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FITT FORUM

A Newsletter of Foundation For Innovation and Technology Transfer, **Indian Institute of Technology, Delhi**

Director Prof. Surendra Prasad addressing the inaugral function of I²tech

I² tech 2006

I² tech 2006, the open house event of IIT Delhi, was held on Saturday, the 22nd April, 2006. This was the second edition of the event- an event slated to be an annual affair of the institute. **I² tech 2006** signifies a day when IIT Delhi welcomes one and all to its campus and literally opens its doors to visitors for visiting any part of the academic complex, its facilities and of course, the numerous exhibits and posters displayed across all departments and centers. Today the brand IIT Delhi signifies excellence and is known to the world through its faculty and successful alumni who have led from the front. The associated pride can be felt everywhere. That IIT Delhi is not shear brick and mortar; that it rocks because of its people who want to maintain that status through high-end research and innovations, is emphasized through this event that encourages students to share their research experiences with everyone and not just excel to get higher grades. The event provides a definite motivation to the students to think out of the box and this is what actually excites.

In the words of the Director, Prof. Surendra Prasad, "—it creates an excellent opportunity and platform for the faculty and students of the institute to interact with industry and general public. The event serves to showcase the work being carried by the faculty and students while hoping to get valuable inputs from visitors both in terms of suggestions as well as specific proposals for collaborations….."

The event was inaugurated by the Director, Prof. Surendra Prasad

(contd. to page 2)

A Message from the Managing Director

The FITT FORUM was first published in 1994. Twelve years have passed and the newsletter has been providing the readers information on achievements, national and international events and updates concerning the faculty, departments and centers of the Institute, as well as activities of the Foundation For Innovation & Technology Transfer (FITT) aimed at furthering Industry-Academic interactions.

About a few months back we took a major initiative to project FITT in global platform by making MOUs with International organizations for Technology Co-operation, the most notable among them being the MOU between Korea Industrial Technology Foundation (KOTEF) and FITT. Besides we are trying to explore opportunities with University of New South Wales (UNSW) Sydney, Australia.

Our TBIU units are doing quite well. A couple of them are in the stage of commercial launch. I foresee a great future for these Start-ups, and wish them all success.

I will be handing over the charge of FITT to our new incumbent Dr Anil Wali who is expected to join us sometimes in June '06. I thank all of my faculty colleague for their whole hearted support to me in discharging the duties of FITT and would like all of you to extend the same support to Dr.Anil Wali.

Prof. K.D.P. Nigam
Officiating Managing Director

Highlights of the Issue

I²TECH 2006

Visitors looking at the posters of I²tech

Students in a Laboratory during I²tech day celebration

Students at I²tech 2006

A view of the faculties of IITD during I²tech 2006

Dr. N. Chatterjee with a group of visitors during I²tech 2006

and setting the tradition the lamp was lighted by five students who have had significant scientific and technological achievements in the year 2005-2006. As expected, the event did bring in visitors from schools and colleges (the future iitians), industry, alumni and the citizens. What did they find here? Over 220 students' research projects were on display, more than 20 major facilities were open for visitors, as also several cutting-edge and exciting demonstrations and of course all this was interspersed with appropriate dose of popular lectures by the faculty of the institute. For details one may visit www.cse.iitd.ernet.in/~openhouse . Two thematic lectures were delivered by Prof. P. L. Dhar, Mechanical Engineering and Prof. B Jayaram, Chemistry, on *Hightech to Grassroots: Technology for Village Industry* and *Bioinformatics for better Medicine: Challenges and Opportunities*, respectively. In addition to this, many lectures and quizzes etc., were organized by departments and centers at local level. All these had very enthusiastic footfalls. Visitors enjoyed the innovative approach to problem solving; be it the highly technical and the scientific challenges or problems bothering a common man.

Interestingly, all academic departments and most centers, including service centers, IRD, FITT and the TBIUs enthusiastically participated in this event. Close to 700 student exhibitors and volunteers, from across the disciplines and programmes, i.e., undergraduate, postgraduate, and research, took active part and it truly proved to be a student driven event, which is what it should be.

The team of senior alumni visited the departments/ centres and selected two postgraduate and two undergraduate projects for institute level awards and also one best project each at department / centre level.The awards were presented on 29th April 2006 in IITD Alumni Association function held in Seminar Hall.

