *‘Beauty and Surprises in Fluid Mechanics: Nature, Research and Technology’* on October 30, 2017

IIT Bombay Celebrates Swachhta Pakhwada



Swachh volunteers taking pledge

As part of Celebration of 'Swachh Bharat Mission,' Swachhta Pakhwada was observed during October 1-15, 2017 in the Institute. Many departments of the Institute were engaged in the various activities related to cleanliness and sanitation.

With a motive of giving something back to the society, E-Cell organized **Swacch**, a social campaign that strives to create a movement, urging people of Mumbai to keep the streets, local stations, beaches and other public spaces clean on October 7, 2017.



Handmade posters exhibition in the finale event

Through **Swacch**, E-Cell undertook the cleaning and beautification of the most neglected and littered parts of Juhu beach, with the help of collaborations from various college students, NGOs and corporates because E-Cell believes that the responsibility of keeping public places clean is shared equally by the citizens and municipal corporation.

On the morning of **October 7**, a group of **more than 500 people** joined hands to take up this cleanliness drive and pledged to keep their city and surroundings clean. With the combined efforts of everyone, E-Cell was able to gather more than **1200kg of non-biodegradable waste** which posed a severe threat to the coastal biodiversity! The collected waste was then handed over to the BMC's waste collection trucks and then disposed off safely.

A set of recommendations and guidelines were announced to the hostels. The hostels were invited to submit a report declaring efforts they have taken towards (i) general cleanliness of public and private spaces (ii) waste management practices in the hostel and (iii) proactive steps towards sustainability. Based on multiple visits by committee members, first, second and third positions were assigned to Hostel 6, 13 and 5 respectively. Committee found Hostel 14 very clean and in good condition although Hostel 14 did not submit a report.



Live demonstration of waste segregation technology

Finale to the Swacchta Pakhwada

The fortnight-long 'Swachhta Pakhwada' organised by IIT Bombay as a cleanliness drive across the campus saw its culmination in a finale event on October 15, 2017.

Beginning with a brief introduction on the waste management activities in campus, **Prof. Satish Agnihotri**, Centre of Policy Studies, spoke about the Swacchta Pakhwada initiative over the two weeks in IIT Bombay. Following this, the event had posters of various technology solutions exhibited by IIT Bombay faculty. Tata Centre for Technology and Design gave a presentation about their activities in waste management.

During the event, a product exhibition was held by organisations active in the waste management domain such as Green Communities, Stree Mukti Foundation, Enviro Vigil, Daily Dump, INORA etc. An interesting part of the day's event was the live demonstration and detailed explanations of technologies at the testing site. This included stages and processes of composting at Vidya Niwas, gasification installed in Hostel 9, pelletization in F1 shed, compaction unit to show dry waste segregation at the Compaction Unit, and the biogas plant (which supplies biogas for cooking purposes to Hostel 3) located behind the pipeline. This exercise ensured a lot of interaction among attendees.

Students of Class V to VIII of IIT Bombay Campus School and Kendriya Vidyalay School were invited to make handmade posters on the theme of "How To Reduce Waste". The submitted entries were exhibited during the event.

People from the campus communities, students of IIT Bombay, representatives of NSS also attended the event.

In the Wilderness

Photo Credit :
by Mr. Athul K Shibu
CTARA

SATIN PEPPER
by Prof. Arun Inamdar

Departmental Lectures / Talks

Department of Aerospace Engineering

Dr. Ravichandran, IIT Madras Alumnus gave a talk on *"The fluid mechanics of clouds"* on October 11, 2017

Department of Humanities and Social Sciences

Dr. Vijayakumar M. Boratti, University of Mysore gave a talk on *"Literary" Controversies* on September 15, 2017

Department of Computer Science and Engineering

Mr. Vijay Nadkarni, Visteon Corporation gave a talk on *"The Artificial Intelligence Revolution in Autonomous Driving, and the Re-Invention of the Automotive Industry"* on September 8, 2017

Prof. David Mazières, Stanford University gave a talk on *"The Stellar Consensus Protocol: A Federated Model for Internet-level Consensus"* on September 18, 2017

Dr. Shivkumar Kalyanaraman, Special initiative in IBM Research – India, gave a lecture on *"Towards A Digital "Green" Revolution ... Cognitive IoT Meets Solar & Agriculture"* on September 20, 2017

Department of Chemical Engineering

Dr. Ranjit Gulvady, National University of Singapore gave a talk on *"Single molecule studies of H-NS-DNA interaction in prokaryotic cells"* on September 21, 2017

