

# Campus diary

May - June 2017

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

INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

## IIT Bombay Shines At Transform Maharashtra Campaign

Transform Maharashtra is a unique initiative led by Hon'ble Chief Minister Mr. Devendra Fadnavis as part of his efforts to engage the youth of the state in governance and create a road-map for developed Maharashtra by 2025. It is a state-wide competition that invited solutions from college students across state to the 11 themes which are based on major socio-economic challenges faced by Maharashtra. The competition was launched by the Chief Minister on December 26, 2016 during Mood Indigo Festival in IIT Bombay and has touched around 4,00,000 people (including participants).

The students team '**Drona**' from the Department of Civil Engineering at IIT Bombay provided solutions to address the issue under the theme '**Jai Kisan: Drought-free Maharashtra**' and has won first prize in the Judges Choice in this theme for their valuable solutions. The prize comprises of a cheque of Rs. One Lakh to the team. The team comprised Rishu Bagla, *M.Tech*; Pratiksha Jain, *PhD*; Shivam Pundir, *M.Tech*; Parvathi S, *M.Tech*; and Nithin P.P., *M.Tech*.

The second team '**Samwad**' from IIT Bombay provided solutions to address the issues on the theme '**By The People: Citizen Engagement in Governance**' and has won second prize in the Judges Choice under this theme. The team comprised of Nitish Fatarpekar, Department of Physics; Neha Bhargava and Shalini Srivastava, Department of Electrical Engineering; Gulam Sarwar and Mehul Lad from Department of Mechanical Engineering.

The third team called '**Project Solarise**' gave solution on '**Smart & Smarter:**



Student teams from IIT Bombay receiving awards for their solutions to various socio-economic problems prevalent in the society at the 'Transform Maharashtra' campaign.

**Development of Sustainable & Livable Cities**'. The team has won second prize under this theme and it comprises of Akhil Manepalli and P. Pradeep, Department of Energy Science & Engineering; Kartik Bilolikar and Gunjan Auti, Department of Mechanical Engineering; Mayur Mistry, Department of Civil Engineering; and Darshit Jain, Department of Electrical Engineering.

The competition witnessed around 2300 submissions across Maharashtra. The solutions received from the students were judged for two exclusive categories of prizes – 'Judges' Choice' and 'Popular Choice'. To select entries for Judges' Choice Prizes (specific for each theme), industry experts in relation to different themes were brought on board. The Popular Choice Prizes (specific for each theme), were selected on the basis of the online voting that created quite a buzz on the internet with more than 6 lakhs votes cast.

The prizes to the winners were awarded by the Hon'ble Chief Minister Mr. Devendra Fadnavis after the teams presented their solutions on the select themes on Maharashtra Day in an event on May 1, 2017. This is the first time in Maharashtra that students discussed the issues concerning the state with the Chief Minister Mr. Fadnavis.

The event was graced by noted industrialist, investor and philanthropist Mr. Ratan Tata, Actor Mr. Akshay Kumar, Major General Mr. Anuj Mathur amongst others. The guests enjoyed a musical performance by Kay Kay, prominent Bollywood and cultural singer. It included an exhibition which showcased the innovative ideas / solutions / projects by other students of Maharashtra, who could not attend the finale.

## India's Astrosat Catches Astronomical Imposter

Indian scientists leading an international team of astronomers showed that a new object discovered in the sky, believed to be related to the latest gravitational wave discovery, was in fact an unrelated gamma ray burst.

The LIGO scientific collaboration's discovery of GW170104 led to a frenzy of activity among partner astronomers around the world, each trying to find any associated explosions in the sky. The Hawaii-based ATLAS group found a source that was in the right place in the sky, and was fading fast – causing excitement all around. But was it really associated with GW170104? Was it the first discovery of an optical source related to a gravitational wave detection?

No, according to a study by the AstroSat CZTI team and the international GROWTH collaboration. While studying observations of the source – named ATLAS17aeu – the team noticed something odd about how fast it was fading. “Analysing the data, I concluded that ATLAS17aeu must be related to some explosion on 5th January, not the 4th”, says Prof. Varun Bhalerao of IIT Bombay, the lead author in this study. The team had already used CZTI to look for X-rays coming from GW170104, and not seen any. CZTI (Cadmium Zinc Telluride Imager), a gamma ray telescope on ISRO's maiden space observatory AstroSat, proved to be the most sensitive instrument in the world to find transient sources with sub-second durations. So if there was another burst in the sky, they were sure they would find it in CZTI data.

Prof. Varun continues, “I shot off an email to my student Sujay, asking him to search for a burst in CZTI data in the calculated time window. And then I noticed an email from Vidushi (another student) in my inbox: she had found the burst I was looking for”.

The culprit seemed to be a gamma ray burst GRB 170105A – that exploded in the same part of the sky 21 hours later. But to be sure of this, astronomers needed more data.

