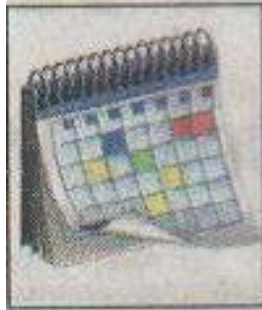


Media Coverage

**BITS PILANI, K K BIRLA
GOA CAMPUS**

2015

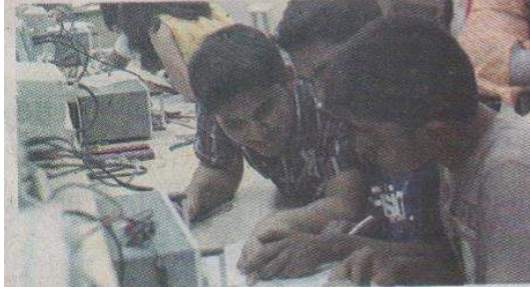
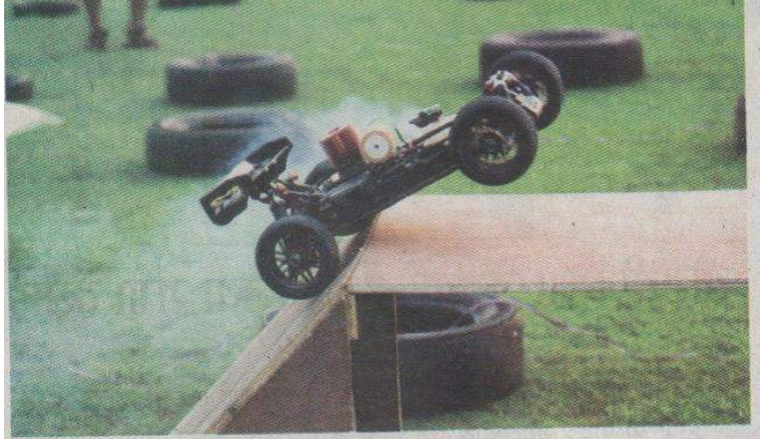
ACM India Event 2015



The annual 3-day ACM India Event 2015 will be held at BITS Pilani - Goa campus on **February 6**

where professor John Hopcroft, the winner of the 1986 A M Turing prize will give a keynote address on 'Future of Computer Science'. ACM Goa professional chapter is organizing the event with BITS Pilani K Birla Goa Campus and Goa University as its co-hosts. The annual event will feature interesting keynote addresses, panel discussions, research presentations of highest quality from India and special computer science educator's meet that will be launched for the first time in India by ACM India. The annual flagship event is a meeting of ACM India and ACM-W (women) India members as well as ACM - student chapter members.

ACM India Event 2015: The annual 3-day ACM India Event 2015 will be held at BITS Pilani - Goa campus on **February 6** where professor John Hopcroft, the winner of the 1986 A M Turing prize will give a keynote address on 'Future of Computer Science'. ACM Goa professional chapter is organizing the event with BITS Pilani K Birla Goa Campus and Goa University as its co-hosts. The annual event will feature interesting keynote addresses, panel discussions, research presentations of highest quality from India and special computer science educator's meet that will be launched for the first time in India by ACM India. The annual flagship event is a meeting of ACM India and ACM-W (women) India members as well as ACM - student chapter members.



बिट्स पिलानी अभियांत्रिकी महाविद्यालयाच्या आवारात तंत्रव्यवस्थापकीय मेळाव्याला आजपासून प्रारंभ झाला. या मेळाव्यात देशभरातील विद्यार्थी आपले प्रकल्प सादर करणार आहेत. या मेळाव्याचे दे. 'गोमन्तक' माध्यम प्रायोजक आहे.

Techno-managerial fest at BITS Pilani

Zuarinagar: The three-day popular techno-managerial fest of BITS Pilani Goa, 'Quark 2015', will start from today, February 6.

'Quark 2015' will see students from across the country participate in events such as Robo Kombat, Open Showcase and Burnout.

Through six amazing workshops in various fields of the technical domain, Quark 2015 will provide a lot of opportunities to learn applications of the latest technology.

Along with the workshops, Quark 2015 will also host guest lectures by various prominent personalities. Dr A S Pillai, the Padma Shree, Padma Bhushan awardee, and the architect of the world's fastest cruise

missile BrahMos, will grace the event by his presence. Sekhar Basu, the director of Bhabha Atomic Research Centre, will share his invaluable knowledge with the aspiring engineers and scientists. Andrew Newton will take the crowd to a whole new world of hypnotism.

Other eminent and talented personalities such as Nicolas Hutchet, Lorenz Potthast, Lakshmi Pratury, Dr Luis Dias, Sarvar Oberoi and Shashwat Ratan will share their knowledge and experiences with the students.

Also coming to Goa to share his experiences is Ian Mchinney an actor from the world famous TV series - 'Game of Thrones'.

Times of India - 6 February, 2015

Quark 2015 at BITS Pilani today: Like its previous editions, Quark 2015, the techno-managerial fest of BITS Pilani, Goa, will see students from across the country participate in events such as Robo Combat, Open Showcase and Burnout. In addition to these, Quark 2015 will also have a 12-hour coding event—the IBM Hackathon, BlueChip Beatdown—which is meant for all those who claim to be able to sell ice in the Arctic—and the Cubing Challenge in

association with the World Cube Association. Through six workshops in various fields of the technical domain, Quark 2015 will provide a lot of opportunities to learn applications of the latest technology. Robotics enthusiasts can explore the world of the Sixth Sense while the Brain-wave workshop will help students recognize the power of the signals sent by the brain. For those who are interested in the working of IC engines, the Formula Zero E workshop will provide the fundamental knowledge of their principles. The experts appreciated by NASA and ISRO will be sharing their knowledge about designing satellites in the CANSAT workshop.

The other two workshops are Cloud Computing and Augmented Reality. Along with the workshops, Quark 2015 will also host guest lectures by various prominent personalities. Also coming to Goa to share his experiences is Ian McElhinney, an actor from the world famous TV series, 'Game of Thrones'. With a host of leading edge technologies, absorbing guest lectures and a great many engaging events, Quark 2015 is expected to keep the top minds of the country absolutely hooked.

Gomantak Marathi - 7 February, 2015

आविष्कार तंत्रज्ञानाचा...



भाकिचाळ : वेद्योल थ्रीटस पीलानी शैक्षणिक संकुलत शुकुवारी विद्यार्थ्यांनी आपले कौशल्य पणाला लावत तंत्रज्ञानाचा आविष्कार पडविला. अविष्कारिकी ज्ञानाचे दर्शन त्यातून झाले. रेवोर्टिक्स असुवा वा कॅन्साट कृतीसत्र वात आपली छाप त्यांनी उमटवली. देशात लघुउपग्रह अशा कृतीसत्रात तयार करणयाचा मानदी विद्यार्थ्यांनी घटकावला. यामुळे नासा आणि ईस्रोच्या तंत्रज्ञानी त्यांचे कौतुकही केले. गटगटाने विद्यार्थ्यांनी या उपकरणाची निर्मिती केली होती.

BITS-Pilani Quark 2015: robots steal the show

BY A STAFF REPORTER
reporters@gomantaktimes.com

Panaji: The sprawling campus of BITS-Pilani at Sancoale seems quiet from the outside. But do not be deceived by the apparent emptiness of the vast space. It conceals a hive of activity with more than a thousand students engrossed either tinkering with robots, challenging themselves with new technology or simply battling it out in the many contests that were on hold.

That's the scene of the Quark 2015, a popular techno-managerial festival held at Sancoale was the scene of fun, brain wracking and a test of mettle as 20-somethings battled it out.

But by far the most popular were the robot contests held throughout the day which saw budding engineers both from colleges in the State as well as those from out literally clashing with a winner

**CAMPUS
CONTESTS**



A robotic fight in progress at Goa campus of BITS-Pilani. Pic: Atish naik

takes it all prize up for grabs.

Robokick, Roborace, Robokombat in which robots battled in football, speed and strength drew the biggest crowds as metal screeched against metal and motors whirled.

The day was packed with events that tested a whole range of skills including data analysis, marketing, mock stock markets, and not to forget the robots.

■ Contd on pg 2

BITS-Pilani Quark 2015: robots steal the show

■ Contd from pg 1

It wasn't just the contests but even the workshop on robotics, technology and cloud computing that keep participants engrossed.

Along with the workshops, Quark 2015 will also host guest lectures by various prominent personalities. Dr. A.S Pillai, the Padma Shree, Padma Bhushan awardee, and the architect of the world's fastest cruise missile BrahMos, will grace the event by his presence.

Sekhar Basu, director of Bhabha Atomic Research Centre, will share his invaluable knowledge with the aspiring engineers and scientists. Andrew Newton will take the crowd to a whole new world of hypnotism.

Other eminent and talented personalities such as Nicolas Hutchet, Lorenz Potthast, Lakshmi Pratury, Dr Luis Dias, Sanvar Oberoi, and Shashwat Ratan will share their knowledge and experiences with the students. Also coming to Goa to share his experiences is Ian McInney an actor from the world famous TV series - 'Game of Thrones.'

A highlight of the event will be the cubing challenge in association with the world cube association.

BITS Goa techno-mgmt fest set to 'alter the obvious'

Event To Host Nobel Laureates Via Telepresence Interactions

Shiladitya Ghose

Zuarinagar: Quark, an annual techno-management fest organized by the BITS Pilani K K Birla Campus got off to a scintillating start this Friday. Spread over three days, this technical extravaganza brings together the brightest minds across the country year after the year. This version of the event has been themed - Alter the obvious.

In his address, director, BITS Goa, K E Raman laid emphasis on creating an environment that is conducive to research on campus and expressed hope that Quark would help push in a technical revolution of sorts in the institute. Mathai Joseph, a computer scientist working in the field of real time systems, graced the occasion as the chief guest.