Department of Chemistry

Prof. Rajan Sankaranarayanan, CSIR-Centre for Cellular and Molecular, Biology, Hyderabad gave a talk on *"Chirality Based Error Correction Mechanisms in Biological Systems"* on September 13, 2017

Department of Electrical Engineering

Mr. Amaldev V, IIT Bombay Alumnus and Co-founder and Engineering Lead at ACPAD Instruments gave a talk on *"How to build a hardware product - An Engineer's Perspective"* on September 21, 2017

Centre for Technology Alternatives for Rural Areas

Dr. Asavari Devadiga, Adjunct Faculty and Fellow at the Ashoka Trust for Research in Ecology and the Environment (ATREE) gave a talk on *"What Has Planning Got to Do with Water? Insights from Research and Practice"* on September 19, 2017

Dr. Rajiv Kumar Chaturvedi, Senior Researcher, Indian Institute of Science (IISc) Bangalore gave lecture in a seminar on *"Can India achieve its Paris Agreement goals in the forest sector?"* on September 26, 2017

Office of Dean IR in coordination with the Department of Computer Science and Centre for Urban Science and Engineering (C-USE)

Prof. Mark Dyer, University of Waikato gave a talk on *"People friendly cities in a data rich world"* on September 6, 2017

Department of Physics

Prof. Stanley Brodsky of the SLAC National Accelerator Laboratory, Stanford University, USA gave a lecture on *"How are quarks confined in hadrons? A novel approach to the structure and masses of hadrons"* on September 25, 2017

Centre for Policy Studies (CPS)

Mr. Swadheen Kshatriya, Chief Commissioner RTS, Maharashtra gave a talk on *"Taking services to citizen - shifting to a rights approach"* on October 6, 2017

Awards and Distinctions

Prof. Devang Khakhar, Department of Chemical Engineering, has been conferred D M Trivedi Lifetime Achievement award by the Indian Chemical Council, for his contributions to Indian chemical industry (education and research)

Prof. Amit Agrawal, Department of Mechanical Engineering, has been selected as Fellow of the National Academy of Sciences, India

Prof. Chandra Venkataraman, Department of Chemical Engineering, has been selected as Fellow of the National Academy of Sciences, India

Prof. Deepankar Choudhury, Department of Civil Engineering, has been selected as Fellow of the National Academy of Sciences, India

Prof. Deepankar Choudhury, Department of Civil Engineering, has been selected for 'Prof. Chandrakant S. Desai Medal - 2017' for his outstanding contributions in research in the domain of Computational Geomechanics, by International Association for Computer Methods and Advances in Geomechanics (IACMAG), AZ, USA

Prof. Anindya Dutta, Department of Chemistry, has been selected as the Fellow of the National Academy of Sciences, India

Prof. V.S. Raja, Department of Metallurgical Engineering and Material Sciences, has been selected as the Second Vice President (2017-2020) of International Corrosion Council during the International Corrosion Congress held at Prague during September 3-7, 2017 in recognition for his excellent academic and research work

Prof. Supreet Saini, Department of Chemical Engineering, has been selected for the INAE Young Engineer Award for the year 2017

Prof. Rangan Banerjee, Department of Energy Science & Engineering, has been elected as 'Fellow of the Indian National Academy of Engineering'

Prof. Anil Kottantharayil, Department of Electrical Engineering, has been elected as a 'Fellow of the

Indian National Academy of Engineering'

Prof. Anand S. Khanna, Department of Metallurgical Engineering and Materials Science, has been conferred with **Life Time Achievement Award** during an International Conference on "New Vistas in Surface Engineering & Corrosion", held in September 2017. The Award was given by The Society for Surface Protective Coatings India in recognition of his excellent academic and research work. Innovation of **Prof Anand S. Khanna**, Department of Metallurgical Engineering and Materials Science, has been selected for FICCI Chemical and Petrochemicals Award 2017 under the Category of New Innovation by Academia

Prof. Dulal Panda, Department of Bio-science and Bio-Bio-engineering, has been selected as the fellow of Indian National Science Academy

Prof. Sourav Pal, Department of Chemistry, has been elected as a member of the Council of Indian National Science Academy

Prof. Debabrata Maiti, Department of Chemistry, has been selected to receive the "OPPI Young Scientist Award 2017", instituted by Organisation of Pharmaceutical Producers of India

Prof. Amol A Gokhale, Department of Mechanical Engineering, has been selected as the Vice President of Indian Institute of Metals