Enter GROWTH: Global Relay of Observatories Watching Transients Happen. This multi-national team had already swung into action, observing ATLAS17aeu with optical, X-ray and radio telescopes.

Team member Mr. Dipankar Bhattacharya (IUCAA) said, “*The team studied the source with radio, optical and X-ray telescopes for a few days, till it faded away into oblivion. Based on its behaviour, we concluded that this event signalled the birth of a new black hole when a massive star imploded in a galaxy several billion light years away.*”

This gamma ray burst was missed by several other international satellites which were pointing at other parts of the sky at that instant. It was detected only by the Cadmium Zinc Telluride Imager (CZTI) on AstroSat, and by the Chinese-European POLAR instrument. “This is the result of insightful instrument design, imaginative onboard software, and collaborative data analysis from a nationwide team,” said Prof. A.R. Rao from TIFR. The team has its eyes on the prize: finding the first electromagnetic counterpart to a gravitational wave source. And the highly sensitive CZTI might not be enough.

Prof. Rao added, “*We need wide angle detectors scattered over interplanetary space to discover X-rays from LIGO sources. The CZTI team has proposed a small sized instrument called MOTIVE to ISRO as a likely payload for a future interplanetary mission. Together, CZTI and MOTIVE can revolutionize the field.*”

CZTI-Imager is built by a consortium of Institutes across India. The Tata Institute of Fundamental Research, Mumbai, led the effort with instrument design and development. Vikram Sarabhai Space Centre, Thiruvananthapuram provided the electronic design, assembly and testing. ISRO Satellite Centre (ISAC), Bengaluru provided the mechanical design, quality consultation and project management. The Inter University Centre for Astronomy and

Astrophysics (IUCAA), Pune did the Coded Mask design, instrument calibration, and Payload Operation Centre. Space Application Centre (SAC) at Ahmedabad provided the analysis software. Physical Research Laboratory (PRL) Ahmedabad, provided the polarization detection algorithm and ground calibration.

A vast number of industries participated in the fabrication and the University sector pitched in by participating in the test and evaluation of the payload. The Indian Space Research Organisation funded, managed and facilitated the project. This work was supported by the GROWTH project funded by the National Science Foundation under Grant No 1545949. GROWTH is a collaborative project between California Institute of Technology (USA), Pomona College (USA), San Diego State University (USA), Los Alamos National Laboratory (USA), University of Maryland College Park (USA), University of Wisconsin Milwaukee (USA), Tokyo Institute of Technology (Japan), National Central University (Taiwan), Indian Institute of Astrophysics (India), Inter-University Center for Astronomy and Astrophysics (India), Weizmann Institute of Science (Israel), The Oskar Klein Centre at Stockholm University (Sweden), Humboldt University (Germany).

GROWTH is supported by the Science and Engineering Research Board, Department of Science and Technology, Government of India.

More information about the discovery of the gravitational wave source GW170104 can be obtained at:

<https://www.ligo.caltech.edu/page/press-release-gw170104>, and at <http://www.gw.iucaa.in/news/gw170104>

## Prof. Vikram Vishal Wins INSA Young Scientist Award - 2017



Prof. Vikram Vishal, Department of Earth Science during his research work

Prof. Vikram Vishal, Assistant Professor in the Department of Earth Sciences has won the prestigious Indian National Science Academy (INSA) medal for Young Scientist (2017). The award is considered to be the highest recognition of promise, creativity and excellence in young scientists, and awarded annually by INSA for research conducted by scientists in India. It carries a bronze medal and a cash prize of Rs 25,000. Till 2015, 737 young scientists have been recognized by INSA.

While conveying the selection of the award to Prof. Vishal, INSA President Prof. Ajay K Sood stated, *“He has shown great potential to be a leader in research. I sincerely hope he will continue to strive hard to reach his potential and to prove leadership in the coming years”*.

Prof. Vishal, while thanking INSA for this recognition and honour, also remembered his PhD advisers

Prof. T. N. Singh (IIT Bombay) and Prof. Ranjith P. G. (Monash University) and his post-doctoral mentor Prof. Jennifer Wilcox (Stanford University). Prof. Vishal is currently working on a research, which attempts to reduce carbon-dioxide emissions and their environmental impact by capturing the natural gases. His research looks at “geologic sequestration” or capturing the carbon dioxide that is released when coal is burnt (or created as a by-product in other industries) and injecting it back into the rock deep underground so that it is not released into the atmosphere.

Prof. Vishal explained his research work by stating, *“Natural gases have remained trapped in deep underground rock structures for several million years. This provides an analogy to inject and store the greenhouse gases in rocks and prevent their release into the atmosphere. Realising India’s vast geological diversity,*

*she offers ample opportunities for the storage of carbon dioxide. Injection of carbon dioxide will not only help develop a long sustainable earth, but also lead to enhanced recovery of methane to partly meet our growing energy demands”*.