The BITS Goa mime club showcased a dazzling mime show Quark 2015, has a host of events in store over the next three days. These include workshops, guest lectures, and mind boggling competitive



(From left to right) A Quark 2015 participant on stage at the festival; director, BITS Goa, K E Raman addresses the audience

events.

What separates this version of Quark from its ancestors is a large number of telepresence interactions with noted personalities in the field of science of technology. These include John C Mather and Robert F Curl, Nobel laureates in physics and chemistry re-

spectively; Debarghya Das, software engineer at Facebook and Ajay Royyuru, computational biologist among others.

Quark also gives an opportunity to the technical clubs on campus to showcase their talent and activities. Quark 2015 will feature exhibitions by Celestia (astronomy club), ERC



(robotics club), EWB BITS Goa and others.

Quark also comes with its share of fun and entertainment. As a part of Aurora Nite, former Indian Idol sensation Amit Sana is all set to enthral crowds on February 8.

The writer is a student of the institute

तंत्रज्ञानाचा आविष्कार



माध्यम प्रायोजक



देशभरातील हजारो विद्यार्थ्यांनी घडविला तंत्रज्ञानाचा आविष्कार

पणजी, ता. ८ : 'विट्स पिलानी गोवा कॅम्पस' या सायन्स आणि टेक्निकल महाविद्यालयात देशभरातील हजारो विद्यार्थ्यांनी 'कॉक २०१५' या अनोख्या टेक्निकल फेस्टिव्हलसाठी हजेरी लावली आहे.

मेकेनिकल, इलेक्ट्रॉनिक्स, एरोनॉटिकल, कॉम्प्युटर सायन्स, मॅनेजमेंट, फिजिक्स, मॅथ्स अशा अनेक विषयांमधील रंजक स्पर्धांचा या फेस्टिव्हलमध्ये समावेश होता. ८ रोजी या फेस्टिव्हलचा समारोप झाला. सर्व इव्हेंट्सच्या अंतिम भागांमध्ये विद्यार्थ्यांनी सरस अशा स्पर्धा रंगविली. एलेक्ट्रीफाय पॅनलमधील अर्दूइनो ओपन, एलिकझीर पॅनलमधील मार्केटिंग, अस्त्रोनोमी तसेच राष्ट्रीय पातळीवरील कॉक नॅशनल क्युझ या स्पर्धांची यशस्वी सांगता झाली. कॉम्प्युटर सायन्सच्या

विद्यार्थ्यांनी रिव्हर्स कोडिंग, कोडजाम अशा अनोख्या स्पर्धांमध्ये सहभाग दर्शवला. देशभरातील कॉलेजमधून आलेल्या विद्यार्थ्यांनी त्यांचे अनोखे प्रोजेक्ट्स पेपर प्रेझेंटेशन आणि ओपन शोकेस या इव्हेंट्समधून तज्ज्ञांसमोर मांडले.

फेस्टिव्हलचे मुख्य आकर्षण असणाऱ्या बुनाउत (रिमोट कंट्रोल कार रेसिंग) आणि रोबो कॉबट या रोमांचकारी स्पर्धांनी प्रेक्षकांना थरारून सोडले. 'मटका' स्पर्धेमध्ये कॉम्प्युटर गेम्सचा आनंद विद्यार्थ्यांनी लुटला. इन्कालून या परिषदेमध्ये अनेक नावाजलेल्या वक्त्यांनी तंत्रज्ञानामधील गोष्टींवर भाषणे दिली. या अनोख्या फेस्टिव्हलची सांगता इंडियन आयडॉलमधील अमित साना या प्रसिद्ध गायकाच्या कलाविष्काराने झाली.

BITS-Quark fest ends; gadgets, innovations in spotlight

Electric cars, flying drones, robots and prosthetics: budding engineers steal the show

BY A STAFF REPORTER
reporters@gomantaktimes.com

Panaji: Arguably the State's biggest techno-management fest 'BITS quark', came to a close on Sunday capping four days of intense battles, workshops, events and lectures.

The highlight of the event was the talk by Ian McElhinney, who played Sir Barristan Selmy in the popular series Game of Thrones.

It was however the budding engineers who stole the show with their self made electric cars, big and small, flying drones, robots and prosthetics.

Trailblazer, an event organised by the Aerodynamics Club, saw participation from five different colleges. The first round consisted of manoeuvring aircrafts along

the pre-determined flight path followed by smooth landings including low pass and loops. The second round which has been added this year, had the planes delivering payloads to a specific location. But it

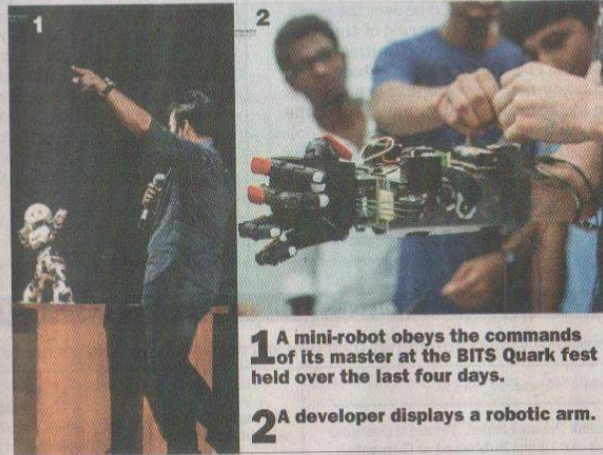
Finally, a performance by Indian Idol sensation, Amit Sana helped wind-up a truly eventful three days.

wasn't just gadgets and mechanics battling it out.

Design for Disaster was an opportunity for students to come up with innovative technical solutions for relief, rescue a warning in case of crises during disasters.

The Rubik Cube Combat was a fiesta for any Rubik Cube lover:

■ Contd on pg 2



1 A mini-robot obeys the commands of its master at the BITS Quark fest held over the last four days.

2 A developer displays a robotic arm.

BITS-Quark fest ends; gadgets, innovations in spotlight

■ Contd from pg 1

The participants had to solve 3*3 and 4*4 cubes blindfolded and were awarded for the same, arguably the State's only Rubik's cube fest.

Quark organized Workshops were actively taken up by those who wanted to foray into something new. The Augmented Reality workshop taught how to create devices which could bring the virtual - alive. Brainwave allowed people to digitize analog electrical brainwaves to use for a variety of applications. Because both involved full kits, one could take what they learned back home and continue to expand their knowledge base.

On Day 2, extremely technical events like Reverse Coding, a brain crunching event that challenges the coder's quick hack ability and IBM Hackathon, which is an initiative by IBM to encourage young app developers by providing them the right tools and incentive. The orientation familiarises the app developers with the online platform Bluemix.

The participants are to submit the app on the next day to have a chance to win prizes upto to 10,000.

To tackle the economical side of technicality, the Wall Street revolution took place in the morning. It is a trading competition which gives you an opportunity to test your trading skills and intuition.

Finally, a performance by Indian Idol sensation, Amit Sana helped wind-up a truly eventful three days.

Techno-mgmt fest ends on a musical note

Rohan Coelho

Zuarinagar: Day Three, of Quark 2015, at BITS Pilani Goa campus, carried on the event's momentum with a flurry of competitions and culminated with a performance by Indian Idol sensation Amit Sana on Sunday.

The competition that attracted the biggest crowds was Trailblazers, where engineers and designers doubled as racers as they drove their self-made electronic cars around. With obstacles and sharp turns, the audience were offered a nail-biting finish.

For those who prefer tinkering with electronics, the Arduino Open was the playground where the converging skill sets of coding and electronics made for an exciting contest.

RoboRace involved an equally challenging field, with the machines involved required to race ahead on the uneven Central campus lawns.

Design for Disaster was an opportunity for students to come up with innovative technical solutions for relief, rescue and warning in case of a crisis. They had to effectively convey their ideas through a 15 minute presentation individually or in teams as well as answer questions posed by the audience.

In the computer science paper presentation, teams presented the basic concepts of their topic of interest. The definitions, specifications and requirements of the latest technologies were explained. A detailed session on the working of software was provided by the participants in ten minute presentations. They enthusiastically replied to the queries of the audience.

Quark also played host to workshops for those who wanted to foray into something new. The Augmented Reality workshop taught participants how to create devices which could bring the virtual—alive.

Brainwave allowed people to digitize analog electrical brainwaves for a variety of applications. Because both involved full kits, one could take what they learned back home and continue to expand their knowledge base.

For those who wanted to participate in the many events of Quark but weren't too slick with a computer or a circuit board, the Quark National Quiz and Spelling Bee were a buzz.

As most events were wrapping up, non-participants still had a feast at the INK Salon talks, featuring speakers creating waves in technical and management spheres.



A participant at BITS Pilani Goa's Quark 2015

BITS Pilani conf on space, place...

Zuari Nagar: Department of Humanities and Social Sciences, BITS Pilani, Goa campus will host a conference "Space, Place, Travel, Displacement, Exile" from 12-14 February in collaboration with the Indian Association for Commonwealth Literature and Language Studies (IACLALS) a renowned association for the promotion of English Language and Literature. The conference has attracted about 110 participants most of them from India and few from countries abroad. Padmasri Maria Couto will deliver the inaugural address. Dr FE Noronha, High Court advocate will deliver a plenary talk on "Goan Identity" and Damodar Mauzo will deliver the valedictory address.

Punnekkat is BITS-Goa new director

Panaji: Sasikumar Punnekkat



kat joined BITS Pilani, K K Birla Goa Campus, as director and senior professor (computer science & information systems) recently.

He took charge from K E Raman who had over 37 years of experience at BITS Pilani in various capacities. The formal handing over took place in the virtual presence of B N Jain, vice chancellor, who joined through a tele-presence facility from the Pilani campus.