Prof. Souvik Mahapatra, Department of Electrical Engineering, has been awarded the 'IBM Faculty Award'

Prof. Hetu Seth, Department of Earth Sciences, has been awarded M. R. Srinivasa Rao Award 2017 in Petrology of the Geological Society of India

Prof. V.M Gadre, Department of Electrical Engineering has been awarded Indian National Science Academy (INSA) Teachers Award 2017

Retirements on September 30, 2017

Prof. Anand S. Khanna,



Department of Metallurgical Engineering & Materials Science, retired after 26 years of service

Prof. Shiva Prasad, Department of Physics,



retired after 37 years of service

Mr. V.C. Pillai, Sr. Technical



Superintendent, Department of Civil Engineering, retired after 38 years of service

Ms. Geetha Srinivasan, Jr.



Technical Superintendent, Department of Chemistry, retired after 36 years of service

Mr. Gajanan B. Thakur, Sr. Life



Guard, Gymkhana, retired after 35 years of service

Mr. Ashok R. More, Messenger,



Department of Chemical Engineering, retired after 30 years of service

Mr. P.B.K. Chattri, Security



Guard, Security Section, retired after 37 years of service

Retirements on October 31, 2017

Prof. S.L. Bapat, Department of



Mechanical Engineering, retired after 36 years of service

Prof. A.K. Rastogi, Department of Civil



Engineering, retired after 33 years of service

Prof. Manoj K. Mishra,



Department of Chemistry, retired after 31 years of service

Prof. K.K. Rao, Department of Bioscience and Bioengineering, retired after 29 years of service



Mr. Maruti M. Chougule, Security



Guard, Security Section, retired after 28 years of service

Notification

Prof. Sachin Patwardhan, Department of Chemical Engineering, has been appointed as the First Head of Parimal and Parimal Chaudhari Centre for Learning and Technology (PPCCLT) w.e.f. October 18, 2017

Prof. J. Adinarayana has been appointed as the Head, Centre of Studies in Resource Engineering, w.e.f. October 24, 2017

CEP courses scheduled during November - December 2017				
Starting Date	Duration	Course Name	Faculty	Department
Open Programmes :				
13-11-2017	4 Days	NMR Spectroscopy For Pharma And Biotech Research	Prof. Ashutosh Kumar	Bioscience And Bioengineering
20-11-2017	5 Days	Energy Management	Prof. Rangan Banerjee	Energy Systems Engg.
In House Programmes :				
13-11-2017	2 Days	Total Quality Management (Tqm) In Sewage Operations	Prof. Anurag Garg	Environmental Science & Engineering
15-11-2017 (Teqip)	3 Days	Free And Open Source Software In Teaching And Learning	Prof. Kannan Moudgalya	Chemical Engineering
16-11-2017	2 Days	Total Quality Management (Tqm) In Sewage Operations	Prof. Anurag Garg	Environmental Science & Engineering
27-11-2017	2 Days	Cerc Point of Connection Tariff Mechanism : Basics To Implementation	Prof. Shreevardhan A Soman	Electrical Engineering
Gian Courses :				
20-11-2017	10 Days	Complexity In Chemical Kinetics: Experimental And Modelling Approaches	Prof. Akkihebbal K. Suresh	Chemical Engineering
Open Programmes :				
3-12-2017	2 Months	Application of Six Sigma And Learn Management Techniques Using Statistical Software Packages	Prof. Indrajit Mukherjee	School Of Management
4-12-2017	3 Days	Academic Leadership Development	Prof. Pooja Purang	Humanities & Social Sciences
4-12-2017	5 Days	Vibro - Acoustics	Prof. Dhanesh N. Manik	Mechanical Engineering
5-12-2017	2 Days	Integrated Municipal Solid Waste Management: Recycling, Recovery And Disposal Concepts	Prof. Anurag Garg	Environmental Science & Engineering
7-12-2017	11 Days	Piping Engineering	Prof. A.S. Moharir	Chemical Engineering
11-12-2017	3 Days	Sustainable Engineering : Theory And Practice	Prof. Yogendra Shastri	Chemical Engineering
18-12-2017	3 Days	Realizing Science And Applications of Micro And Nano Machining	Prof. Suhas S Joshi	Mechanical Engineering
In House Programmes :				
5-12-2017	10 Days	Global Leadership Development Programme For High Performing Managers of Merc	Prof. S Bhargava	School of Management
22-12-2017	10 Days	Introduction To Nuclear Engineering	Prof. Kannan Iyer	Mechanical Engineering

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BOOK POST