The true beneficiary of this process will be the life-system on Earth. Through the enhanced recovery of an otherwise non-recoverable resource, India will also benefit from energy security. Prof. Vikram Vishal is the first graduate from the IIT Bombay Monash Research Academy, which is a joint venture between IIT Bombay and Monash University, Australia. Research scholars study for a dual-badged PhD from both institutions and enrich their research and build collaborative relationships by spending time in Australia and India over the course of their degree.



## IIT Bombay Student Develops Innovative Lightweight Water Purifier Cum Bottle



Water purifier cum bottle model designed by the student of Industrial Design Centre for army men

Devanshi Saksena, a student of IDC in IIT Bombay, has made a portable water purifier cum bottle to be used by the jawans in the army. The Central Reserve Police Force visited the IIT campus last year and spoke about how potable water was a problem for the jawans. Keeping in mind the needs of the jawan, Devanshi then designed a sound-proof bottle with an inbuilt purifier.

The bottle is bean-shaped and can hold up to 1.5 litres of water. It has a filter attached to the base, which can be removed and let into the water body. A pump then sucks in water, which goes through the purifier and onto the bottle. After filling, the tube can be wound around the filter and the base can be re-attached.

The army jawans often travel several miles at a stretch, and can, at the most, carry 4-5 litres of water.

In most cases, they drink water available from the nearest water body, which might be contaminated. In naxal-affected areas, the fear of water contamination is extremely high. So, this bottle is expected to help them get potable water at all times.

Mr. Saksena was lucky in getting the help of Prof. B.K Chakravarthy and Prof. Hemendra Arya. "We invited a few CRPF jawans to get their feedback about the model that Devanshi had designed initially. Some of the suggestions were that the bottle should be lightweight, durable and sound-proof. We helped her improvise on her earlier design and they were satisfied with the final product," said Prof. Chakravarthy.

The bottle weighs 600 gm and costs Rs 1,200. It is much cheaper and durable compared to other market variants. The bottles are on the way for field-testing soon.



## IIT Bombay Ranks 179 In The QS World University Rankings

The Indian Institute of Technology Bombay has, for the first time, made it to the list of the world's top 200 universities, according to the recently released QS World University Rankings. The Institute has moved significantly up from 219<sup>th</sup> rank last year to 179<sup>th</sup> rank this year. Overall, the Institution improved on its 2017 performance by 40 places. IIT Bombay ranks second in India, with an overall score of 49.7 out of 100. Among these six parameters, Employer Reputation indicated the strongest one for IIT Bombay with a rank of 102 globally.

Speaking on the improved performance of the Institute, Director Prof. Devang Khakhar said, "*The improved ranking is a reflection of the continuous improvement of the quality of education and research at IIT Bombay*".

The Institute performed among the top 19% in the QS World University Rankings. Considering there are approximately 26,000 universities globally, this made IIT Bombay one of the top 1.0% universities in the world.

## Inauguration Of Office Of IIT Bombay- Washington University At IIT Bombay

Director of IIT Bombay Prof. Devang Khakhar inaugurated the office of IIT Bombay-Washington University in St. Louis Research and Education Academy (IWREA) on May 18, 2017. The office is located on the ground floor of Main Building, IIT Bombay.



Prof. Devang V. Khakhar, Director, IIT Bombay inaugurating the office of IIT Bombay-Washington University in St. Louis Research and Education Academy (IWREA) along with Prof. S. Bhargava, SJM School of Management and Mr. Shesh Kiran, CEO, IWREA

## IIT Bombay Starts A Bachelor Programme In Economics

The Department of Humanities and Social Sciences in IIT Bombay has launched an undergraduate programme titled 'Bachelor of Science in Economics' in July 2017. In the continuous process of diversification of academic programmes at IIT Bombay, the Department of Humanities and Social Sciences has been brainstorming about its contribution to take the Institute to higher levels for a while now. Based on the lessons gained from the conduct of core and elective courses in Economics for the undergraduate and postgraduate students over several years, the Department has launched the new programme.

The vision of the Department is to create a unique brand of students who will be equipped to balance economics, enterprise, science and technology with social objectives and produce well-trained professionals with inter and multi-disciplinary skills for applied economic analysis and efficient decision-making.

The programme aims to graduate students who, while contributing to technological applications and achieving significant breakthroughs, will also be equipped with a broad social-ethical perspective. Educationists have for long emphasized the need for a balance between economics, ethics and enterprise.

The Director of IIT Bombay Prof. Devang Khakhar said, *"The Department of Humanities and Social Sciences has built academic excellence in a number of areas, including economics. The new programme in economics will provide students with a high quality education based on a rigorous curriculum but with a wide range of electives offered in our multidisciplinary*

*environment. The students will be well prepared to contribute to addressing the issues being faced in the increasingly complex national and global economic environments."*

The programme seeks to impart education to students to become more efficient analysts/ decision-making professionals in the areas of business, public policy and development administration. Industrial houses, banks, government/ semi-government agencies and organizations are increasingly demanding graduates with these kinds of skills and capabilities.