He holds a D Phil in computer science (1997) from the University of York, UK, and has over 30 years experience in academics, research and administration. He has research and development experience as a scientist at the Indian Space Research Organization (1984-2004) and international academic experience as professor of dependable software engineering at the School of Innovation, Design & Engineering, Malardalen University, Sweden (since 2007). He said, "I feel honoured to lead BITS-Goa and aim to strengthen its research profile, industrial collaborations and international networks synergistically with its educational programmes in the coming years." TNN



DIRECTOR

Sasikumar

Punnekkat recently took over as director of BITS Pilani, KK Birla Goa campus.

He has more than 30 years' experience in academics, research and administration.

Education expenditure

DROPPING THE BALL IN THE STATES' COURT

The 14th Finance Commission has proposed for an enhanced devolution to the states, but bestowing the entire responsibility to set up 6,000 model schools in every state to the respective government leaves the outcome dependent on its willingness and ability



DEBDULAL THAKUR

IMAGE

The slogan 'Padhe Bharat, Badhe Bharat' seems rational when this Budget announces an allocation of ₹1,000 crore to set an IIT in Karnataka, upgrade the Indian School of Mines to an IIT, open an IIM in Jammu & Kashmir and Andhra Pradesh, sets up the Student Financial Aid Authority to administer and monitor scholarship as well educational loan schemes through the Pradhan Mantri Vidya Lakshmi Karyakram (PMVLK).

There is no doubt that education is key to a better tomorrow and is aptly identified as the "priority of priorities", but has this concern been adequately addressed in the Budget FY16 through the above announcements? More importantly, will it help India take a flight and reap the benefits of the demographic dividend from its huge pool of human resource by replenishing the human capital? It is both needed and also challenging to maintain the fiscal balance and reallocate resources to ensure (to the extent possible) equity and efficiency. There are also issues for fresh allocations. All these taken together are expected to reflect the direction and priorities of the government in terms of economic policies, leading to social welfare (assuming that the government is a social welfare maximising entity). Simply because the Budget all about "speaking numbers".

MIRROR

Having said so, a close and minute analysis of the Budget FY16 would reveal that, in reality, this Budget has reduced allocation for the education sector. For example, contrary to the recommendations of the ministry of human resource development (MHRD) submitted to the 14th Finance Commission, this Budget has actually reduced the allocation for flagship schemes such as the Mid-Day Meal (reduced by 28.5%), Sarva Shiksha Abhiyan (reduced by 41%) compared to the 2014-15 Budget Estimates, leading to lowering of the gross budgetary support to the states from the Centre. True, the 14th Finance Commission has proposed for an enhanced devolution to the states, but bestowing the entire



responsibility to set up 6,000 model schools in every state to the respective state governments only leaves the outcome dependent on the willingness and the ability of the respective state governments. Ultimately sufficing a big question-mark regarding the future of these model schools and thereby challenging the broader goal of human capital formation.

This is not the end of the story. Hereafter, the state governments have to bear around 90% of the cost to finance the programmes falling under the Right to Education Act. Further, in recent times, in order to promote better education to all, the MHRD has floated around 20 new schemes such as Beti Bachao, Beti Padhao; Swachh Vidyalaya Campaign; Swami Vivekananda Single Girl Child Scholarship; Padhe Bharat, Badhe Bharat; Shaala Darpan; GIS mapping of schools; Udaan; Pragati ... to name a few.

In Budget FY16, the total allocation for the Department of School Education and Literacy and Department of Higher Education together has been reduced by around 16.5% from 2014-15 (BE). In case the state fails, it will only add up to further frustration in the overall growth and development path of the education sector. Given the federal structure, the schemes of the Union government are either fully sponsored by the Union government or are shared with the state governments, as due to perennial resource crunch most states are not in a position to take up major schemes on their own. Now, given

As compared to the previous Budget, the total Union resources comprising of states' share in central taxes, non-plan grants, central assistance to states and assistance for central schemes has increased by ₹46,419 crore. But when this rise is seen as a percentage of GDP, it has actually fallen from 2.6% to 1.4%

the precarious condition of most of the state exchequers and also the inherent preference of the political parties towards populism, will the states be able to generate the huge resources to finance these goals?

One may always question as to why worry about sharing responsibility with the states for major schemes, at least in the education sector, when the government is also sharing huge resources with the states!

MIRAGE

There are valid reasons to worry about. First, simply promising in the Union Budget is not enough, the state governments need to compliment as well, where need be. For example, the setting up of an AIIMS in West

Bengal is long due for reasons related to land availability. The realisation of the promise to set up six new IIMs in Bihar, Odisha, Maharashtra, Punjab, Himachal Pradesh and Andhra Pradesh is also not praiseworthy. Second, when it comes to resource mobilisation, the state governments are not in a reliable position to cater to this huge demand, even after the recommendations of the 14th Finance Commission to devolve 42% of the divisible central taxes to the states.

Indeed, it is true that given the federal structure of the country and in tune with the slogan of "cooperative federalism" of the current NDA government, this hike in resource sharing would encourage the states towards more autonomous functioning, atleast in relation to expenditure priorities. But the real problem lies elsewhere.

True, that compared to the previous Budget, this year the total Union resources comprising of states' share in central taxes, non-plan grants, central assistance to states and assistance for central and centrally-sponsored schemes has increased by ₹46,419 crore. However, when this rise is evaluated as a percentage of GDP, it has actually fallen from 2.6% to 1.4%—this is to say that the rise in allocation is not in sync with the rise in GDP. This fall in the central assistance in terms of GDP by 1.2 percentage points is actually going to hinder the spending capacity of the states despite the projected autonomy in terms of decision making.

HOPE

Nonetheless, the Budget FY16 has also announced to formulate the New Education Policy (NEP). The last NEP was formulated in 1986. Through this the government intends to enhance the quality, research and innovation in the educational sector in the coming days.

But, all's well that ends well, and therein lies the key to success of all these "Modified policies". The challenge is even greater, as to realise the goals of cooperative federalism the notion of cooperation is primary. Here, the cooperation is sought mostly in terms of sharing the huge fiscal responsibility, now it's a choice of the state to strike a balance between its willingness to cooperate and its ability to support the willingness. Given the absolute majority in Parliament of the NDA government, as common man, we have a distinct choice this time, wait and watch till the next Parliamentary elections.

(In 2014-15 (BE) the total central assistance was ₹7,81,947 crore, which has now increased to ₹8,28,366 crore, an increase of ₹46,419 crore)

The author, a former economist at the National Institute of Public Finance and Policy, New Delhi, is assistant professor, Department of Economics, BITS Pilani (KK Birla Goa Campus). Views are personal

Success through skills

The government can minimise the skills gap by partnering the private sector and setting up institutes of higher learning



DEBDUL THAKUR

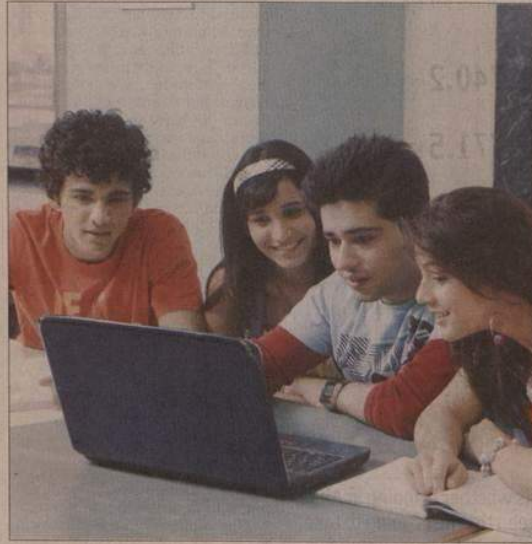
Opportunities are scarce, so it's important to reap them on time. Indeed, the World Bank (2013) had predicted that India is going to have its demographic dividend till 2040—a once-in-a-lifetime opportunity for any nation. But do we have the required skill-sets to combat the rising societal needs for providing access to information, primary health care, education to all, efficiently reduce carbon footprint, provide safe drinking water, mitigate natural and man-made disasters, and many alike hindrances to quality life? The government is focusing on setting up new institutes of higher learning (mostly technical) wherein it expects to train the human resource with the required skill-sets that could cater to this huge societal demand. But how prepared are we and can the government alone cater to this call of the hour?

As pointed out in the World Economic Forum (2010), the issue of skills gap is leading the world towards a global demographic shock, and in near future human capital is expected to surpass financial capital as the critical economic engine of growth. India is exception.

Creating new institutions?

India is encouraging skill-based education at all levels, especially in the higher education sector. As per MHRD (2013), the enrolment in engineering and technology is around 19% of the total students opting for higher education and is growing. It needs to reap the benefit from a knowledge-based economy with employability characterised by demand and supply of highly skilled labour force. In India's case, skill nurtured in an interdisciplinary environment can respond to society's demands in a much efficient manner compared to a simple technician.

Many institutes of higher learning are being created by the government—tagged as institutes of national importance. They are of great importance to nation building. However, UNESCO (2012), mentioned that although India graduates 4.5 lakh engineers each year, only 25% are able to acquire the required skills to get employed. Employers' experience that most of these graduates do have a 'degree' but their communication skills, knowledge about the society and its dynamics are poor and these factors can be counter-productive in today's era of cut-throat competition. Of the 50 crore workforce in India, organised sector employment is around 9% and, of this, only about 5% have marketable skills. The flip-side of the story is that majority of new employments are going to be in the unorganised sector where, as per CH, only



The government is developing PPP models in higher and technical education. Such sharing (both cost and expertise) is expected to maximise equitable access to higher learning. The socio-economically disadvantaged groups can benefit from such schemes and the problem of skill shortage in terms of faculty and infrastructure can be minimised. Private players can also act as osmosizers in the domain of higher and technical education

2% have received formal vocational training and another 8% have received non-formal vocational training. So, what is really wrong with the approach?