The interest shown by the media too was phenomenal- all media including video, print and audio – covered this event enthusiastically.

Kushal Sen
Co-ordinator,
i² tech 2006

TECHNOLOGY BUSINESS INCUBATION UNITS

On Yo Mo

OnYoMo provides search over and accompanying services for structured data. It consists of a platform that implements the search and an application that uses the implementation. The application validates OnYoMo's platform. It enables search on consumer categories. The consumer search is available for Indian cities.

Product related milestone achieved are *Guided User search* (1st version completed; enhancement in progress) , *Product comparison & Filter* (new feature) completed. Application specific status completed are *Advertisement serving*. The company has made data for digital cameras, cellphones, laptops, desktops. Regarding Process Related milestones the company has created proprietary data formats that allow comprehensively capture the breadth of information that an end-user could search deliver the information in a highly structured way. The company believes, a structured delivery helps set user expectations, which is a key success factor in the area of internet search dynamically reduce or increase the breadth of information stored and retrieved. In addition, the data procedures have been standardized to dynamically suggest: corrections to common user search errors. The company has entered innovative co-marketing tie-ups with leading consumer brands to increase visibility.

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Elfsys Embedded Solutions Pvt. Ltd

Elfsys Embedded Solutions is an innovation driven company with the main thrust in the area of security solutions. Elfsys was founded in Summer-2004, by alumni and professors of the Dept. of Electrical Engg. IIT Delhi.

Elfsys is using Sensor network technology for solving a variety of real life problems. Sensor Networks, as the name suggests is a wireless network of sensors. The special features of this network are its robustness & resilience and ease of deployment. These networks are very versatile and can be used in a number of applications, just by changing the sensors on the nodes.

For example by using proximity sensors, these networks can be used for perimeter security. Sensor networks find applications in industrial monitoring where temperature, humidity and light sensors are used. They can also be used for supply chain management by the addition of smart card readers and RFID.

Elfsys has the complete vertical capability required for the design and development of such networks, from the basic sensor integration, network protocol development, to intelligent application development based on the data gathered by the network. Elfsys has set up a test bed of such a network inside the TBIU in IIT Delhi.

For further information, please contact:

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Mecharte's Researchers Pvt. Ltd.

Mechartés Researchers Pvt. Ltd. has been brought to existence with the vision to provide total simulation solutions in a customized & user friendly manner. The long term aim is that whenever anybody thinks about computer aided simulation of any physical phenomenon, they should think about Mechartés.

The company was incorporated in June 2005 by alumini and professors of IIT Delhi. The immediate focus is on developing simulation packages for automobile components. A simulation package for automobile horn (Résorn) and exhaust gas (recirculator Ooshma) has been developed. The packages has been well recieved by the industry and further work to improve their functionality and interface is under process. Mechartés has also succesfully completed simulation & designing projects related to thermal simulation, flow simulation, structural simulation, fracture simulation & acoustic simulation during the short span of one year.

Mechartés is in the development stages for developing simulation package for automobile muffler, shock absorber, steering system & disc brakes. Mechartés is also in development stages for building a Finite Element Analysis (FEM) code and Computational Fluid Dynamics (CFD) code for utilization in the envisioned simulation packages.

For further information, please contact:

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Virtual Wire Technologies

Virtualwire Technologies was set-up to capitalize on the opportunities present in the wireless & communications domain and create some very exciting technologies. The vision of the company is pioneering the next generation of communication technologies. Currently the Company's most active R&D area is VOIP. The company has developed VOIP based systems & designs which are available for licensing.

For further information, please contact:

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FITT invites applications for TBIU membership.
For details please visit our website
www.fitt-iitd.org

TECHNOLOGY BUSINESS INCUBATION UNITS

GridSolv

GridSolv has been admitted as startup company into the FITT-sponsored Technology Business Incubation Unit (TBIU) at IIT Delhi on 1st February 2005. The company's vision is to develop advance software solutions that leverage Web/Grid Computing Technologies and Open-Source Software. It focuses on building reference architectures, frameworks and reusable compute and data services with an emphasis on delivering the end product through composition and refinement. It results in lower cost, higher quality and lower delivery times.

" FITT sponsorship of GridSolv will contribute immensely to our growth" , said Vikul Khosla, CEO of GridSolv, "our association with IIT Delhi, faculty, students, and leading-edge research as well as having access to the large pool of computational resources at IIT Delhi provides a strong foundation to grow the company."