With a strong background in economics, social sciences, mathematics and statistics, science subjects, and exposure to computer science, IIT Bombay expects these students to find excellent placements in a wide range of public and private firms.

*"Taking advantage of the multiple departments and specializations in IIT Bombay, we would encourage these students to opt for a minor from Engineering, Entrepreneurship, IDC, Management, Sciences and other Social Sciences/Humanities,"* said Prof. D. Parthasarathy, Head of HSS Department.

The admission to the programme is through the IIT JEE (Advanced).

Please visit: <http://www.hss.iitb.ac.in/en/breaking-news/iit-bombay-launches-4-year-bs-economics-july-2017>

Course Content:

<http://www.hss.iitb.ac.in/sites/default/files/BS%20ECONOMICS%20Press%20release.pdf>

## Two - Day Joint Workshop On 'Aerosol And Air Quality'

Leading aerosol researchers from the Washington University School of Engineering & Applied Sciences participated in a two-day "Aerosol and Air Quality Workshop" held on June 8-9, 2017 hosted by the IIT Bombay. This workshop was sponsored by MPCB, India. The workshop explored the latest research in air quality from renowned academics.

Prof. Virendra Sethi, Centre for Environment Science & Engineering of IIT Bombay, co-ordinated the workshop.

Particle Technology and Pollution Control; Atmospheric Aerosols and Monitoring; Aerosol Formation; Growth and Transport were discussed.

The main objective of the workshop was to bring together a group of researchers from IIT Bombay and Washington University in St. Louis (WUStL) with diverse interests and expertise in nucleation, transport, growth, instrumentation, characterization, and multi-scale modeling of aerosols to discuss recent advances, current challenges, and new directions.

The workshop commenced with the welcome address by the IIT Bombay Director Prof. Devang Khakhar and Dean of Washington University School of Engineering Dr. Aaron Bobi, followed by four moderated sessions and short talks by the invited speakers.



## IIT Bombay Wins 25<sup>th</sup> Intelligent Ground Vehicle Competition (IGVC)



*Mr. Ankit Sharma, Department of Aerospace Engineering and Mr. Rishabh Chaudhary, Department of Chemical Engineering, with the trophy along with the other team members*

A team from the Innovation Cell of IIT Bombay has won the 25th Intelligent Ground Vehicle Competition (IGVC), one of the biggest unmanned ground vehicle competitions in the world for university students. The competition was held between June 2-5, 2017 at Oakland University in Michigan, USA.

The vehicle 'SeDriCa' participated in all three events and secured first place in the Autonomous Navigation Challenge, second place in the Design Challenge, second place in the Interoperability Profiles Challenge and were placed first (overall) in the pool of 29 participating teams from five different countries. The team scored a total of 88 points out of 96 points beating the first runner-up from Japan by a margin of 32 points.

The team was mentored by Prof. S N Merchant from Department of Electrical Engineering and Prof. Ramesh Singh from Department of Mechanical

Engineering. The team was led by students Mr. Ankit Sharma, Department of Aerospace Engineering and Mr. Rishabh Choudhary, Department of Chemical Engineering. Other members of the team were Mr. Anjan Kumar Patel, Mr. Ravi Jain, Mr. Vatsal Kansara, Mr. Krishna Sandeep, Mr. Rohit Bhor, Department of Mechanical Engineering and Mr. Surya Teja, Department of Electrical Engineering. The team got most of the funding from IRCC, IIT Bombay.

This has been the best performance till date by any Indian team and it also raises the bar for IIT Bombay across all the competitions.

## IIT Bombay Stands First In The Ecosperity Young Leaders Dialogue (Ecos YLD)

A team of students from IIT Bombay stood first in the Ecosperity Young Leaders Dialogue (Ecos YLD) and won the \$1000 prize money. The event was organised by Singapore Technologies Endowment Programme (STEP) in partnership with Centre for Business Sustainability at Nanyang Business School, Nanyang Technological University 2 teams of 4 members each were selected from IIT Bombay to represent India at the 5 days event. 10 countries participated. A total of 22 teams from South East Asia participated. The two teams from IIT Bombay were the only teams to be selected from India.

Besides panel discussions, addresses by reputed personalities and group activities against the backdrop of sustainable business practices, the event also had a presentation challenge where all the teams competed against each other to present their own idea on a topic allotted by the organizers.

Mr. Shubham Goyal and Mr. Akshay Agarwal, Department of Mechanical Engineering, Mr. Deep Shah & Mr. Ankush Thakkar, Department of Metallurgical Engineering and Materials Sciences

participated in the event held in Singapore from June 3 - 7, 2017. The name of the team was Pahal.

