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IIT-Kharagpur Offers Course in Microbotics

The course is being offered as part of the Global Initiative of Academic Networks

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New Delhi: Indian Institute of Technology-Kharagpur has launched a course in microbotics, or micro-robotics — the field dealing with tiny robots capable of handling very small components.

The course is being offered as part of the Global Initiative of Academic Networks (GIAN), a programme aimed at strengthening research collaborations between Indian and foreign institutes.

This is the first time that microbotics and nano-robotic manipulation is taught as a course by an Indian institute, said CS Kumar, coordinator of the course at IIT-Kharagpur. Robotics, though, is already being taught in various engineering streams, such as mechanical engineering, ocean engineering and materials science.

The applications of microbotics include automated underwater vehicle, automated ground vehicle for mapping or accessing areas inaccessible to men, spy robots and healthcare.

"This aspect of robotics, which includes targeted motion and force-planning through manipulation in micro spaces, is gaining considerable attention in applications in medicine as well as in material sciences," said Kumar. Sixty students from IIT-Kharagpur and other colleges have already registered for the course. IIT-Kharagpur is planning to pursue high-end research in robotics, including microbotics with commercial applications, he said.

Microbotics is the field of miniature robotics, in particular mobile robots with characteristic dimensions less than 1 mm. A nanorobot is a tiny machine designed to perform a specific task or tasks, repeatedly and with precision at nanoscale dimensions, that is, dimensions of a few nanometres. A nanometre is one billionth of a metre.

Robotics is an integrated branch comprising domain expertise from mechanical engineering, electrical engineering, electronic engineering and computer science that deals with the design, construction, operation, and application of robots, as well as computer systems for their control, sensory feedback and information processing.

These technologies deal with automated machines that can take the place of humans in dangerous environments or manufacturing processes, or resemble humans in appearance, behaviour or cognition.

Robotics engineers design robots, maintain them, develop new applications for them and conduct research to expand the potential of robotics.

IIT-Kharagpur has made this course in microbotics part of its curricula and its students appearing for the course will get two credits that they can add to the yearly credits they need to gather. Students from other colleges will get grades and their colleges may convert the grades to credits.

The faculty comprises Yves Bellouard of Ecole Polytechnique Fédérale de Lausanne (EPFL) in Switzerland, GK Ananthasuresh of Indian Institute of Science-Bangalore and experts from IIT-Kharagpur.

The topics will cover long range motion of robotic systems like humanoids or vehicles on ground or water that would require motion planning and autonomy in operations and control.

Apart from students, mechanical, electrical and electronics engineers, computer or research scientists interested in robotics in applications such as medicine, field robotics or micro-robotics, those working in robotics-related areas and faculty from academic institution can apply for the course.

Learning New Technology

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GOOD PLACEMENT YEAR

THE NEW AND OLD INDIAN INSTITUTES OF TECHNOLOGY HAVE A LOT TO LOOK FORWARD TO

Placements in 2015 at the prestigious Indian Institutes of Technology got off to a great start with most reporting a 10-20 per cent rise in the average salary packages offered to their students. According to B Venkatesham, faculty-in-charge of the training and placement cell at IIT, Hyderabad, most companies don't differentiate between older and newer IITs in terms of salary at the undergraduate level. So the average salary we get is comparable to that of the older IITs and our numbers are improving year-on-year."

Placements started at IIT, Hyderabad, on 1 December and by now the institute is over with placements for 44 per cent students, whereas IIT, Mandi, Ropar and Indore recorded placements of 65, 70 and 70 per cent respectively. According to sources, the rise in awareness and brand value amongst the employing community had led to this positive rise in the placement figures.

However, the newer IITs were behind the older ones when it came to bagging the highest-paying job letters. The newer still have small batches and have succeeded in getting most of their students placed. "For the last three years, we have been achieving 100 per cent placements. Also, for the last two years, the gap is narrowing every year, compared to old IITs," according to Nirmala Menon, assistant professor at IIT, Indore.