Services Offered

A) Product Life Cycle Collaboration

For early stage software startups looking to build Grid enabled platform products or business applications that lever age a Grid enabled infrastructure.

B) Enterprise Solutions

For Enterprises that wish to deliver business functionality through composition of Compute and Data Services on top of a grid enabled infrastructure leveraging commodity hardware.

Industry Focus

— Enterprise Analytics
— Seismic Data Processing
— Bioinformatics
— HPC in Automotive, Aerospace
— Scientific Applications
— Telecom converged Applications

Technology

Open Source	*GridSolv*
Globus WSRF	Horizontal SOA Frameworks
LAMP Stack	Vertical SOA Frameworks
Data Grid	Core infrastructure Services
Other Grid Middleware	Utility Services

For more information please contact

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Sanmotech Labs Pvt. Limited

Sanmotech Labs, a Technology Business Incubator Unit resident at the Indian Institute of Technology, Delhi has been developing new broad spectrum sun screens actives for protection from both UVA and UVB ultraviolet radiations (UVR) to avoid premature photo ageing and sun sensitivity. The molecules being examined are suitable for skin care OTC products, cosmeceuticals and other dermal applications. Sanmotech molecules have been designed in such a way that they offer much better protection from UVR and do not require deployment of combination of several chemicals which one has to repeatedly apply for useful effects primarily because of their inherent UV instability, narrow range of activity and penetration to internal skin layers to initiate harmful radical reactions. The new molecules have been determined to act by different mechanism of photo protection to offer additional benefits and long lasting effects.

During the period of incubation, Sanmotech Labs have collected data on all organic sunscreen molecules in the market or the ones that are being launched in the coming years by International markets to bench mark Sanmotech molecules. A series of active molecules have been investigated and identified for target end use applications. Major spectroscopic characterization data (UV, IR, NMR, FAB-Ms etc) for identified molecule(s) have been obtained and their method of synthesis delineated. The vehicles and excipients for formulation into commercial sun screen lotions and creams have been identified and a few test samples have been formulated. During the past six months, methods for analysis of the active ingredient(s) in commercial and semi commercial samples have been standardized and analytical protocols for validation technology have been established. The rate of transference of the active molecules across the semi-permeable in vitro skin membranes have been investigated to prove superiority of Sanmotech molecules over other competing products in the market. The new components have a longer action potential in formulated samples which do not require repeated application to retain sun protection.

A comparison with commercially used sunscreen actives have been accomplished in *in vitro* experiments and it has been determined that one of the derivatives is far superior to currently available and used organic sunscreens.

While collection of data for statutory approvals is continuing, several experiments have been carried out where thin films of the new material can be used for protection from UV radiations to increase shelf life and securing health benefits in non-medical applications. For example tests are being conducted and markets are being explored for development of novel protective coatings for car windows, windscreens, house old glass/polymer panels and paints to usher new technologies to the burgeoning speciality chemical markets. Industries desiring collaboration for application work under KITBAPs (Knowledge-Interaction-Technology-Business- Apportionment-Profits) scheme or Cheminformatics for Business scheme of Sanmotech Labs are welcome to contact Sanmotech Labs at the Technology Business Incubator Unit or Prof. H.M. Chawla of Department of Chemistry.

For further information please contact:

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Tensor Technologies Private Limited

M/s. Tensor Technologies Private Limited (TTPL), a start-up company promoted by one faculty (Dr.Sanjeev Sanghi, in the Department of Applied Mechanics, IIT Delhi), one alumni of IIT Delhi (shri Chandra Shekhar) and one alumni of IIT Kharagpur (Shri Shashank Khare) has since commenced in-cubation exercise in the TBIU in the area of search personalization using Tensor Analysis and Higher order POD (Proper Orthogonal Decomposition) w.e.f., 26 April 2006.

Military Innovation rides the technology wave

With information and communication technologies expected to play a crucial role in deciding the course of future armed forces are increasingly looking at Hi-tech gadgets for that cutting edge in modern warfare.

Modern warfare is a complex affair, involving the wide spread use of highly advanced technology. Most military people will tell you that no matter how hard they try not to, they always train to fight the last war. That's because wars are unique. The time, terrain, technology, enemy and other variables make each conflict a one-of-a-kind, and what any military ends up doing is adapting its tactics to the tempo and techniques of its latest enemy.