The Ecosperity 2017 theme was "Tomorrow Starts Today! - Securing our Sustainable Future in Asia". The theme of business sustainability seeks to showcase the business perspective in managing sustainability issues and how businesses transform their practices to promote sustainability.



*Mr. Shubham Goyal and Mr. Akshay Agarwal, Department of Mechanical Engineering, Mr. Deep Shah & Mr. Ankush Thakkar, Department of Metallurgical Engineering and Materials Sciences receiving the prize at the Ecosperity Young Leaders Dialogue held in Singapore*

## IIT Bombay Celebrates International Day of Yoga



Students, faculty and staff members performing Yoga during the International Yoga Day Celebration at the Institute

Yoga is a 5,000-year-old physical, mental and spiritual practice that originated in India. It transforms both body and mind. On December 11 in 2014, the United Nations General Assembly declared June 21st as the International Day of Yoga.

On June 14, 2017, a movie on 'History of Yoga' was screened in the Institute. Yoga camps were organized on June 17, 18 and 19, 2017 at different locations in the campus of IIT Bombay.

A heartfulness meditation camp was held on June 18, 2017. Trained yoga instructor Mr. S. D. Bhalekar, Medical officer, Kaivalyadhama, Lonawala and lecturer at Gordhandas Seksaria College of Yogas & Cultural Synthesis delivered a lecture on '**Importance of Yoga**' on June 20, 2017 in the campus.

IIT Bombay celebrated the third International Yoga Day on June 21, 2017. The event witnessed enthusiastic participation from all the members of the IIT Bombay community including students, faculty, staff and their family members.

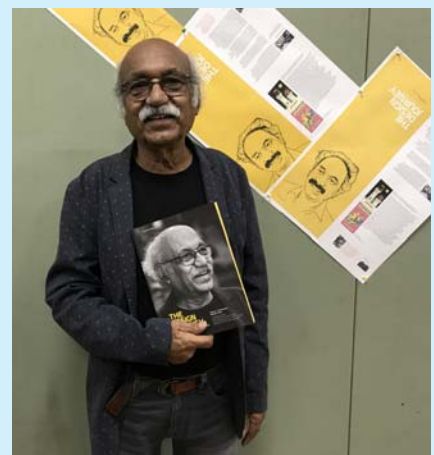
Two yoga sessions were conducted on June 21, 2017 at the Badminton Hall located in the gymkhana building. During the morning session, a Common Yoga Protocol was conducted. The participants were taught various asanaas and pranayam. The instructor explained the benefits of these for one's physical and mental health and well-being. The trainer encouraged the participants to practice yoga every day.

The registered participants took the Yogathon challenge - to perform 108 rounds of Suryanamaskar and most of them completed it successfully. The participants practiced all the exercises with full determination and zeal.





## Design & Degree Show 2017



Glimpses of Design & Degree Show 2017

The Design & Degree Show (DDS) of Industrial Design Centre, IIT Bombay was held from June 9-11, 2017. The event showcased design projects of the outgoing 2017 batch of Master of Design students from five specializations: Communication Design, Industrial Design, Interaction Design, Animation Film Design, and Mobility & Vehicle Design.

Noted animation film maker and national award winner Mr. E. Suresh inaugurated the DDS 2017 on June 9 at Lecture Theater Complex, IIT Bombay. DDS this year was a dual celebration for IDC as the premier design institute marks the completion of ten years of its Master of Design programs in Interaction Design and Animation Film Design. To honour this milestone, the first two days of the event hosted special talks by experts from these two disciplines.

About 20 eminent designers from a wide range specializations in the fields of Animation, User Interface and Human Computer Interaction, Communication Design, Industrial Design, and Mobility and Vehicle design shared their vision, experiences and case studies over three days of the event.

Some of the speakers at the Design Conference were Mr. E. Suresh, Mr. Vaibhav Kumaresh, Mr. Deshna Mehta, Mr. Henry Skupniewicz, Mr. Abhimanyu Kulkarni, Mr. Sajal Nagwanshi, Mr. Vijaybahu Joshi and Mr. Chirag Gander. The event was attended by a professionals from different streams of design, writing, art, media, academia as well as design students from various institutes and organizations.

A special screening of the film 'Hum Chitra Banate Hai' directed by Prof. Nina Sabnani of IDC was held during the event. This film has recently won the Rajat Kamal Award for the Best Animation Film at the 64th National Film Awards this year in New Delhi. This film is a playfully warm story that brings to life India's traditional art by incorporating it innovatively in the animation itself.

A book on the design journey of Prof. Sudhakar Nadkarni, founder of IDC, was launched at IDC auditorium on June 11. Movies and animation films made by the students of IDC School of Design were screened during the event.

## Exhibition By Abhyuday On '1982, A Tale Of The Forgotten Past'



Guest of honor Mrs. Sampada Mehta, District Collector for Mumbai (island city) during the exhibition organized by Abhyuday, student-run-non-profit organization of IIT Bombay

IIT Bombay's Abhyuday organized an interactive exhibition '1982, a tale of the forgotten past' from June 11 to 13, 2017 in the Institute campus. The exhibition had been ideated by Chinmay Parab, an M. Des student of the Industrial Design Centre (IDC).

