

# Education

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● PANDIT DEENDAYAL PETROLEUM UNIVERSITY, GANDHINAGAR

## Autonomy of private university, accountability of a public

How PDPU is emerging as a role-model in the private university space

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**THE KNOWLEDGE CORRIDOR** is a 3-km stretch of new road off the Ahmedabad-Gandhinagar highway. Dotting the area are low-rise residential schemes and sprawling campuses of some top-ranking public and private academic institutes, including the Pandit Deendayal Petroleum University (PDPU), the sole private university in Gujarat to be accorded autonomous status by UGC some months ago. A member of the Association of Indian Universities, PDPU was accredited with Grade A by the National Assessment and Accreditation Council in March 2018.

Though still not a 'deemed university', PDPU is fast emerging as a viable alternative to the aspirational IITs and NITs. What will come as a shot in the arm is fresh investment of ₹150 crore that RIL's chairman and president of PDPU Board of Governors Mukesh Ambani committed at Vibrant Gujarat 2019 "to make it even



stronger and an institution of international repute." An example of successful PPP in the education space, PDPU has big names in the corporate space queued up for collaborations. Top of the list is the upcoming Centre of Excellence in Automobile, a skill development centre being set up with an investment of ₹150 crore by Maruti Suzuki, in collaboration with the

Bendigo Kangan Institute with the support of Gujarat government.

Quips C Gopalkrishnan, director general, PDPU, and director of the School of Petroleum Management, "Our USP is that we have the fleet-footedness and autonomy of a private university, along with the accountability of a public university."

Ranked 55th in India and first in



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—C GOPALKRISHNAN,  
DIRECTOR GENERAL, PDPU

Gujarat by NIRE, PDPU is also recipient of Scientific & Industrial Research Organisation (SIRO) recognition by the Department of Scientific and Industrial Research. With over 5,000 students, PDPU is on a roll post the freedom of autonomous status armed with the freedom to start new courses, off-campus centres, skilling courses, research parks and new academic programmes. The

new status will give it freedom to hire foreign faculty, enrol foreign students, give incentive-based emoluments to faculty, enter into academic collaborations and run open distance learning programmes, all without the normally-associated cumbersome approvals. Spread over 100 acres, the campus houses four schools: School of Petroleum Management (SPM), School of Petroleum Technology, School of Liberal Studies and School of Technology.

SPM was first established as the Institute of Petroleum Management (IPMG) in 2006 by Gujarat Energy Research and Management Institute (GERMI). In 2007, when PDPU was established by GERMI, IPMG became a part of PDPU and changed its name to SPM, the trailblazer in the PDPU stable of specialised schools.

Over the years, PDPU has metamorphosed into a diversified university with national and global visibility. "At the time the institute was set up, the goal was to create skilled manpower and know-how in the oil and gas sector. Back then, Canada was among the main hubs for such specialised skills," Gopalkrishnan recalls.

With growing clamour for options for students, "it was only natural to give PDPU the look and feel of a complete academic environment and we have done that with the School of Technology and School of Liberal Studies," adds Nigam Dave, director, School of Liberal Studies. Between them, the four schools offer niche as well as general interest programmes, covering UG, PG and doctoral studies in management, humanities and engineering. The School of Petroleum Technology offers BTech, MTech and PhD in upstream and downstream petroleum engineering, as also MTech in nuclear technology, and MTech and PhD in solar engineering. The

School of Technology focuses on tech education and research. But it's the School of Liberal Studies that is making waves.

Established in 2009, it offers UG honours degrees in humanities, management, science and commerce. It also offers MA in English, public policy & administration and international relations, as well as PhD in the same areas. At the helm since its inception, Dave recalls, "Setting up of this school was to move beyond the opaque world of disciplines. Our attempt is offering students an opportunity to explore a palette of academic disciplines, rather than a specific rubric of courses that train them for defined career paths." The student exchange as well as semester-abroad programmes and affiliations with leading global universities provide students global exposure and networking. "The attempt is internationalisation of our students and faculty. The generous travel grant that PDPU provides is an initiative that few, if any, rivals provide. We even have a global citizenship course," Dave asserts. "If this opens up job opportunities overseas, we view it as a brain gain, not a brain drain."

Adds Pradeep Malik, head of the Media Studies team at PDPU, "Our UG students acquire critical thinking abilities and broad-based knowledge, which empowers them crucial life skills."

PDPU is also nurturing start-up initiatives through the Innovation & Incubation Centre. Currently incubating about 40 start-ups, the Centre has hit the bull's eye with Saarthi, a device that assists the blind and visually-impaired.

With so much going for it, PDPU is emerging as a role-model in the private university space.

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## SBI launches Numero Yono

Calls it India's biggest intercollege quiz competition



FE BUREAU

**ON SATURDAY, WITH** the aim to get its digital service platform YONO closer to India's youth, SBI launched what it calls as India's biggest quiz contest, the Numero YONO. The competition, which is targeted at all UG and PG students between 18-30 years of age, will be conducted across the 17 cities where SBI has local head offices. The winner of the Numero YONO would get annual scholarship of up to Rs 5.76 lakh, SBI said.