Throughout history, advances in technology have directly and indirectly transformed the course of warfare. From spear and longbow, to the invention of gunpowder and dynamite, to the use of aircraft and machine guns, and on to nuclear weapons and ballistic missiles, we have seen how revolutionary advances in weaponry have influenced the nature and extent of combat. Up to this point, however, the primary use of technology has always been to provide advantage to one side's massed forces in its efforts to defeat the other side's massed forces.

Thanks to technology, all this is about to change. Advances in technology is also one reason why modern warfare is different. As a term, it is normally taken as referring to conflicts involving one or more first world powers, within the modern electronic era. However, this is not to say that third world countries do not also engage in war, although they are more prone to the use of low-tech weaponry and guerrilla tactics.

The US forces in Iraq are perhaps learning a new war. Mostly urban combat (considered the most dangerous and deadly of combat) its close quarters nullify most of their advanced military force multipliers such as artillery, tactical air and helicopter gunships.

Instead, it is man against man in the most primitive of engagements. New tactics and new techniques are being learned and shared. Additionally, they have ramped up their technology to assist in this very difficult type of warfare.

While the Indian forces have begun integrating some new capabilities, including increased use and production of unmanned aerial vehicles, it is un-clear that they have either the inclination or requirement for significant levels of innovation. Most treats are adequately and less expensively managed through a manpower intensive force than through high technology. Like many militaries, the Indian armed forces are now emphasizing computer literacy, but they are having great difficulty in recruiting, promoting, and retaining technicians with revolution in military affairs (RMA) related skills.

Other acknowledged short falls include lack of reconnaissance aircraft, power sensors, and insufficient standoff missiles. The large submarine force, however, provides a sea denial capability. At the forthcoming Defexpo in New Delhi, organized under the aegis of Ministry of Defence and the CII, some of the top state of the art technologies will be on display, thus giving the Indian forces a taste of what new technologies can be used to fight the enemy both externally and internally .

Plasan Sasa, a global leader in the development and manufacture of combat-proven integrated ballistic armored solutions of Israelis expected to display its wide range of ballistic protection products and solutions. According to company officials, "Plasan Sasa employs an "Integrated Solution" approach when planning the armored requirements for a particular platform, to deliver solutions that offer both outstanding ballistic protection and engineering innovation, based on the company's expertise in lightweight composite materials".

The company manufactures ballistic armour to protect all types of tactical transport, assault and cargo helicopters. These include the Blackhawk, Chinook, Bell, Puma Super and Mi-17 models. The Chinook project, perhaps one of the most complex ballistic armor solutions ever achieve, answers all the needs relevant to the Chinook's deployment on so many diverse platforms, and disparate battle scenarios.

Indian forces have recently started concentrating on network centric warfare, so they can check out the CNR-900M HDR, which the manufacturers claim is the world's highest rate data communications, kbps over 25 KHz stand bandwidth tactical VHF channels, tis multi-mode radio enables streaming video on move. After all, information warfare, a new area of focus for the armed forces, is a kind of warfare where information and attacks on information and its system are used as a tool of warfare. Information warfare may include giving the enemy propaganda to convince them to give up, and denying them information that might lead to their resistance.

Also, HF-6000 HDR: A member of the high quality combat proven HF-6000 fly, by the Israeli company 6000 HDR adds 9600bps transmission capability over the entire HF radio band. The system's capabilities have further extended, to integrate with STANG-5066 as well as highly advanced digital encryption.

HF-6000 HDR-like entire HF-6000 family features crucial built-in Automatic Link Establishment (ALE) function, is self-synchronising, with full band frequency hopping capability ensure highly reliable and secure communications. The HF-6000 HDR configuration include: low-weight cor manpack, 100W vehicular 100W, 400W and 1000W base station.

(The Financial Express 30.01.2008)

ICICI in talks with IIT for low-cost ATMs

In a bid to extend its technological advancement to the rural segments, ICICI Bank is working closely with Indian Institute of Technology (IIT), Chennai, to roll out low cost ATMs for these areas. In a conference organized by Oracle, ICICI Bank's managing director and chief executive officer KV Kamath said, "so far, the retail banking and international banking segments has availed the benefits of technological advancement. However we need to extend the technological benefits even to the rural banking segment." He further added that the bank has introduced smart cards in select geographies of its rural operations and depending on its success, the bank would scale up such initiatives later. "Our approach towards rural banking would be different from what has been followed by the public sector banks

(PSBs). Instead of following a branch driven model, we plan to extend our services through kiosks," said Mr. Kamath. Technological channels are expected to multiply over a two year period and it is technology that would prove to be the key to the future, he said.