The average salary package offered to students witnessed an increase of Rs 11-12 lakh, according to Samar Agnihotri, assistant professor, School of Computing and Electrical Engineering, IIT, Mandi. The gap in salaries, he said, was coming down with the same set of companies that had so far been confined to the old IITs also "making a visit at our campus". For 2016, he added, "we are optimistic we'll be sharing even more companies with (the) old IITs. The interest has started building up since the last two years".

In this upward trend, online ecommerce and other portals have emerged as the most aggressive employers. The average salary package at IIT, Ropar, rose by Rs 12 lakh. The highest paying offer here was made by Amazon, whereas Practo, Axtria and Saavn were also amongst the first-time recruiters. Two hundred students from Gandhinagar are appearing in the placements where Texas Instruments, Samsung, HSBC and Wipro will be among the first-time recruiters.

IIT, Hyderabad, witnessed a sharp rise in the highest salary being offered. The best offer bagged by the institute was around Rs 35 lakh, which is 21 per cent higher than 2014's highest pay package. Yahoo Japan, Hikari Tsushin and Murata Electronics were amongst the biggies recruiting here.

"We will be hiring around 50 graduate engineers from the new IITs compared to 40 from the old IITs," said Rajeshwar Tripathi, chief people officer, auto & farm sector, at M&M. "We are offering roles predominantly in R&D, product development and other critical areas."

"Apart from the entire computer science and engineering batch, about 40 per cent of our mechanical engineering students also received core engineering offers," said Ravi Mohan Prasad, faculty-in charge of the training and placement cell, IIT, Ropar.

On another hopeful note, Union human resource development minister Smriti Irani noted that more foreign students came to India last year, with the highest draw being from Malaysia, followed by Afghanistan and Bangladesh. While replying to a written question in the Lok Sabha, she also said there was no definite trend about the number of foreign students coming to the country.

According to Union ministry of home affairs records, the number of foreign students who arrived in the country in 2012 was 76,753, which rose to 93,693 in 2013. Dipping by almost half, 44,620 foreign students came to India in 2014 and the figure then rose to 66,885 in 2015.

A maximum of 6,471 students came to India from Malaysia, followed by 5,605 from Afghanistan and 5,431 from Bangladesh. The other countries from where more than 2,000 students arrived in 2014 included Sudan, Yemen, Thailand, Sri Lanka, Iran, Iraq, Nigeria and Korea.

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Sharing is the Code that Works Here

Thanks to makerspaces and cheap availability of tools , the open-innovation trend is catching up

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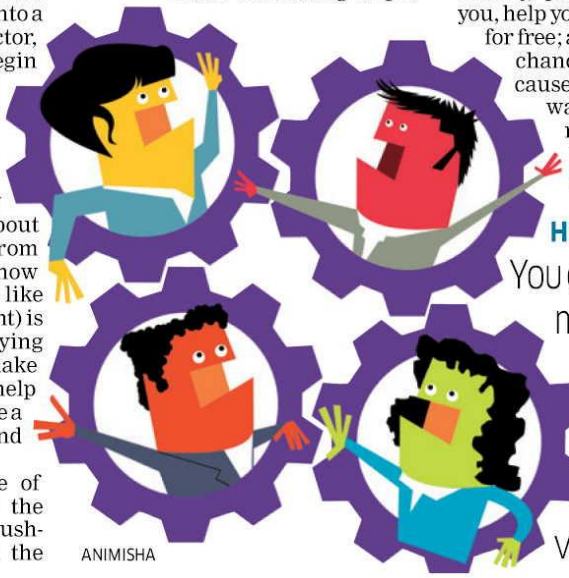
Bengaluru: Mumbai-based Shreekant Pawar and his team have been working on Diabeto, a diabetes management system which transfers blood sugar monitor readings into a diabetes app and then to the doctor, for three years and will now begin manufacturing. What is new is the way they open-sourced the entire hardware component.

The hardware specifications are available on the company's website and anyone can copy the design without worrying about being sued. "We got requests from countries in Africa, asking us how to go about building a product like this. This (diabetes management) is a huge problem everyone is trying to solve. We thought, why not make the hardware open source and help people. Now, people can just take a 3D printout of our product and build on it," said Pawar.