Sources suggest that the preference pattern for students opting for technical education is much tilted towards private engineering colleges compared to government engineering colleges. There are examples of many such government institutions where seats remained unoccupied. One of the reasons for such skewed preferences is the dearth of infrastructure and limited placement opportunities in the 'new' or 'not so old/reputed' government engineering colleges. So, simply pumping money to create new institutions of higher learning would not really solve the skills gap—rather, it may be counter-productive and end up by producing only few more graduates and postgraduates, not 'skills'.

A call for 'twin steps'

India has witnessed a steady migration of workforce from the agricultural sector to construction, manufacturing, etc. An estimate by Mehrotra et al (2013) showed that of the 42.1 crore workers in the age group of 15-59, around 30% are illiterate and among this the proportion of illiterate workers is maximum in agriculture and allied activities. Migration of these workers

also inherited the incidence of illiteracy which might lead to slowing down of those non-agricultural sectors due to skill shortage—a situation which India can't afford to sustain. The alternative to this grave situation is to think of implementable strategies that can still replenish the existing human capital and create new ones. One way to combat this skills gap is to create new institutions of higher learning with better infrastructure and competent faculties and, in parallel, enable the existing skilled workers to advice the non-skilled as how to move forward, given the limitations. There can be no compromise to build and strengthen these 'twin steps'. For example, an engineer with an interdisciplinary set-up can probably help disseminate efficient use of pesticides, fertilisers and hormones to the farmers and help the agriculture sector. However, it's sad to mention that, as of 2012, all the major agricultural universities (around 22) in India taken together produced only 29,000 graduates and post-graduates annually—inadequate for a country like ours.

The linkage effect

Assuming that, by 2022, India's GDP will grow at a CAGR of about 8%, employment in the economy will rise by around 50 crore. Thus, it is equally important that this army of working popu-

lation be trained in skills catering to the societal demand for a better tomorrow. There are two important factors that need to be cropped-in while estimating the demand for skills. One, even if the government makes it compulsory to impart some dose of vocational education during secondary education and above, the number of working population to be trained would be around 23 crore by 2022, as per conservative estimates. Two, first generation learners (as of date) who are engaged in some 'work' (work is defined as activities contributing to economic growth) need to get their skills replenished and acquire the then used skills to remain equally productive in the workforce. Naturally, to cater to this huge demand for trained professionals, India has no other alternative other than rely on the strategy of 'twin steps'—create new institutions of higher learning specific to the creation of skilled workers and simultaneously enable the already skilled to advice the unskilled for efficient production.

Operating strategies

However, from where will the money and required expertise come? Successive governments have been instrumental to provide budgetary support for setting up institutes of higher learning catering to skills-based education. But the initiative has been supplemented by the private sector as well—at least to move towards a solution where both the public sector and the private sector would join hands and share the responsibility. However, with growing deficits and expenditure management policies, it is seen that, over time, the infrastructural growth of these institutions has suffered, and thus the quality of education. Further, in Budget FY16, the total allocation of the Department of School Education & Literacy and the Department of Higher Education together has been reduced by around 16.5% from FY15 (BE), which is sure to have its own scars on the outcomes in the days ahead. Therefore, for striking a balance between the rise in needs and expenditure management, though very slow, options are opening up for cost recovery in the public higher learning institutes as well. The government is developing PPP models in higher and technical education. Such sharing (both cost and expertise) is expected to maximise equitable access to higher learning. The socio-economically disadvantaged groups can also benefit from such schemes. Through PPP models the problem of skill shortage in terms of faculty and infrastructure can be minimised. Private players can also act as osmosizers in the domain of higher and technical education.

It is time for the government to rethink on the existing strategies and take a call. As prudent private players, we are always ready to cooperate for the growth and development of the nation.

The author, a former economist at the National Institute of Public Finance and Policy, Delhi, is assistant professor, Dept of Economics, BITS Pilani (KK Birla Goa Campus). Views are personal

education review

NORTH EDUCATION REVIEW-II

CONSUMER CONNECT INITIATIVE

K.R. Anupama &
Meetha V. Shenoy

India has around 3500 engineering colleges and churns out around 14 lakh engineers in a year. A very alarming statistic is the student-faculty ratio in these colleges. Very few engineering graduates opt for academia as a career; even those who go on to complete their doctorate prefer a job in the research wing of a corporate or pursue post-doctoral studies abroad. Several privately funded engineering colleges have very few faculties that hold a Ph.D. degree. Even premier institutions across the country face acute faculty shortage. Blended learning is a viable and effective approach to deliver high quality, up-to-date on-demand learning solutions in the face of diminishing education budgets and skewed faculty-student ratio. Blended learning is where online and face-to-face instruction intersects.

"Blended learning", or "technology-mediated instruction," or "web-enhanced instruction," is a formal education program in which a student learns at least in part through delivery of content and instruction via digital and online media with some element of student control over time, place, path, or pace; while still attending a "brick-and-mortar" school structure, face-to-face classroom methods are combined with computer-mediated activities.

The major advantage that blended learning offers is scale, whereas one instructor can teach only a limited number of students in face-to-face instruction, use of IT expands instructor's access to students. The instructor no longer needs to be physically in the same room as the student and hence reach out to students who are enrolled in other colleges and universities. The blended format offers time flexibility for both faculty and students and its creative use of the face-to-face class. As the readings

Blended Learning in Engineering Education

and theory could be delivered to students through the online environment, the face-to-face time could be used to discuss key issues. If a course was delivered in the traditional format, more class meeting time would be devoted to covering routine theoretical content and taking quizzes rather than productive knowledge transfer. Posting of class materials (Power Point presentations), assignments for formative and summative assessments and instructions for presenta-

learning creates a dialogue outside of the classroom among students and teachers, by discussions and forums provided in the blended learning platform. Another important advantage of online communication is the ability to bring in outside experts and resources and connect students in different classes and institutions.

Blended learning with all its perceived advantages also comes with several challenges. The instructor has a wider choice of delivery mediums to combine - with wider choice also comes greater complexity and pressure on the instructor (this is assuming that the instructor is comfortable with online platforms). The onus is on the instructor to find an ideal point of harmonization between e-material and face to face instruction, an added challenge is to make this e-material attractive enough to hold the student's attention (when you are not in the same room as the student how will you convince him to view online lectures rather than a cricket match). Unlike traditional classrooms blended learning courses have multiple instructors each taking a different role in the blend - clarification of instructor roles is essential for success and reduction of potential conflict. Blended learning has a strong dependence on the technical resources with which the blended learning experience is delivered-these tools need to be reliable, easy to use, and up to date in order for the use of the internet to have a meaningful impact on the learning experience. Additionally, IT literacy can serve as a significant barrier for students attempting to get access to the course materials, making the availability of

high quality technical support paramount. The cost of ICT introduction still remains in theory, while the greatest pedagogical advantage such as personalization, real-time communication, development of e-courseware especially video and multimedia would involve significant investment on the part of the institute, platforms for blended learning further add to this cost.

Blended learning has been called as a 'disruptive innovation in education' with the power to transform education making it more accessible to a wider audience. Does engineering or any other higher education in India require this disruptive innovation? The answer - around 3 million students from India are registered in various on-line courses, students prefer using you tube videos to learn

rather than attend lectures. It is obvious that student prefer e-learning methods. The issue with on-line courses or you tube videos is that there is no proctoring or quality tests - so if we can combine e-material (which students seem to prefer) with face-to-face instruction we can enhance the student learning experience. Blended learning has the capability to offer students the same course in a more attractive package. But this does not mean we drop traditional methods in favour of blended learning - there is a need to examine which of the courses are suited for blended learning and whether we have the necessary technical expertise or infrastructure to provide an enhanced learning experience. At the same time it is also true that blended learning offers a new hope for a brighter future in engineering education that is afflicted with faculty shortage and uninterested, demotivated students.

(The writers are from EEE/ENI Department, BITS Pilani-Goa Campus)

Quote Unquote

In the interests of all stakeholders in higher education, the only real way forward is to aim for the highest quality. Anything else is a waste of national resources and time.

—Suneel Galgotia,
Chancellor, Galgotias University

tions and external links for reference, tutorials and self-directed learning topics saves classroom time. Online objective tests for self-assessment can be graded automatically and instantly allowing more productive use of instructor time.

Online content allows students unlimited access, ability to fill in gaps in their background knowledge. The length of the time a student spends in an actual classroom time is reduced, thus reducing exhaustion, at the same time, classroom interactions become more productive through pre-work. Online quizzes helped students identify those areas that they need to review; questions, which give immediate feedback on student answers, help the students understand their shortcomings. Blended

BITS-Goa is 'India's 7th best campus'

Nida Sayed | TNN

Panaji: HolidayIQ.com, the popular holiday recommendation website, has listed the Goa campus of Birla Institute of Technology and Science (BITS Pilani) as No.7 in its list of beautiful campuses.

The list, titled '20 college campuses in India that are so beautiful that they deserve to be tourist attractions', named educational institutes in India that have impressive campuses. BITS-Pilani's Goa campus stood out for its 'scenic beauty and panoramic view of picturesque surroundings encompassing the Zuari River, hillocks, waterways, forests and landscape.'

Conference on 'Advances in Robotics'

Vasco: Prof. Dr Roland Yves Siegwart, Professor of Robotics, ETH Zurich, Switzerland and Prof. Sasikumar Punnekkat (Director, BITS Pilani, K K Birla Goa Campus) inaugurated the two-day second international conference on 'Advances in robotics' (AIR-2015) organised by 'The Robotics Society of India' and BITS Pilani, K K Birla Goa Campus on Thursday.

The conference aims to create a forum to present and exchange new ideas by researchers and developers from India and abroad working in the area of robotics and allied fields. The scope of the conference includes machine learning artificial intelligence for robotics, medical and assistive robotics and bio-mimetic and bio-inspired robotics etc.

Many notable scientists from IITs, DRDO and other prestigious institutions are attending the conference.