(Source: The Financial Express, January 11, 2006)

India on way to becoming biotech studies hub

India is rapidly moving from being a label extension support center to being included in global pivotal studies and the growing generics industry is boosting the flow of pharmacokinetic studies to the country. In this scenario, Indian companies are busy identifying areas of comparative advantage and leveraging them to compete globally, states "The Global Biotechnology Report 2006" brought out by Ernst & Young. The next big step for India will be in products, as most current research programmes will bear fruit by the end of the decade. The range could be impressive, including biogenerics, novel therapeutics, vaccines, biochemicals, nutraceuticals and cosmeceuticals. This will enable Indian biotech to expand globally, said Utkarsh Palnitkar, head of health sciences at Ernst & Young, India. This global expansion would be driven by domestic innovation, competitive costs, availability of valid data, and viable business models that have already been tested in India, he added. However, efforts to expand India's highly skilled labour pool will be critical to the industry's growth. A comprehensive strategy is needed for giving an impetus to education in all aspects of biotech to provide a clear mapping of educational and industrial opportunities. The " Global Technology Report" adds while stem-cell research has raised some debate in the West, huge investment have been flowing to India in this field. Similarly, the strategic emphasis in India has now shifted to developing new vaccine delivery systems instead of just manufacturing vaccines in bulk to maintain cost competitiveness. Changes are also occurring upstream through enhanced capabilities in conducting research on discoveries, and downstream, primarily in the capacity to manufacture biopharmaceuticals. Cross border services in molecular diagnostics and genetics are expected to grow, given India's strong value propopsition in this space, the report points out.

(Source: Business Standard, 12-04-06)

Nanotechnology is still in its infancy

Is NANOTECHNOLOGY for real? The buzz is there, but is it really there? **TIM HARPER**, CEO, cientifica, tells **Prabhakar Deshpande** that nanotechnology is still in its infancy and there is nothing earth-shattering happening in this domain as yet. Harper has given over 100 invited talks and lectures on nanotechnologies at conferences as also to boards of Fortune 500 companies. Cientifica, incidentally is a leading source of global business intelligence on nanotechnologies.

Just how big is the nanotechnology opportunity?

Governments across the world invest about $6 billion while corporates are investing an identical amount in nanotechnology. Clearly, if corporates are catching on, there must be something happening in nanotechnology. However, it is only the last five years that nanotechnology has attracted attention although academics have been dabbing with nanotechnology-related ideas for around 15 years.

Can you spell out any examples of nanotechnology applications?

There has been nothing earth-shattering as yet. There are nanotubes and nanofibers, for example. These technologies can be used in manufacturing batteries. Materials can be used for things like anti-scratch plastics. However, we are still in the technology-push stage which has to move to the market-pull stage. Nanotechnology is still in its infancy where new materials are being created with the hope that these technologies will find applications—only in the future.

Will nanotechnology be indispensable?

We could reach a stage where nanotechnology becomes indispensable. However, current nanotechnology products are like using the axe, instead of the razor to shave. But materials are being created and a beginning is being made. Nanotechnology has two aspects: materials and biotechnology. And biotechnology applications of nanotechnology promises to be a big area. Most universities have already started a nano-biotechnology department.

Is here a great deal of investment happening in nanotechnology?

Not yet. For instance, only 0.14% of venture capital investment is going towards nanotechnology companies. However, this is likely to change soon.

(Source: Economic times, 13-04-2006).

R&D can ensure growth: Sibal

The Centre has identified 5 areas for upgrading R&D for ensuring economic growth and 5 other areas in which R&D can be used for ensuring growth with equity. On the performance of his ministry in the past two years, the Union Science and Technology Minister, Kapil Sibal said, "As we are entering the third year we have identified areas where we can upgrade R&D for ensuring growth with equity." The Minister said that IT is an area "where we are in the lead."