Rajnish Kumar, chairman, SBI, added, "This initiative will provide a platform to dynamic students to compete with the smartest quizzing minds across India."

The city-level rounds will start from February 26 onwards, for which registrations can be done online. In the grand finale, 17 teams from 17 cities will compete with each other for the top spot; it will be held on March 8, 2019.

## Stress top concern for employers

The lack of employees' physical activity (62%) and stress (55%) are top lifestyle risk factors identified by employers in India, according to the *India Health and Wellbeing Study* by Willis Towers Watson. Other concerns are obesity (43%), poor financial wellbeing (27%), tobacco use (25%). Combating stress appears to be a focus area, as 80% employers in India (among those who were studied) took at least one action to manage stress and employee mental health in 2018. The key steps taken include providing flexible working options (68%), onsite stress management interventions (46%), employee assistance programmes (40%), stress management and resilience training (38%), and education and training (38%). The study also noted that though tobacco use was identified as one of the top five lifestyle concerns by 25% companies, only 8% offer tobacco cessation programmes, and 15% are considering that in 2021. (44% organisations took at least one action on tobacco use in 2018). The study polled over 100 firms and HR leaders from multiple sectors, and was conducted during June to August 2018.

—FE BUREAU

# Science & tech

**SENDING PEOPLE TO MARS** is a daunting prospect. It would take astronauts at least nine months to get there, they might spend a year on the planet itself, and they would then spend another nine months on the journey home. During that time they would be exposed both to high radiation levels and to the increasingly irritating tics and habits of their fellow crew. It is hard to say which of these would be more likely to result in someone's death.

But though the scientific value of such a mission is questionable, as a propaganda stunt it would be unequalled. America's space agency, nasa, is therefore looking into ways of preserving both the physical and the mental health of putative Martian voyagers. And, at this year's meeting of the American Association for the Advancement of Science (AAAS), held in Washington, dc, several presentations described work towards that end.

One such effort is the NASA Twin Study, full results of which are to be published in the next few months. The AAAS meeting was, however, given a taster.

The NASA Twin Study took advantage of identical-twin astronauts Mark and Scott Kelly. Scott was launched to the International Space Station in 2015 for a 12-month tour as station commander. Mark remained on Earth for the same period. Both men gave regular samples of blood, urine and so on for scientific analysis. Both also undertook batteries of physical and mental tests. Not knowing what might change in the men's bodies, ten teams of researchers spread across America combed through samples and results to track as many molecular, cognitive and physical changes as possible.

As Chris Mason of Weill Cornell Medical College told the meeting, these teams found lots of surprises. For example, Scott's telomeres got longer during his sojourn in space. Telomeres are strands of DNA that cap the end of chromosomes in a cell's nucleus. They normally get shorter as that cell divides and ages.

Dr Mason then compared the operation of Scott's genes with those of his brother back on Earth. Genes in Scott's body associated with the immune system, he found, became highly active. This was also true of the cellular machinery associated with repairing DNA. "It's almost as if the body is in high alert," he said, which would not be surprising given the stresses of space flight. Another surprising observation was the presence of a lot of mitochondrial fragments in Scott's blood. Mitochondria are tiny structures within a cell which release energy from sugar. They tend to get into the bloodstream only when cells are damaged or dying of stress.

From Scott's point of view, the good news is that almost all of the thousands of changes catalogued in his body reverted to normal soon after he returned to Earth. This suggests that, for the most part, a healthy human body recovers well from the stress of space flight. But however detailed the Twin Study has been (and it was in fact the most detailed scientific portrait of human beings ever made) a sample size of two is still rather limited. In the coming years NASA is planning dozens more long-duration tests on people, including tracking astronauts heading to the moon in preparation for future trips to Mars.



## The problems of flying to Mars

Astronauts will have to worry about space radiation—and also each other

When Scott returned from the space station, he said that "teamwork makes the dream work" when it comes to a successful mission in space. Cutesy. But it was an apt statement. Understanding how teams function, how they go wrong and how to prevent social problems will be a critical element of any successful mission to Mars.

Such a mission might involve half a dozen people, perhaps from different cultures, cooped up together for some three years in a space no bigger than a typical family home. There would be no emergency-escape strategy. One of the attempts being made to model these conditions is that of Noshir Contractor, a behavioural scientist at Northwestern University, in Illinois. As he told the

**If humans are ever to travel to other parts of the solar system, then understanding the behaviour of those who will be crewing the hardware should make a successful voyage far more likely**

Something researchers have already learned from these experiments is that certain personality characteristics are essential to helping groups work well together. A good group needs a leader, a social secretary, a storyteller and a mixture of introverts and extroverts. Intriguingly, by far the most important role seems to be that of the clown. According to Jeffrey Johnson, an anthropologist at the University of Florida who has spent years examining relations between people in Antarctic crews overwintering at the South Pole, the

clown is not only funny, he is also smart and knows each member of the group well enough to defuse most of the tensions that might arise during long periods of close contact. This sounds rather like the role of a jester in a royal court. The clown also acts as a bridge between different groups of people—in Antarctica the clowns linked scientists on the base with the tradesmen who also worked there. In groups that tended to fight most or to lose coherence, Dr Johnson found, there was usually no clown.