The guest of honor for this exhibition was newly-appointed District Collector for Mumbai (island city) Mrs. Sampada Mehta. She appreciated the efforts put in by the team Abhyuday and IDC student Chinmay Parab for setting up the exhibition. One of the visitors said, *"The exhibition was a brilliant depiction of history. Unlike other exhibitions which are monotonous and boring, this analogy of textile layoff with IT industry was an eye opener."*

Abhyuday is a student-run non-profit organization of the IIT Bombay. Prof. Kavi Arya is the faculty in-charge of Abhyuday. The organization provides a platform for social activities, campaigns, initiatives to build the nation bottom up and for upcoming ideas for social development. Abhyuday aims to empower students taking the mission of social leadership to drive a change around the nation.

'1982, a tale of the forgotten past' attempted to tell the story of the Great Bombay Textile Strike and its

impacts on the city culture. The aim, here, was to sensitize current population of Mumbai with the forgotten past of the city and leave them with a question mark, in order to envision a better future. Data visualization method was used to convey the story is conveyed through juggling of data and numbers.

Textile Worker's strike in 1982 was a pivotal moment in the history of the textile industry and that of Mumbai. 240,000 mill workers from over 58 mills in the mill district of Mumbai participated in the strike that started on January 18, 1982 and ran for 18 months.

Unsuccessful end of the strike served to change the face of the once industrial capital of the country into financial capital. In the past three decades, the city saw a dramatic transition from mills to malls and residential towers, considered as the most disruptive urban transformations India has ever seen.

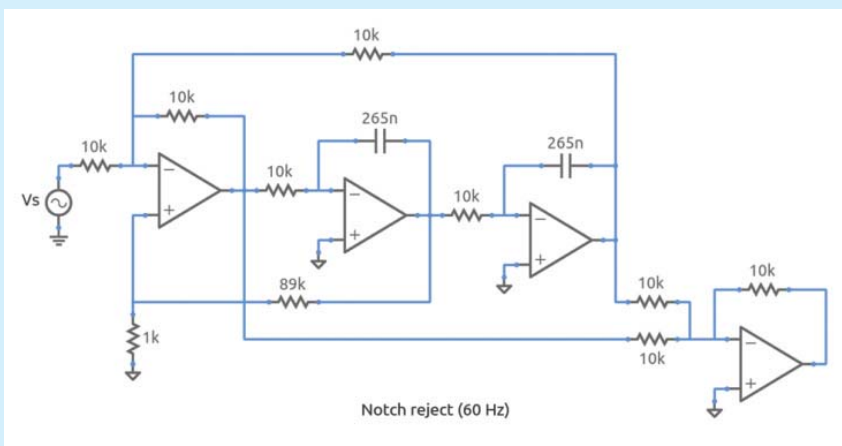
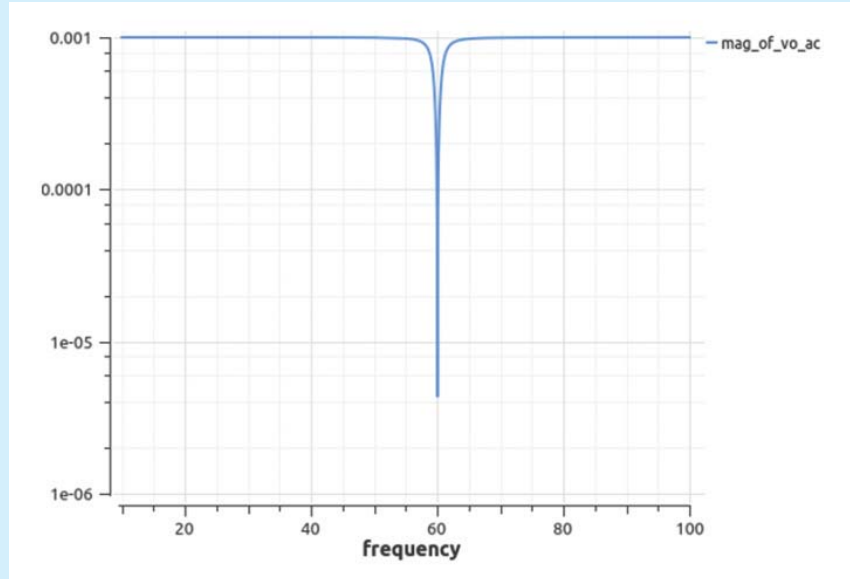
35 years after the strike, the situation seems to be almost similar to that of the textile industry. IT sector in India, on which the service industry thrives, is undergoing the digital transformation with automation and introduction of artificial intelligence. It wouldn't be a surprise if history repeats itself in the white-collared IT sector too.