(Source: The Financial Express, 25-05-06)

Missing nodes in India's R&D hub

The emergence of India as the R&D hub has been a hot topic in the conference circuit for some time. And rightly so. Figures place India among the top destinations for outsourcing R&D services. US corporations, in their zeal to optimize every dollar they spent on research and to remain ahead of their competitors, are flocking to Bangalore, Hyderabad, Chennai, Noida and Pune. Venture capitalists in Silicon Valley are more than willing to bet their dollars on new product development if the activity is located in India, because the cost here is low and so would be their risk. After all, India has the twin-advantage of high skills and low wages. At least the current drive for R&D outsourcing is fuelled by these advantages, other factors such as vast potential of India market and proximity to other emerging markets being comparatively insignificant. It is astonishing that despite so much focus on this subject, no agency- official or non government – knows the exact number of foreign R&D companies functioning in India. Guesstimates hover around 400. The figures dished out by industry associations are also incomplete, mostly covering R&D units

in software, hardware, chip designing and consumer electronics. The reason for this lack of data is obvious- no single government agency is responsible for registration or approval of such units. After the approvals from the RBI and state governments concerned, foreign R&D units have practically no major official interface at all. Many of them are a result of expansion of existing software, business or marketing activity of the foreign company concerned in India. Since R&D unit is considered expense and products developed are transferred to parent companies via computer networks for no payment, export or tax authorities also don't come in picture.

The picture has become slightly clear, thanks to a pioneering study sponsored by the Technology Information. Forecasting and Assessment Council, a wing under the Ministry of Science and Technology. A database of 170 R&D units with FDI has been prepared, covering 1998-2003. Of these, 100 units have been analysed and a few new have become available, confirming some trends projected earlier by industry associations and consultancy firms like Evalueserve. The sector has seen $1.13 billion investment in five years since 1998, and employs nearly 23,000 research workers. The investment planned in the next five years is $4.65 billion. Judged by the high number of US patents these units have filed 415, the study concludes that they are working on developing latest products and technologies. Thus, besides being cost-effective and highly skilled, our research workers are innovative as well.

More significantly, the study has raised a fundamental question – what does India gain out of being an R&D hub for foreign companies. Many proponents of "India as the world's lab" postulation don't like to address this or camouflage their responses in genialities. CSIR Director General R. A. Mashelkar is among those who foresaw emergence of India as a research hub way back in 1995.

In his Thapar Centenary Memorial Lecture, he had mentioned three ways in which India could gain from this R&D opportunity. First, contract and collaborative research involving exchange of technical personnel results in augmentation of technical skills and knowledgebase of India scientists and engineers. This, in turn, becomes useful in servicing India industry better. Secondly, multinationals (doing R&D here) may find it cheaper to set up manufacturing base in India itself. Thirdly, R&D alliances with foreign firms might help in technology acquisition otherwise restricted by regimes such as technology-cum-market and technology-cum-stake holding.

The gains enumerated above are not visible though the R&D industry has grown much since 1995. This is because the mode of R&D activity is in-house outsourcing (R&D unit in India serving parent company) and not collaboration or alliance, and contract research with Indian partners. As many as 51 out of 100 units in the study never had any local partner and are merely extension of the parent company' R&D while 43 have some kind of local partnership including contract research arrangements.

Overall, half the units are relocation of in-house R&D from home country to India. Research alliances such as those promoted by Sun Microsystem and Cadence with Veda Institute of Information Technology and Schneider with Tata Elxi are exceptions rather than the rule.

While suggesting continuance of 100% FDI in the sector, the study has prescribed certain correctives. It has recommended setting up of a registry of FDU in R&D sector and a system of filing annual returns with some basic data on operation of companies. This suggestion has been made in view of certain human salary and security concerns. The report notes. "Quite a few FDI companies are actively engaged in working for respective defence departments, specially in aerospace and missile technology. Boeing and Honey well are examples of this. Some are engaged in genetic engineering which too is a high security area. "Second recommendation is more radical – designing a policy to promote transfer of technology of the public domain after a reasonable period of time in the private domain under patent protection or otherwise. This is to encourage flow of technology to public-funded laboratories and universities. This is one way foreign R&D outfits can pay back for leveraging the Indian brainpower.

It would be out of sync to suggest an overt regulatory mechanism for FDI in R&D sector, but the sector can at least be brought on par with foreign investment in other areas. The larger issue raised in light of possible gains of globalising R&D that Dr. Mashelkar had envisioned in 1995. In addition to flow of technology to public labs suggested in the study, perhaps a fair royalty system can be 'devised in which the foreign company shares with India a few cents for every developed-in-India' product it sells globally. If only a part has been developed in India, the royalty can be proportionate to the work done here. The funds thus generated can be used or improving and expanding higher education in India.