Diabeto is just one example of open innovation coming into the product space. Thanks to the mushrooming of makerspaces and the easy and relatively cheap availability of tools, the open innovation or mass-innovation trend is catching up. You can have a rudimentary prototype of your product and people will offer free suggestions, thereby, mass innovating a product. "There are three main reasons why open innovation is the way forward. One, there is an easy availability of tools, which makes rapid prototyping easy. Two, if you showcase your design to the community, people will review it for you, help you build a better product, for free; and finally, there are less chances of it being copied because it is open source anyway," said Anool Mahidharia, an open-source hardware enthusiast and cofounder of Wyolum, a platform for open-source enthusiasts who collaborate on various projects.



ANIMISHA

HOW IT'S DONE

You can have a rudimentary prototype and people will offer free suggestions, thereby, mass innovating a product

Startups with budgetary constraints can use open innovation to better their product and keep the team to the bare minimum. Singapore-based engineers Andrew 'Bunnie' Huang and Sean 'Xobs' Cross, for instnace, designed a laptop in 2014, made completely from open-source hardware.

The makerspaces, where people come to build products by getting memberships, are at the heart of open innovation.

"I am always thinking, can I get two people from different backgrounds together so that they can collaborate," said Anupama Prakash, founder of Bengaluru-based Workbench Projects. Workbench Projects, along with the Red Cross and IoTBLR, are organising an enable makeathon, which aims to provide assisted devices to the physically challenged across the globe. This project aims to keep the entire innovation open source so as to make it affordable.

IIT-M alumnus introduces students to cutting-edge research

http://www.thehindu.com/todays-paper/tp-national/tp-tamilnadu/iitm-alumnus-introduces-students-to-cuttingedge-research/article8066502.ece

A five-day workshop on computational brain research at the Indian Institute of Technology-Madras, inaugurated on Monday, aims to offer students a glimpse into how they could channel their curiosity and innovation to be part of creation of path-breaking products.

At the inaugural session on Monday, alumnus and co-founder of Infosys Kris Gopalakrishnan ran the audience, comprising predominantly students, through the birth of computers and the speed with which India adopted new technology.

"Computers are going to change our life. More exciting things are about to happen in the next 35 years in computing, biology and brain science," he said. The workshop will introduce interested students and faculty to research in computing and brain studies in progress across the world.

India, as a big supplier of IT professionals to the world, has a large pool of talent that could be used for collaborative research, said Mr. Gopalakrishnan. "The workshop will be a key milestone as India could leverage its ecosystem and look at larger goals, and come up with innovative solutions," he said.

If for scientists Mriganka Sur from Massachusetts Institute of Technology and Partha P Mitra, organisers of the workshop, it is about understanding how the circuitry of the brain works, scientist Anand Raghunathan of

Purdue University is looking for opportunities to understand how to apply the circuitry of the brain and improve computer systems.

To a question on how the scientists could draw the students away from high-paying IT sector jobs, Mr. Gopalakrishnan said, “A substantial number of students are already into innovating with applications. What they need is a role model, incentives and aspirations to achieve their goals. We are here to do that.”

Central varsities, IITs fail to fill up OBC quota seats

NEW DELHI, Jan 05, 2016, DHNS

http://www.deccanherald.com/content/521240/central-varsities-iits-fail-fill.html

More than half of the centrally-funded universities and colleges have not yet been able to fill up all the seats marked for the other backward classes (OBC) students, notwithstanding the Centre’s argument that an “effective implementation” of 27 per cent OBC quota in higher educational institutions began only in 2008.

According to government data, the HNB Garhwal University in Uttarkhand and the Central University of Kashmir appear to be the worst performers in implementing the reservation policy as they ended up admitting just 5.24 per cent and 4.40 per cent OBC students respectively in 2014-15.

While the Rajiv Gandhi University admitted just 7 per cent OBC students in 2014-15, the Central University of Jammu provided reservation to only 16.30 per cent students under OBC category, Central University of Tripura 16.34 per cent, Central University of Tamil Nadu 19.19 per cent, Central University of Punjab 20.13 per cent and Vishwa Bharati University in West Bengal 22.45 per cent.