Research in focus

**A Public Domain General Purpose Circuit Simulator**

A general-purpose circuit simulation packaged called SEQUEL has been developed at IIT Bombay. SEQUEL is particularly suitable for teaching courses in electronics and power electronics. It has a graphical user interface (GUI) which allows the user to enter the circuit in a schematic form, set component values and simulation on parameters, and view the simulation results. It also allows exporting of circuit schematics and the simulation plots so that they can be included in reports and presentations. The SEQUEL GUI has been developed for ease and flexibility, and users have found it to be convenient and intuitive. A large number of simulation examples in the areas of electronics and power electronics have been incorporated in SEQUEL. The user can run these examples in the present form, edit them, or make up completely new examples if required. Several technical workshops have been conducted using SEQUEL, and accompanying academic documents have also been developed. SEQUEL is being used in several engineering colleges in India.



In the next phase, we plan to develop an app based on SEQUEL which can be used by engineering college teachers directly in class. With the app, a teacher would be able to cover a specific topic in class, and follow it up with circuit simulation in class. Since most of the students possess a smart phone, the app would be particularly attractive in terms of access. It will enable simulation in class to clarify basic concepts without having to move to a computer lab for that purpose.

**Prof. Mahesh B. Patil**  
 Department of Electrical Engineering

Please visit:

[http://www.ircc.iitb.ac.in/IRCC-Webpage/rnd/PDF/GlimpselITBResearch/A\\_PUBLIC\\_DOMAIN\\_GENERAL\\_PURPOSE\\_CIRCUIT\\_SIMULATOR.pdf](http://www.ircc.iitb.ac.in/IRCC-Webpage/rnd/PDF/GlimpselITBResearch/A_PUBLIC_DOMAIN_GENERAL_PURPOSE_CIRCUIT_SIMULATOR.pdf)

## Student News

Passout student of Industrial Design Centre, **Mr. Abhishek Verma**, has won the Ancey award for an animated short film he made called "Maacher Jhol." at the prestigious Ancey International Animation Film Festival. It is one of the four international animated film festivals sponsored by the Association Internationale du Film d'Animation (or ASIFA, the International Animated Film Association)

## Institute Colloquium / Lectures

**Prof. Sanjeev Kumar**, Department of Chemical Engineering, IISc Bangalore delivered an Institute Distinguished Lecture (in memory of Prof. K. C. Khilar) titled "*Particle Synthesis Mechanisms - Plenty of Room at the Bottom*" on May 4, 2017

## Departmental Lectures

### Department of Humanities and Social Sciences

**Prof. Asha Singh**, Centre for Studies in Social Sciences, Calcutta (CSSSC) gave a talk in a seminar titled "*Constructing 'Bhojpuri' Language and People Methodological Reflections*" on May 5, 2017

### Department of Computer Science and Engineering

**Mr. Vitalik Buterin**, Co-founder, Ethereum Foundation, gave a talk in a seminar titled "*The Economics of Blockchain – Protocols, Challenges & Cryptoeconomics*" on May 16, 2017

## Publications

**Prof. S. Narayan Rao**, SJM School of Management co-authored with Mr. Suhas R H, Research Scholar presented research paper "*Do Indian Professional Investors beat the Market*" at 24th Annual Conference of Global Finance Association held on May 4-6, 2017 at Hempstead (NY, USA)

Two of the books/monographs of **Prof. Subhananda Chakrabarti**, Department of Electrical Engineering

have been published by Springer till date. Two more are in the way of publishing in the next few months.

The two links are mentioned below:  
<http://www.springer.com/in/book/9789811043338>

<http://www.springer.com/in/book/9789811008085>

**Prof. Tara Shankar Shaw**, Department of Humanities and Social Sciences recent paper (co-authored with Prof. Lerong He from State University of NY) titled "*Institution Logic in Family Business: Evidence from Board Structure Change in Indian Public Firm*" has been awarded the Best Paper award in the "*9th International Symposium on Multinational Business Management-Entrepreneurship, Organizational Change and Employment Management*" held at Nanjing, China on June 16-18, 2017.

## Notification

**Prof. Preeti Rao**, Department of Electrical Engineering has been appointed as the Professor-In charge of Continuing Education and Quality Improvement Program w.e.f. May 19, 2017

**Prof. Satish B. Agnihotri**, has been appointed as Head, Center for Technology Alternative in Rural Areas w.e.f. May 19, 2017

**Prof. Madhu Belur**, Department of Electrical Engineering has been appointed as the Warden, Hostel No. 12 w.e.f. June 7, 2017

**Prof. Mallikarjuna K. Rao K. S.**, Associate Professor, Industrial Engineering & Operations Research has been appointed as the Associate Warden, Hostel No. 6 w.e.f. June 15, 2017

## Appointment

**Prof. Narendra Shiradkar**, Department of Electrical Engineering has been appointed as an Assistant Professor w.e.f. May 11, 2017