Over 70 papers in various areas of robotics will be presented over the course of the conference. Keynote speakers include Dr Steven LaValle (University of Illinois) and Dr Jae Bok Song (Korea University).

A special symposium is scheduled specifically for PhD scholars on July 5. For more information contact Prof Anupama K R (email: anupkr@goa.bits-pilani.ac.in).

Experimental Learning

If we have to ignite the young minds, right from high school, experimental learning should be made mandatory instead of rote learning

Prof. Pravin M. Singru

There is famous Chinese proverb I hear and I forget, I see and I remember, I do and I understand. The academicians worldwide have started using these methods, particularly in sciences, engineering and management from early part of twentieth century in the USA and Europe. In class room teaching if the teacher has to teach the Newton's Law of motion and he/she writes Force = mass X acceleration, then most of the students will not get it easily. Instead if the teacher takes duster and applies a force with his/her hand to move it, the causal relationship of force and displacement and subsequently the concept of acceleration will be better understood by the students.

The learning happens only when the students know the causal relationships and the whole world is integrally related. To elaborate if a student is asked to design a wheel chair with certain specifications; he will have several questions in his mind from where to start? But, instead, if he/she visits a company manufacturing it and he/she is guided properly in the orientation program of the industry, he will at least have a fair idea of how design is done in their R&D center. The learning doesn't stop here and he/she will not be able to modify the existing design. The student has to spend considerable amount of time varying from 8 to 16 weeks, go through all the departments like fabrication/manufacturing, assembly, quality check, packing and forwarding to start the design modification. Again the student, after completing the

design, has to go the company and visit different shops to understand the manufacturability, assembly and off course marketability. If this cycle is complete then he/she will be able to experience what he/she learnt in his class.

In order to satisfy the quest of knowledge, if the student is given an opportunity to do his internship in an industry, he will be able to apply what he learnt in his college and learn more from the industrial environment. On September 24, 1906, Dean Herman Schneider, University of Cincinnati, has



The hands-on or experimental learning is a win-win situation for students as well as industry.

founded Co-op. It is a structured method combining academic education and practical work experience. It also provides academic credits to the students. Co-op experiences are either full-time (40 hours per week) alternating periods (semester, quarter) of work and school or part-time (20 hours per week) combining work and school during the same time period. Co-op experiences are paid, supervised by a professional who has followed the same career path of the student and students complete more than one assignment (2

or more) with progressive levels of responsibility. The first co-op class in University of Cincinnati had 27 students and 13 companies. It is a great success in US universities particularly in engineering education. Then co-op was subsequently started in nursing, agriculture, management, etc.

The version of co-op program was started in BITS Pilani. Termed as Practice School program, it is based on similar lines and students are expected to undergo eight-week compulsory training in industry during summer term of second year and five and half month, paid internship in industry during their final year. The students are learning at an accelerated pace if they are given an opportunity to see, implement and work hands-on.

The summary of the hands-on or experimental learning is that it is a win-win situation for students as well as industry. Some benefits are mentioned below:

BENEFITS TO STUDENTS:

Students get hands on training on the subjects they learnt in class

rooms; Students are able to support themselves for their living and tuition fees; Students are able to improve their skills in the identification and solving of problems, as well as their ability to evaluate the results of their own decision making, and to aid them in the development of leadership skills; and Exploring career goals and options at early stage.

BENEFITS TO INDUSTRIES:

The industry gets young students who can help them in implementing new


ideas, developing new products and testing of products/software, etc.; With limited financial liability the companies are able to get their work done; and Instill new energy into organization's through the enthusiasm of student employees.

In short, if we have to ignite the young minds, right from high school, experimental learning should be made mandatory instead of rote learning.

(The writer is Associate Dean (Practice School Division) BITS Pilani, Goa Campus.)

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Be the architects of changed India: Tewari

BY A REPORTER

reporters@gomantaktimes.com

Vasco: Do what you love to do, it's an amazing era to be in India and be the architects of the changed India, said chief guest Naveen Tewari, founder and CEO, InMobi and alumnus of IIT Kanpur, Harvard and McKinsey and Co in his convocation address to the graduating students of the class of 2015 at BITS Pilani, K K Birla Goa Campus, on Sunday.

Tewari urged the students to give a massive round of applause to their parents who have made many sacrifices and dedicated their lives for their children's future.

Prof V S Rao, acting vice-chancellor, Dr Sasikumar Punnekkat, director, K K Birla Goa Campus, Prof A K Sarkar, director, Pilani Campus, members of the senate, faculty members of Goa campus and other distinguished guests



Gold medallist Muthkhod Shridevi Sharangowda (2nd L) along with chief guest Naveen Tewari and faculty.

along with the graduating students and their family members were present on the occasion.

This year, 673 of students received their degrees. The

three medallists were gold medal Muthkhod Shridevi Sharangowda, silver medal Pooja Malik and bronze medal Zantye Manali Sunil. Presenting the convo-

cation report 2015, prof V S Rao reaffirmed the long-term vision to be listed as one of India's top 3 research-led technical institutes by the academic year

2015-16.

Rao also talked about big-ticket imperatives as part of BITS Pilani's "Mission 2015", such as faculty and staff development, industry engagement, innovation and entrepreneurship, internalisation, inter-disciplinary research, technology enablement and quality assessment and assurance.

Chancellor Dr Kumar Mangalam Birla in his message congratulated the graduating students and their parents and told them to keep a few key points in mind.

He talked about the need to leverage on innovation and succeed. The Director of the Goa campus, Professor Sasikumar Punnekkat gave a detailed report specific for the Goa campus which highlighted the achievements of its faculty and students. Dr Veeky Baths proposed a vote of thanks.

Tewari asks BITS students to work for nation



FUTURE IN THE MAKING: The chief guests along with gold medallist Muthkhod Shridevi Sharangowda at BITS Goa campus.

THE GOAN NETWORK

VASCO

Describing it as "amazing era to be in India", InMobi CEO Naveen Tewari has encouraged students to be the architects of the changed India.

Tewari, an alumnus of IIT Kanpur, Harvard and McKinsey, was delivering his convocation address to graduating students of the Class of 2015 at BITS Pilani, K K Birla Goa Campus.

Tewari also recognized the achievements of the parents who had made many sacrifices and had dedicated their lives to ensure a better future for their children.

Others present at the function included Acting Vice-Chancellor Prof V S Rao, BITS Goa Campus Directors Dr Sasikumar Punnekkat and

Tewari, an alumnus of IIT Kanpur, Harvard and McKinsey, was delivering his convocation address to graduating students of the Class of 2015 at BITS Pilani, K K Birla Goa Campus

Prof A.K. Sarkar, members of the Senate and faculty of the Goa campus.

Of the 673 students who received their degrees, the three medallists were Muthkhod Shridevi Sharangowda (gold medal), Pooja Malik (silver medal) and Zantye Manali Sunil (bronze medal).

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Engineering colleges in Goa laud Pichai feat

It will be naive to say that in the age of internet, we are unaware of 'google'. Yes, now Google has a new CEO, Chennai-born Sundar Rajan Pichai, a graduate in metallurgical engineering from Indian Institute of Technology, Kharagpur in West Bengal. His appointment was welcomed in Goa and was inspiring for many of the engineering colleges here. **VIKANT SAHAI** got the following reactions from the faculty and student of various engineering colleges in Goa.

BITS Pilani, Goa Campus

Dr Amalin Prince A, Faculty in-charge Placement Unit of BITS Pilani, Goa Campus said, "Another

Engineering colleges...

Indian at the helm of one of the biggest companies in the world, is a testimony to the credibility of the Indian system of education. It has thus succeeded in producing world leaders and not just students with a mere degree. It is, without doubt, an inspiration to the students of our country to dream for unprecedented marvels and establish India as a technological superpower. Yes, the appointment of Sundar Pichai is inspiring to the students as it further strengthens their belief that they can aim for the highest positions in the top companies in the world." He added that in BITS Pilani many of our students qualify for the Google Summer of Code by competing with the best coding experts of the world.

Ms Sonali Durga, an engineering student from BITS Pilani, Goa Campus said, "Being from the tech age and highly globalised world of today, it does not come to me as a surprise. What is inspiring and motivating us that he has climbed the ladder in mere ten years of association with the company and not just any company, but the biggest tech and corporate giant in the world. As an Indian, I am priding on it. It will kindle a possibility of leading the tech world despite being non American."

Mr Pranjal Singhal, another engineering student from BITS Pilani Goa said, "I want to say this as a human not an Indian that the positive changes he can make in Google will create a difference in lives of billions and I think it will benefit all on the planet, not just Indians. I will prefer taking inspiration rather than taking pride from his achievement."

Learning a new bird song

ARTI DAS | NT BUZZ

W e all have hobbies and hobbies give us immense happiness and satisfaction. However, there are few people whose hobbies turn into a passion after which they get completely engrossed in it.

Meet ten-year-old Kshipra Suresh and eight-year-old Mrinmayee Heblekar from Vasco. These youngsters love nature. In their spare time they love watching birds. They, however, they did not stop here with their hobby and instead went ahead to start a birding club around a month ago, which they aptly name the 'Magpie Robin Club' after the Magpie Robin a bird commonly found in our backyards.

Along with friends from their locality (BITS Pilani Campus at Zuarinagar) the two set out every Sunday to identify birds with the help of their parents and books. They note details of birds and sometimes even sketch the birds they have seen, properly maintaining data about their findings. This is done with the help of their parents.

"We got the idea of the club while on a picnic. I heard a Bulbul calling and it immediately grabbed my attention. I told my friend Kshipra that we should start a club. I really like birds. They are cute, they have different colours", says Mrinmayee, who is quite excited to talk about her club.