(Source: The Economic Times, 25-05-2006)

ABB, IIT Delhi tie-up

ABB in India has signed an MoU with the Indian Institute of Technology, Delhi (IITD), further strengthening its relations with one of the world's leading technology institutions. This includes multiple initiatives aimed at furthering research and development efforts in power and automation technologies and facilitating increased interaction between industry and academia. As part of the MOU, ABB will establish a 'Professorial Chair' to facilitate technology development and knowledge sharing between ABB and IITD through specific development projects and research in power and automation. In a related initiative, ABB will award students of exceptional talent in the field of electrical engineering scholarships for undergraduate and post graduate study. These scholarships will be based on merit and aptitude to pursue studies and research in the relevant subjects.

(Source: Education Times, May 22, 2006)

CSIR develops centre for long-term R&D

What do you do when revenues from an established outsourced contract research model stagnate? Develop an innovation centre. This is the quick answer from the National Chemical Laboratory (NCL), a premier CSIR laboratory. The NCL's idea of setting up the NCL innovation Centre and a Venture Centre as an incubator has an element of backward integration as well. The Indian Institute for Science & Education will provide the trained scientific manpower.

(Source: The Economic Times, 05-05-2006)

For a few dollars more

From Schlumberger to Tower Research Capital, Capital one, Lehman Brothers, Google, Boston Consulting Group, Deutsche Bank, American Express Bank, Shell, Transocean Inc, the class of 2006 at the Indian Institute of Technology, Delhi (IITD) is witnessing a windfall at the placement front.

As placement booms at B-schools across the country, the IITD too has already witnessed 80% of its graduating students at the UG and PG levels already placed with some of the who's who of the corporate world. Out of 900 final year students who were available for placements this year, 500 belonged to BTech, dual degree(five year) and integrated degree programme (MTech) and remaining 400 to Master's level which includes MSc, MTech and PhD. The highest salary has recorded a new high with $80,000 per annum. The average salary witnessed at this year's campus placement is Rs. 5.5 lakh per annum. Kushal Sen, head, training and placement, IITD, says, "The remaining 20% of graduating students too are receiving offers from different firms but it seems that they have already made up their mind to pursue higher studies abroad or an MBA in the country". There are no bulk recruiters this time but as Sen says that 'Analytic Companies' or knowledge Process Outsourcing firms have been a surprise package at this year's campus placements. Some of the companies in this category which include MarketRx, Smart Analyst Future First, evalueserve, Inductis and Indus Valley Partners have recruited IITians for different work profiles. " These companies are not big in terms of revenue but huge while devising ambitious strategy and professionalism. They are able to deliver much faster compared to traditional companies. So, they require students who can think big and deliver." Among the traditional firms, oil PSUs like IOCL, HPCL and BPCL have also emerged as major recruiters. Other prominent recruiters include GE(14), IBM (20), Samsung (14), Lehman Brothers (15), KPMG, HLL, ITC and Microsoft.

Changing Priorities

The new placement process, which commenced on December 21 last year, has witnessed more than 150 companies visiting IITD for pre-placement talks (PPT) and seminars. The institute had organized sector-wise workshops, discussions, seminars workshops and panel discussions for students to make them aware of the available opportunities. "Students were curious to know about the future prospects if they opted for a particular work profile in a banking or consulting organization. They also put forward queries related to higher studies in a particular discipline or whether he or she should go for a MBA just after the BTech programme," adds Sen. This is the first time in IIT's history that campus placement is spread over just one semester or six months instead of two semesters. As Sen says, "The MTech programme earlier used to be one and a half year duration and they used to graduate in December. So, we had to start the placement process six months in advance. Now, it's a two year programme and they graduate simultaneously along with BTech students." The companies too are happy with the present placement process at IITs. It has become easier for them to plan their recruitment process six months rather than one year in advance. " The final year is the most important part of an engineering curriculum as students have to do end-term projects. They use to find it difficult to concentrate on studies as they had to appear for job interviews and events related to PPTs. The present placement process has come as a boon for the two," adds Sen.

(Source: Education Times., April 3, 2006).