Even if a perfect, balanced group of astronauts is assembled for a Mars mission, however, things could still go awry. On December 28th 1973, for example, the three crew members of Skylab, an early American space station, decided to cut off contact with ground control and refused to do any of their assigned tasks—something they called a "work slowdown". Newspapers at the time referred to this incident as the first strike in space.

Dr Contractor's group wanted to understand what happened on Skylab and whether or not the crew's reaction could have been averted. They took transcripts of conversations that occurred on Skylab over the many years it hosted astronauts, and applied textual and network analysis to them to understand the nature of relations between people who had been on the station.

The cause of the strike, they found, was that the crew's close ties with one another had become detrimental to their relationship with the team back on Earth. Crew members had started using a lot of negative words about their daily tasks. They complained bitterly to each other about their workload, but never shared these

thoughts with those in ground control. The signal of problems was so clear in this analysis that Dr Contractor's team reckon they would have been able to see the strike coming a week before it happened.

On a future mission to Mars, ground control would thus be well advised to have transcripts of conversations showing details of who talks to whom, how quickly people respond to each other and what the sentiment of each conversation is. Dr Contractor and his colleagues are creating algorithms that can crawl through these data and predict when there could be problems between members of the crew, or between the crew and the ground. Predicting problems is just the start. Ground-control teams monitoring the flight could help with crew conflict near to Earth, but on a mission to Mars the astronauts will need to operate autonomously, given the large communications delays. nasa's engineers are therefore working on software that can be used to analyse data about a crew's behaviour in real time and provide a sort of digital counselling service, helping them find ways to mitigate any problems. "Good mental health on a mission is not the absence of conflict, but how you handle that conflict," said Thomas Williams, a specialist in human factors at the Johnson Space Centre.

All this detailed understanding of teams will have uses far beyond lengthy space missions, researchers hope. Behavioural scientists are trying to apply such "people analytics" to the understanding of sentiments within companies. They might, perhaps, replace performance surveys, monitor inclusion and diversity, identify high potential or put together dream teams for certain tasks.

Building a perfect team for a long mission to Mars will not be easy, says Dr Contractor, and there is much to learn yet. But if human beings are ever to travel to other parts of the solar system, then understanding the behaviour of those who will be crewing the hardware should make a successful voyage far more likely.

THE ECONOMIST

## Decoding hackathons

As Smart India Hackathon rolls into its third year, the concept of crowd-sourcing brilliance has gained currency like never before

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**RICHARD BRANSON'S** words befittingly fit in the context of hackathons, and I quote: "Abundance provides proof that the proper combination of technology, people and capital can meet any grand challenge."

As the Smart India Hackathon rolls into its third year, the concept of crowd-sourcing brilliance (read *talent*) has gained currency like never before. The latest episode, SIH 2019, March 2-3, engages around 1 lakh students, 3,000 technical institutions and 200 organisations from across India.

The idea of a hackathon hinges on integrating the otherwise scattered talent into a purposive scheme. It has at the centre the cruciality of human talent, empathy and ingenuity laced with the power of technology, with developers, programmers and designers working in sprints to develop a feasible solution to a given live challenge drawn from the industry. At an allocated venue, they shape up the solution. Coders are the very life of the entire process.

Going by the SIH 2019 website, it is a "nationwide initiative to provide students a platform to solve some of pressing problems we face in our daily lives, and thus inculcate a culture of product innovation and a mindset of problem solving."

Another interesting character of SIH is the rallying of the influence and expertise of the three elements of society—policymakers, industry and academics.

The themes are spectacularly arrayed. SIH sees smart communication, healthcare & biomedical devices, agriculture & rural development, smart cultures, food technology, robotics & drone waste management, clean water, renewable energy, security & surveillance and anything not listed here under 'miscellaneous'.

Also, the hackathon marks the current generation mentoring the ingenuity of the newer generation to resolve the challenges of the times. Issues like environment, agriculture, water, waste are transboundary and supranational in nature, and need collaborative efforts of a befitting magnitude and bandwidth. Hackathons can be a crucial tool to achieve the same.

The upshot

Another equation that emerges out of the entire exercise is mixing technology with human brilliance, concern and empathy, and what you would see on hands is happiness. A word of caution, though: hackathons are not one-off events that conjure solutions to all the concerns. Beyond doubt, since they bring together policymakers, industry and academics, we get to know where exactly are the roadblocks and how to work around them.

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