The idea of starting a club began during their summer vacation. They now go for birding excursions regularly with a group of around 10 children. "The birding club was initiated by the children. They even made invitation letters to invite friends from the colony and also began batches. They even make attendance sheets and record attendance before starting with bird watching. We just help them by giving inputs. It is heartening to see that she wakes up on her own on Sundays at 7 a.m. Both (Kshipra and Mrinmayee) sit and discuss what to do during the birding session and go out at around 8 a.m. for birding activity", says Mrinmayee's mother Minal Kaushik, who is teaching at BITS Pilani.

Kshipra maintains that she was fascinated by birds after she read books on birds. "We have a few books on birds by Salim Ali and we are naturalists. But, the birding hobby has been inculcated by the children. We sometimes help them identify birds. These days they are thrilled to go out as at this time of the year birds lay eggs, etc. Till date they have documented about 35 species of birds and this campus home to around 200 birds", says Radhika Vathsan, mother of Kshipra and teacher at BITS Pilani.

The girls also have a blog where all notes and activities carried out during a birding session are documented. "The blog is called [www.magpi robinclub](http://www.magpi robinclub.blogspot.com)

[blogspot.com](http://www.magpi robinclub.blogspot.com). It is managed by me at the moment. Whenever the children go out, we list down whatever they have learnt and experienced about birds", says Radhika.

The Magpie Robin Club is drawing in a lot of appreciation from birding experts and enthusiasts. Many believe that such an initiative will in the long run help make our society sensitive and sensible towards our ecology.

"I was thrilled when Amar Hablekar shared this initiative with the children and also the fact that they were being mentored by one of the children's mothers. I remember the children in my own colony who had taken an interest in birds and in just a short time were rattling off bird names like pros. It was heartening too to see young children developing an outdoor hobby and taking it a step further by exploring photography, collecting feathers, writing articles, uploading pictures on the India biodiversity portal and others like ebird to formally document the data.

The idea of starting a club began during their summer vacation. They now go for birding excursions regularly with a group of around 10 children from their locality (BITS Pilani Campus at Zuarinagar).

The session on bird sounds and textures in nature besides outdoor trails with the children from National Association for the visually impaired was extremely encouraging. Also, this attempt to integrate students to nature sensitivity in order to create an inclusive, participative and transparent environment for learning is something we need to support.

All outdoor learning modules for schools and colleges have resulted in positive outcomes. A couple of days ago I did a session for GIM (Goa Institute of Management) students who are currently being trained under their Give Goa initiative where they have tied up with SPACES (Society for the promotion of art, culture, environment and society) to acquaint school children with birding and biodiversity of the Western Ghats. As we mentor young minds we can only hope that they too will carry the torch further and in turn mentor the future generations. When passion is fuelled by the need to share one's learning and experience, it can only bring joy.

The future of birding in Goa is in safe hands, as children become the true torch bearers and spread the cheer of bird song", says architect and member of GBCN (Goa Bird Conservation Network), Tallulah D'Silva.



Magpie Robin Club is not just another birding club. It is a group purely initiated by two girls in their pre-teens, ten-year-old **Kshipra Suresh** and eight-year-old **Mrinmayee Heblekar** from Vasco. The Magpie Robin Club is drawing in a lot of appreciation from birding experts and enthusiasts. **NT Buzz** speaks to Mrinmayee and Kshipra and their mothers about the club



BITS Goa Campus to host Coalescence 2015

NT BUZZ

After the grand success of its last edition in 2014 BITS Goa is organising Coalescence 2015 in association with Inteliber. The event is scheduled for September 5 to September 6 at BITS Goa Campus, Zuarinagar, Vasco.

With a list of programmes and competitions scheduled the event aims to attract a lot of young crowd who have business on their minds. The schedule of programmes over the two days is listed below:

Novatia - Novatia is a national level B-Plan competition that will provide a platform for outfitted and ascendable business plans to win cash prizes, receive funding, mentorship from its partner incubators and accelerators.

ACT 3.0 - ACT 3.0 is a conference that will bring successful entrepreneurs to share their experiences with the budding entrepreneurs.

The lineup for ACT this year includes co-founder of Hous-

ing.com Rahul Yadav, actress and entrepreneur Taapsee Pannu, founder of Only Much Louder Vijay Nair, founder of Jayashree Industries A Muruganantham, journalist and author Hussain Zaidi, TVF Pitchers Jitendra Kumar and Naveen Kasturia and actor and director Rajat Kapoor.



Hussain Zaidi



Rajat Kapoor



Taapsee Pannu



Vijay Nair



A Muruganantham

Startup Expo

Startup Expo is a startup hiring and talent acquisition event. The Expo will feature the leading startups from in and around India and will serve as the meeting ground for innova-

tive startups, budding entrepreneurs, and investors.

Interactive Games

To provide real life simulation of entrepreneurial challenges, Coalescence will host interactive business oriented games like Bullion Beatdown, Business Quiz, and Beer Game.

Workshops

Over the two days there will also be workshops held to help students and budding entrepreneurs to understand the workings of a business firm from the start up point of view. The two workshops scheduled include, 'How to Pitch Your Idea' which is a workshop presented by 91springboard that will take the participant through the process of pitching their business ideas. The workshop will be held on September 5.

The second day September 6 will see the workshop that will take you to the next step. 'Build Your Business' is a workshop to teach the fundamentals of building a real business from scratch. Coalescence '15 aims at encouraging ideas, providing hands-on experience through workshops and motivating future leaders through a conference. Like its predecessors, Coalescence '15 promises to give people an insight into entrepreneurship.

(The event is open to all. For more details call Rohan Shah on 9763205617)

Herald 11.09.2015

Rahul Yadav to launch 100x soon

Team Herald

VASCO: Co-founder of housing.com, Rahul Yadav, valued at Rs 1500 crore was at BITS Pilani Goa at their annual e-summit - 'Coalescence' where he was one of the most sought-after speakers.

ANNUAL E-SUMMIT

Mr Yadav spoke about the supreme importance of the people involved in the start-up. "A person joining a start-up at a later stage can contribute much more to the start-up what the founder ever did," he added.

He advised budding en-



Co-founder of housing.com, Rahul Yadav, at BITS Pilani, Goa.

trepreneurs to always start their first venture with their friends. When asked about the biggest problems that he faced, he said that in his views the Indian system of doing business is

the biggest roadblock and he advised Indian startups to concentrate on fixing the system right. One of the biggest takeaways from the session was not to stick to conventional

definitions and roles but instead to focus upon solving actual tangible problems.

When asked about his new venture - 100x, Mr Yadav revealed that it will be launched within two weeks. Mr Yadav disclosed that in his next venture, he is working with many of his ex-colleagues from housing.com.

Mr Yadav ended his talk with a note to always using one's common sense in business and creating a culture where everyone can contribute to their best potential. The buzz around the Bollywood world is that Mr Yadav may well be a contestant for the popular TV serial Big Boss 9.

BITS PILANI, KK BIRLA GOA CAMPUS

Research in Nanoscience and Nanotechnology

The major research activity at Nano materials Lab of Department of Chemistry at BITS Pilani, KK Birla Goa Campus involves development of various methodologies, which are novel but simple and cost-effective, for preparation of nanostructured materials and their applications.

Our research activity started in 2006-2007 with a project funded by Defence Research and Development Organization (DRDO). In this project we had developed a synthetic strategy to prepare variety of iron oxide based nanoparticles in water medium. We had demonstrated that, by using the same technique we could prepare magnetic nanoparticles with tunable magnetic property. We started collaboration with Defence Lab, Jodhpur (DLJ) to evaluate the magnetic properties of the materials, which we synthesize at BITS-Goa.

During the same time, we also received funds from Department of Science and Technology (DST), New Delhi for a project where the aim was the preparation of porous silica and alumina based materials having tailored pore structure. The importance of these materials lies in applications in various advanced catalysts; as adsorbent for cleaning polluted water; etc. In this project NIST,

Thiruvananthapuram and NCAOR, Goa helped us to understand the structure of these materials by providing their high resolution Transmission Electron Microscopy (HRTEM) and Scanning Electron Microscopy (SEM) facilities.

Polybenzoxazine – a versatile polymer

I got a chance to collaborate with Prof. Yusuf Yagci of Istanbul Technical University and received The Scientific and Technological Research Council of Turkey (Tubitak) visiting scientist award twice (2006 and 2009). During my visit to Prof. Yagci's laboratory I was exposed to study a new type polymer, called Polybenzoxazine. This polymer is a fairly new type polymer, but having tremendous potential. This class of polymers possesses some properties that are superior than the commercial epoxy and phenolic-based polymers and has high capacity to replace traditional thermoset polymers for high-tech applications in future. However, back in early 2000, worldwide not more than 20 research groups were involved in conducting research with this polymer, and from India our research group is one of them.

Prof. H. Isida of Case Western Reserve University, USA is the pioneer scientist in this area and he is playing a key role to popularize this poly-

DR. NARENDRA NATH GHOSH
Department of Chemistry
BITS Pilani, KK Birla Goa Campus

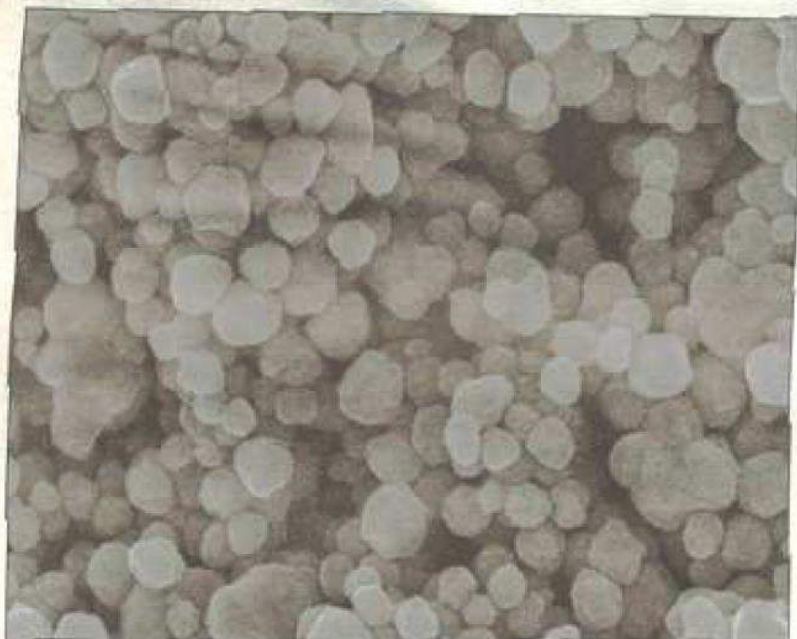
mer and intensifying related research activity. Though, polybenzoxazine-based polymers offer several advantages, they are also associated with some limitations. Inherent brittleness limits their applications to construct complex structures and the scale of production is still limited to laboratory scale. To address these issues, we have formulated a project to achieve magnetic nanoparticle-polybenzoxazine-based nanocomposites, which will possess desired magnetic property as well as mechanical flexibility. This project was sponsored by DRDO and we continued our collaboration with DLJ.