The status of implementation of the OBC quota in admissions remained equally distressing at about 32 of the total 75 centrally-funded technical institutions which included three of the seven older Indian Institutes of Technology (IITs) where representation OBC students in under graduate engineering programmes did not go beyond 25 per cent.

While the IIT Kanpur admitted only 18.90 per cent students under OBC quota, the IIT Delhi enrolled 21.52 per cent students under the reserved category and IIT-Bombay 24.70 per cent.

IIT Roorkee, which kicked up a major controversy after expelling as many as 73 students for their under-performance amid reports that majority of these students were admitted under reserved categories.

Half of the total 30 NITs could not fill all the seats reserved for the OBC candidates under 27 per cent quota in various undergraduate engineering programmes with the enrolment records for the academic year 2014-15 showing the NIT Agartala admitting only 15.03 per cent students under the category.

Percentage of the OBC students at Indian Institute of science and Research (IISERs) ranged from 14.87 to 26.86 per cent, except the IISER-Bhopal where 28.31 per cent students were enrolled under the quota in 2014-15. The

Union Ministry for Human Resource Development recently drew a rap from a parliamentary standing committee as it cited “unavailability of suitable candidates” as a reason to justify the failure of higher educational institutions funded by the Centre.

“The approach of the universities and other technical institutions has been rather lax in providing due representation to OBC students,” it noted in its report tabled in Parliament during the winter session.

The panel, headed by BJP MP Rajen Gohain, also did not approve the ministry’s argument that successive litigations challenging constitutional validity of the Central Educational Institutions (Reservation in Admission) Act, 2006, delayed the effective implementation of the law, which was passed by Parliament on January 3, 2007 and later amended in 2012.

UGC to review status of deemed universities

By Prashant K. Nanda
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NEW DELHI

The University Grants Commission (UGC) is set to review the deemed university status enjoyed by 125 institutions in India, a move that could spark another face-off after a previous attempt in 2009.

The human resource development (HRD) ministry has given the go-ahead to UGC to review the status for all deemed universities, including reputed institutions such as BITS Pilani, Narsee Monjee Institute of Management Studies (NMIMS), Mumbai, and Tata Institute of Fundamental Research (TIFR), at least two government officials said, requesting anonymity.

Deemed universities have greater freedom in setting syllabi, admitting students and charging fees than regular ones.

Among other recommendations, the P.N. Tandon panel in 2009 suggested blacklisting 44 deemed universities, citing a lack of quality. When the ministry indicated it would accept the recommendations, deemed universities went to court; the matter is still sub-judice.

"Since the deemed universities are still functioning and admitting students, it is essential that they are reviewed by the regulator," said the first of the two officials cited earlier.

According to the second official, UGC initially asked the ministry if it should review just C-category deemed universities (which the Tandon committee had advised for blacklisting), but the government told it to review all 125 institutions.

The move comes two months after UGC asked 10 deemed universities including BITS Pilani to shut their off-campus centres. UGC said these centres were set up without following rules. BITS Pilani secured a stay on the UGC directive from the Delhi high court, and others have written to UGC to explain their positions.

"Off-campus closure issue is different and the review should be viewed from the angle that all need to adhere to the deemed university rules, maintain quality worthy of a university. The review will take into account all aspects—from its physical infrastructure to intellectual infrastructure like research, patent, quality of faculty, etc.," the second official said.

The officials said some of the deemed universities are yet to measure up to the expectations. If found wanting, they can face several penalties, from suspension of admissions to fines.

Prashant Bhalla, chancellor of Manav Rachna International University, a deemed university in Haryana, said he does not understand the logic of a fresh survey when the National Assessment and Accreditation Council (NAAC) has already graded these institutes. NAAC is the official accrediting body for universities and colleges. "In the last few months, NAAC completed the accreditation process and graded them and a fresh round of review by UGC may lead to confusion," Bhalla said, adding that his university was graded A.

The government should promote more private participation for the sake of education, and viewing private firms with suspicion will not help, said Harivansh Chaturvedi, alternate president, Education Promotion Society of India, a private education providers' body.