## Prof. V.S.S. Pavan Kumar Hari,



Department of Energy Science and Engineering has been appointed as an Assistant Professor w.e.f. May 12, 2017

## Prof. Sandeep Kumar, Department



of Energy Science & Engineering has been appointed Assistant Professor w.e.f. June 06, 2017

## Prof. Jahnvi Punekar,



Department of Earth Sciences has been appointed as an Assistant Professor w.e.f. June 19, 2017

## Retirements on May 31, 2017

### Mr. Hare Krishna N. Bhaskar,



Sr. Data Processor (SG), Department of Mathematics retired after 36 years of service

### Mr. Amritlal G. Gupta, Jr.



Technical Superintendent, Estate Office retired after 35 years of service

### Mr. Baliram P. Jinawar,



Sr. Attendant, Department of Mechanical Engineering retired after 35 years of service

### Mr. Manohar D. Dhotre,



Attendant (SG), Department of Chemistry retired after 35 years of service



**Mr. Maruti T. Shinde**, Attendant (SG), Department of Civil Engineering retired after 36 years of service



**Mr. Vilas B. Kewale**, Sr. Cook, Guest House retired after 29 years of service



**Mr. Adam S. Mulani**, Security Guard, Security Section retired after 34 years of service



**Mr. Kanubhai D. Solanki**, Cleaner, Hospital retired after 29 years of service



**Retirements on June 30, 2017**

**Prof. N.K. Nambudripad**, Associate Professor, Department of Physics retired after 29 years of service



**Mr. Ratan M. Dubey**, Security Guard (SG), Security Section retired after 36 years of service



**Mr. Dhyan D. Barman**, Security Guard (SG), Security Section retired after 36 years of service



**Mr. Kamalakar M. Satve**, Sr. Attendant, Department of Civil Engineering retired after 35 years of service



**Mr. R.S. Parihar**, Sr. Attendant, Department of Civil Engineering retired after 32 years of service



**Mr. Narayan M. Nikhade**, Sr. Attendant, Department of Civil Engineering retired after 32 years of service



**Mr. Shivaji B. Lad**, Helper, Estate Office retired after 21 years of service



**In the Wilderness**



**Photo Credit :**  
by Mr. B. Nagarkar  
Retired Staff, IIT Bombay

**Salt 'n' Pepper**

by Dr. Arun Inamdar

"Excellent slogan...speaks not just for what we preach, but also for what we practice!"



**Obituary**

**Prof. L. M.Bhole**, former Professor of Economics and Head of the Department of Humanities and Social Sciences, left for his heavenly abode on May 2, 2017. Prof. Bhole had played a significant role in the launch of the M.Phil programme in Development and Planning. Our heartfelt condolences are with his family.

**Mr. K R R Pillai**, OSD, Director Office, left for his heavenly abode on May 20, 2017 following a cardiac arrest. He was well-known for his dedication, sincerity and quality work during his service. Our heartfelt condolences are with his family.

**CEP courses scheduled during August - September 2017**

Starting Date	Duration	Course Name	Faculty	Department
<b>Open Programmes :</b>				
6-8-2017	3 Days	Leadership Development Programme For Managers And Entrepreneurs	Prof. S Bhargava	School of Management
21-8-2017	2 Days	3 D Printing : A Disruptive Technology of This Era	Prof. K. P. P Karunakaran	Mechanical Engineering
24-8-2017	3 Days	Expo Pdi	Prof. Ravi Poovaiah	Industrial Design Centre
26-8-2017	10 Days	Management Program In Entrepreneurship And Marketing	Prof. Dinesh Sharma	School Of Management
<b>In House Programmes :</b>				
1-8-2017	2 Days	Power System Protection	Prof. Shreevardhan A Soman	Electrical Engineering
4-8-2017	2 Days	Power System Stabilizer Tuning	Prof. Anil Manohar Kulkarni	Electrical Engineering
<b>Gian Courses :</b>				
14-8-2017	5 Days	Computational Methods With Applications To Fluid Dynamics	Prof. Eldho T Iype	Civil Engineering
<b>Open Programmes :</b>				
12-9-2017	5 Days	Advanced Welding Technology	Prof. Amber Shrivastava Prof. Sushil M	Mechanical Engineering
18-9-2017	3 Days	Theory And Technology of Silicon Solar Cell	Prof . Anil Kottantharayil	Electrical Engineering
21-9-2017	3 Days	Expo Info Design	Prof. Ravi Poovaiah	Industrial Design Centre
25-9-2017	2 Days	Perovskzite Solar Cells	Prof. Balasubramaniam Kavaipatti	Energy Systems Engineering
<b>in House Programmes :</b>				
1-9-2017	5 Months	Transmission Electron Microscopy	Prof. Nithyanand Prabhu	Metallurgical Engineering & Materials Science

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BOOK POST