Professor Goutam K. Sarkel from BITS-Mesra and Dr. P.M. Singru of Department of Mechanical Engineering of our campus helped us to determine the mechanical properties of the nanocomposites we had made.

Porous materials as adsorbent for fluoride removal

During the same timeframe, we thought of use of porous materials as adsorbent for fluoride removal from water. We received a grant from BRNS, and were successful in preparing a CaO nanoparticle loaded mesoporous alumina based adsorbent, which demonstrated its capability to remove more than 99% fluoride ions from water. When fluoride-containing water was treated with this adsorbent it produced clean water having fluoride contain well below the limit set by WHO. In this project Dr. J. Arunachalam and Dr. S. V. Rao from NCCCM, Hyderabad collaborated with us.





Applications of nanoparticles

After developing various simple chemical methodologies to prepare nanoparticles having several compositions, we are now focusing on the use of these materials for a variety of advanced applications:

- My colleagues Dr. Mainak Banerjee and Dr. Amrita Chatterjee are collaborating with us for using nanoparticles to develop sensors for various ions.
- Prof. Meenal Kowshik of Department of Biology helps us to determine the antibacterial activity of these materials.
- I collaborate with Prof. Sunil Bhand, my departmental colleague and a biosensor expert. His research group used the mesoporous materials, prepared in our lab to construct biosensor for detecting heavy metal ions present in water.

Sensor for detecting glucose and hydrogen peroxide

Prof. Paul A. Milner of University

of Leeds and our team have jointly received a research award, DST-UKIERI (The UK India Education and Research Initiative), sponsored by DST-India and British Council, UK. We have developed a third generation sensor for detecting glucose and hydrogen peroxide. Under this project we had organized an Indo-UK international workshop on Advanced Materials at BITS, Pilani KK Birla Goa Campus in May 2014, where more than 150 scientists from India and abroad participated.

Nanocomposite-based advanced materials

In 2011, with Prof. Gerard F. Fernando of University of Birmingham, UK, I have received Research Exchange with China and India award sponsored by Royal Academy of Engineering, UK. We jointly conduct research on development of nanocomposite-based advanced materials for high-tech applications. In 2015, we received Newton Research Fund Award sponsored by Government of UK to continue our collaborative research actively.

In 2013 we completed a DRDO-sponsored project to develop a novel 'One-Pot method' for preparation of hard-soft ferrite nanocomposites, which exhibits superior magnetic properties as well as excellent microwave absorption properties. These materials have potential to be used to construct permanent magnets. To explore the possibilities of application of these nanocomposites to make microwave-absorbing coating, DRDO has recently sponsored a project and this project is currently ongoing.

We are also currently working with two another projects sponsored by DAE-UGC consortium and Council of Scientific & Industrial Research (CSIR). In the DAE-UGC sponsored project we are collaborating with scientists of Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam, to understand the effect of microstructures of nanoparticles on their properties.

Degradation of dyes

CSIR has provided funds to conduct research on development of advanced heterogeneous catalysts. In this project we have developed, as of now, three catalysts that exhibit excellent activity towards degradation of various dyes in water medium and have potential to be used to clean dye-containing industrial waste effluents. We have also developed photocatalysts that are capable of degrading dyes under sunlight exposure.

The results of the research work conducted here for the last 10 years have been published in more than 55 research articles in highly reputed international journals, such as *Progress in Polymer Science* and *Journal of the American Ceramic Society*, which are the number 1 ranked journals in the field of polymer and ceramics respectively. We have also written invited research articles in international journals as well as book chapters.

बिट्स पिलानी प्रवेश परीक्षा



स्पर्धा परीक्षा प्रा. रामदास केळकर

वाचको शरद हे एकाचवेलेले अखेर वैश्वीक सुराट करणुळे देतां परदेशी उहावे आणि विमानतळमुळे देशी परदेशी फर्ककांची येऊ लागुळे सव उपचारील सोलुकी हवे नेहमीच वर्दळ राहिलेले आहे. इंग्लिष नियम प्रेक्षनांचे प्रामाण्य वैश्वीक संकुल विलां परिसरात आंतराज्य हवेसारं दसा एकर उदात्ताक उभाउते गेले आहे. पिलानी, दुयंद, ईशरबाद आणि आजा यांको गोवा हवे अतिशय परदेशी शिक्षणासाठी प्रसिद्ध असलेल्या या संस्थेत आभियांत्रिकीचे शिक्षण घेण्याची संघी देशातील विद्यार्थ्यांकोडर गोव्यातील विद्यार्थ्यांनाही मिळू लागली आहे. या संस्थेची बीटसेट या नावने अंकावली जाणारी परीक्षा प्रखरत विद्यार्थ्यांसाठी आह्वान असते.

आंतरराष्ट्रीय पद्धतीने घेतल्या जाणाऱ्या या परीक्षेला त्या त्या वर्षांचे शीर्षक दिले जाते. उदा. २०१४ साली या परीक्षेला बीटसेट २०१४ तर यावर्षी इंग्लिशच्या परीक्षेला बीटसेट २०१५ असे शीर्षक होते. गोव्यातील केळकरांनी श्री.ई.केमिकार, डॉ.अमृतदास कामनर, डॉ.वेदुकर (ड) इलेक्ट्रॉनिक्स,

इलेक्ट्रॉनिक्स पंड इन्फुमेन्टेशन, मेकॅनिकल प्रवेश परीक्षेत शिक्षण घेऊन एरुसा, माथे ज्योलोजीकल सायन्स, मेगिस्ट्री, इन्फोमिअन्स, मेथमेटिअन्स, फिजिअन्स या अभ्यासक्रमांसाठी परीक्षा घेतली जाते. विदेशी म्हणजे पदव्युत्तर अभ्यासक्रमासाठी प्रवेश मिळवणाऱ्या २० प्रल परीक्षेसाठी बी.ई., विल्.ची. धर्ममधील शाखा निवडण्याची संघी दिली जाते. या वैश्वीकामुल बिट्स पिलानीला अनेक विद्यार्थी प्रामाण्य देतात. या प्रवेश परीक्षेला नवू हांकुणात विद्यार्थी परराष्टील अफिका संकलाच्या वाराची परीक्षेत फिजिअन्स, केमिस्ट्री आणि बायोलॉजी विषयात तरातर ९५% गुण घेऊन उत्तीर्ण झालेला ह्या, उरोच काळा उपरतीचे ज्ञान अपेक्षित असते. माथे झालेल्या प्रवेश परीक्षेत किंवा त्यापूर्वी वाराची झालेल्या विद्यार्थ्यांना संघी दिली जात नाही, यत्करून दर्जेदार विद्यार्थ्यांचाच निवड अपेक्षित असते. हे लक्षात घेते. विद्यार्थ्यांनी हा नियम संपुट लक्षात घेणे तयारीला लागणे. हे विद्यार्थी देशातील कुठल्याही अधिष्ठित मंडळाच्या परीक्षेत प्रवेश जातेले आहेत. त्यांना येत प्रवेश त्यांच्या आवर्तानुसार दिश

जाणे अन्य परीक्षेत प्रवेश परीक्षेत नेम झालत पद्धती असते पण इथे या परीक्षेत कांता देऊन विद्यार्थी कातालावर हो परीक्षा घेत देण असता. विशेष म्हणजे विद्यार्थी आपल्या निवडलेल्या क्षेत्रात आपल्या सांगीच्या दिशेची न वेळी ही परीक्षा खिलानी देणू शकतो. ही परीक्षा अर्थतःशिक्षण सलग तीन वाराची असते. एकूण चार भागात ही परीक्षा सामयलेली आहे. पहिला भाग एकाच दि. भौतिकशास्त्र (४०), दुसरा भाग रसायनशास्त्र (४०) शिवाय ३३ (२) इंग्रजी ज्ञान (१५) व) तार्किक (१०) चौथा भाग गणित किंवा बायोलॉजी (४५) (यापैकी विद्यार्थ्यांसाठी). तरतुनांत प्रत्येक भागात या परीक्षेत प्रत्येक प्रश्नाला चार पर्यायी उत्तरे दिलेली असतात. प्रत्येक उत्तराला तीन गुण मिळतात तर चुकीच्या उत्तराला एक गुण काढला जातो. आपल्याला येत नसलेले प्रश्न तुम्ही टाळू शकता. एकूण १५० प्रश्नांची ही परीक्षा असते. दिलेल्या वेळेच्या अर्धी वर विद्यार्थ्यांनी सर्वेच्छा सर्वे नहयने १५० प्रश्न सोडविले तर त्याला फिजिअन्स, केमिस्ट्री, गणित या बायोलॉजी या प्रत्येक विषयातील चार प्रश्न प्याट निवडले जातात. या प्रश्नांची आरामगी अशी केलेली असते की अध्यय्य विद्यार्थी हे १५० प्रश्न १८० मिनिटांत सोडवू शकतो. यातून त्याच प्रश्नांचे सर्व विरोध अभ्यास्य पुढील परीक्षा असते. परीक्षा केंद्र सांगो टापी, येण

केमिस्ट्री असते. एन. सी. ई. आर. टी. लय अकरावे, चरती अभ्यासक्रमावर परीक्षा जाणविल असते. वाचनीतास्वर भौतिकशास्त्र वेगळी काटी त्या भागावर प्रश्न निवडले जातात. त्याची तीक्ष्णर दिसेली असते, अशी भौतिकशास्त्र मध्ये Units & Measurement, Kinematics Properties of vectors, Newton's Laws of Motion, Rolling motion Gravitation Newton's law of gravitation, Gravitational potential energy, Escape velocity Motion of planets bridge/Faraday's law आदी भागावर प्रश्न निवडले जातील. ज्या विद्यार्थ्यांनी या परीक्षेत गोव्या केलेली असते त्यांना नमुना प्रश्नपत्रिका तरातासाठी निर्यात्या संकेतस्थळावर उपलब्ध करून दिली जाते. ज्याचा चरम तो विद्यार्थी पाहिले तेचका वेळा करू शकता परीक्षा दिव्यावर संनयक तुमचा निकाल देतो. परीक्षेची तयारीची फी मुलांसाठी २०१०, मुलांसाठी १५०० रुपये आहे. परीक्षेसाठी फॉर्म भरताना गोवा संकेतस्थळा विद्यार्थ्यांसाठी GDRT हा बीट वापरावा लागतो. www.bitsadmission.com या संकेतस्थळावर सर्व माहिती मिळते. दर्जेदार संस्थेत शिक्षणासाठी त्याच दर्जाचा अभ्यास अपेक्षित आहे.

Navhind Times - 01 October, 2015

>Sursangam - 2015: The "Srutilaya" a classical music and dance group of BITS Pilani KK Birla Goa Campus in association with Indian Council for Cultural Relations (ICCR) will be presenting 'Sursangam - 2015', a Classical Music & Drama Festival on October 3 and October 4 at the Auditorium, BITS Pilani, Goa Campus, Airport Road, Goa at 3.30 P.M. On October 3 - Bharatanatyam dance recital by Vidushi Lalan Desai and Carnatic vocal recital by Vidwan Manasa Nayana and group. On October 4-Dhrupad vocal by Vidushi Aparna Shastri and Rudra Veena by Vidushi Jyoti Hegde. They will be accompanied on Pakhawaj by Sanjay Agle. Alumni performances by Balakrishnan Raghavan and Rajat Mishra accompanied on Mridangam by Shreecharan S. Entry for the event is free.

Times of India - 03 October, 2015

DANCE

Sursangam — 2015, 14th batch for Bharatnatyam Auditorium, BITS Pilani, Goa Campus, Airport Road, Goa, October 3 – 4, 3.30 pm – 6.30 pm, Entry: Free; Presented by Srutilaya, a classical music and dance group of BITS Pilani KK Birla Goa Campus, in association with Indian Council for Cultural Relations (ICCR). .
Krishnanubandh, Ravindra Bhavan, Margao, October 6, 5.30 pm onwards; Kalangan- centre for performing arts presents its



Times of India 7-10-2015

Film festival: The department of Humanities and Social Sciences, BITS Pilani, K K Birla Goa Campus is organizing a three day ecofilm festival, tiNai Eco-film Festival (TEFF) and a National Conference with the theme 'Celebrating Landscapes and Waterscapes' from **October 8 to 10 2015** at BITS Pilani, K K Birla Goa Campus.

tiNai Ecofilm Festival

Department of Humanities and Social Sciences, BITS Pilani, KK Birla Goa Campus will be organizing the second edition of tiNai Ecofilm Festival (TEFF 2015) at BITS Goa Campus.

As part of the festival the following events are organized for all those who are interested in ecology and ecological humanities, screening of International, National and Regional Ecofilms (October 9 and 10, 2015), International Ecodocumentary Competition (October 10, 2015), National Conference on Ecocinema (October 8, 9, 10, 2015) and a workshop on Photography & HD/SLR Filmmaking (October 8 and 9, 2015) by National award-winning filmmakers, Nandan Saxena and Kavita Bahl. To register, visit the website,

BITS Pilani, Zuarinagar

A Natural Inclination

Twenty ecofilms, shortlisted from 82 entries and screened over three days. Twenty paper presentations along with two workshops by eminent filmmakers and activists... It was all there at the second edition of tiNai Ecofilm Festival (TEFF), 2015.

The festival was hosted by the department of humanities and social sciences of the BITS Pilani, K K Birla Goa campus along with National Conference on Ecocinema. The title tiNai refers to an Indian eco-philosophy which integrates nature and culture.

An international eco-documentary competition was organized as part of the festival in three categories. 'Shifting Undercurrents' directed by Rita Banerji won the best Indian short eco-documentary award, followed by Chintan Gohil's 'A Commons Sense' which finished as a runner-up. 'The Red Data Book: An Appendix' by Sreemith Sekar won the best Indian feature eco-documentary, while 'Shrinking Shores' by Ashish Rao was runner-up. A French film, 'Jikoo, a wish', by Christophe Leroy and



Adrien Camus bagged the best international eco-documentary prize. A Taiwanese film, 'The Lost Sea', by Hung Chun-Hsiu finished as runner-up in the best international eco-documentary category.

The festival attempted to enrich academic and research endeavours pertaining to the fields of eco-cinema and eco-criticism.

Nandan Saxena and Kavita Bahl, national award winning filmmakers, had an in-depth interaction with the audience on the inaugural day after the screening of their film 'Dammed'. They also held a workshop entitled 'Photography and digital filmmaking'. A workshop on 'Documentary as a tool for social change' was conducted by Saraswati Kavula, a filmmaker, farmer and activist.

More than 200 eco-enthusiasts and students from across the country participated in the event.

Waves of fun and fantasy



NT BUZZ

Waves 2015 - Escape Reality, has huge names lined up.

The music scene is set to thrill with the best medleys from DJ Paroma and Lost Stories. Fresh from South Africa with their unique rock sounds, AKING will also be seen on stage. To give reeling, head-banging skulls some respite there will be a comedy act by The Viral Fever or TVF and finally to enthrall the audience with their indigenous sounds - the musical duo of Salim and Sulaiman will take centre stage.

The Big 3 events of Waves are Natanjali - the group dance event, FashP - the crowd-pulling fashion parade, and Mr and Ms Waves, the ultimate test-of-being the crowd favourite. Natanjali sees coordinated body movements from some of the best dance troupes in the country. FashP is fiercely competitive, with huge prizes as well as associations with the fashion industry motivating the creativity

of fashion designers from the likes of NIFT. And Mr and Mrs Waves never fails to entertain while also making some special faces permanent legends of BITS Goa.

The Big 3 are always memorable, particularly for the jam-packed auditorium with lots of clapping and cheering. For every pumped up dance move, for every elegant model's pose, for every wisecrack from a contestant, the audience rises and moves with an unreal energy.

Never neglecting the fine arts, Waves conducts 'Portraiture', the solo art event, where participants create a sketch of a live model using bare essentials.

In 'Shutter Island', participants have to first click a photo on campus and then paint it in an impressionistic manner. Contestants are judged on the degree of similarity between the photo and the painting, and also on their creativity in choosing the subject for their photo.

Waves is big on trivia. The Waves Open Quiz witnesses participa-

tion from some of the best quizzers in Goa and across the country. Somewhat controversial, The Vices quiz is themed around the knowledge of social vices such as alcohol, illicit trading, and off course, much more. The Entertainment quiz and the Lonewolf quiz are a treat for both participants and spectators.

The literary events are looked forward to by most people. JAM, or Just A Minute is one of the most anticipated events at the festival. Participants speak about everything under the sun, with just one rule - thou shall not be boring. Word

games strains your brain, with puns, and the Poetry Slam involves participants reciting original poetry.

The Dance events are Sizzle, Dhinchak and Jumele, which have a variety of theme-based rounds. Slick moves are showed off, and the



Reality is boring and restrictive; it is but a shackle waiting to be broken. This 'Waves - Escape Reality', immerse yourself in every fantasy, and let the surreal take over say students of BITS Pilani who open the national cultural festival of Birla Institute of Technology and Sciences Pilani, Goa campus, Waves 2015, today



crowd grooves to the same beat.

The Special events include Contention - the Waves Debate championship, Wallstreet Fete, the finance and management event, Ratatouille, the cooking competition, and the ultimate Rubik's cube challenge.

For photography, film-making, or videography have three exciting events to look forward to - Montage, Mezzotint, and Time Lapse. Reverse Flash is a unique event - participants have to shoot a film of up to 20 minutes in a reverse narrative.

The dramatic events include Rangmanch, stage play competition, Nukkad Natak, an open room drama competition, and Skime - a mime-based

theatre event.

There are a number of events for the music enthusiasts as well. Jukebox is the solo singing event at Waves, while Solonote requires participants to showcase their skills in any musical instrument of their choice. Alaap is the Indian Classical vocal competition where contestants can sing in either the Hindustani or the Carnatic style. Silence of the Amps is the acoustic music faceoff at Waves and is popular for hosting beautiful A Cappella performances by prominent vocal artists from major colleges.

Waves 2015 is going to be an unforgettable experience not just for the students of BITS Goa but also for those taking part. The people, the performances,

the events and the competitions will all build up the festive atmosphere which will end in memories that will forever be etched in students' minds.

(November 5 is DAY 0. The event will be inaugurated at 6 p.m. College clubs will perform followed by the convener opening the festival. November 6 will see registration procedures, informals, starting rounds for events and an EDM night by DJ Paroma and The Last Stories. November 7 will see various events and informals, the English Night by the South African Band aKING. November 8 has some events, Comedy Night (TVF) and Hindi Night (Salim Sulaiman))