IIT to the aid of power-strapped Vidarbha Farmers

Indian Institute of Technology, Delhi, has developed a novel technology for farmers in Vidarbha that will help them to generate electricity by using ox-driven machines. Working in association with the Mahatma Gandhi Institute of Rural Industrialisation (MGRI), Wardha, IIT, Delhi developed technology as part of an initiative to put resources available in villages to better use. Power generated from ox-driven machines is being suggested as an alternative for running electric generators and pumpsets. " The technology was developed a year ago and now MGRI is working on modified models," said Professor Rajendra Prasad, Prof. of Rural Technology at IIT, Delhi, who also renders services to the MGRI. He was here to attend a meeting on rural industrialization organized by Vidarbha Economic Development Council. He said the technique of generating power through ox-driven machines is already being used in Andhra Pradesh and MGRI is keen on promoting it in other parts of the country. The technology being offered, has a bull tied to a geared wooden peg and made to move on a circular path. The bull trudges on churning the peg three to four times a minute. Ordinarily, this would be of help only to grind food grains or to crush sugarcane. But an intricately designed gear system below the wooden peg enables the slow moving bull to generate enough energy to rotate a smaller gear into doing as many as 1,500 rotations per minute (RPM), explained Prof. Prasad. The gear box is attached below the peg and has several grooves in which the gears are attached. The lowest groove is the one that moves the fastest. The machine can have various uses. One can use it as a dynamo which consists of a rotating magnet and thus generate electricity good enough to light a house or charge a battery. It can also be used for drawing water from deep bores, he said. Animals like a camel or a horse instead of a bull can generate even faster RPMs, he added. MGRI is now looking for users who woud adopt the technology. Apart from this, MGRI has also developed a biomass based cooking fuel. All the user has to do is burn biomass in a closed container to release energy in the form of smoke which can then be used as a cooking fuel.

(Source: Business Standard, 03-01-2006)

Low-floor buses score high in IIT survey

Two months after the low-floor high-capacity bus was flagged off on route number 620 (Hauz Khas terminal- Shivaji Stadium), a survey conducted by the Transportation Research & Injury Prevention Programme (TRIPP), IIT Delhi has revealed that people prefer using these buses over the existing high – floor ones in the city. However, the transport department is still in no hurry to implement the long awaited High Capacity Bus project in the Capital. " Most people travel by these buses because they are easier to board and is also very comfortable. However because of higher fare and lower frequency, people said they end up commuting on high-floor bus enroute. While the minimum fare is Rs 2 on other buses, it is Rs 5 for the high-

(...Contd. to page 13)

FOCUS ON A DISTINGUISHED FACULTY OF IIT DELHI

Prof. A. K. Ghosh is a distinguished and renowned Professor in the field of Polymer Science & Engineering. Currently Prof. Ghosh holds the position of *Reliance Chair Professor* at IIT Delhi.

Prof. Ghosh completed his under graduation in Chemical Engineering from Calcutta University, obtained his M.Tech Degree in Chemical Engineering from the Indian Institute of Technology, Kanpur and Ph.D in Chemical Engineering from the State University of New York at Buffalo, NY, USA. Prior to his joining IIT Delhi as Assistant Professor in 1991, he worked as a Post Doctoral Research Fellow and Research Assistant Professor at the University of Pittsburgh, USA. He was selected to the position of Associate Professor in 1997 and was elevated to the position of full Professor in 2005.

Prof. Ghosh has twenty years of teaching and research experience His research interests include Rheology and Processing of Polymers, Reactive Processing, Polymer Blends and Alloys, Mixing and Compounding, Nanocomposites, Modelling and Simulation.

He is very actively involved in the academia and industry interaction in the field of rheology and processing of polymers. In association with J.T. Lindt (USA), he proposed an alternate theory for flow induced morphology development in screw extruders. He is working on several promising possibilities to develop technology related to reactive processing and devices to tailor morphology development in multiphase polymers. Recently, he initiated a project "Intelligent Processing of Advanced Polymeric Materials" which involves real time monitoring of the extrusion process, develop on-line sensors and provide road map for scaling up in the process industry. The other topic of research interest for him is the studies and development of polymeric nanocomposites. The focus is to disperse nanoclay in polymer matrix using reactive processing means and develop structure-property relationship.

Prof. Ghosh has to his credit a large number of sponsored research and consultancy projects. Most of his research projects are oriented towards applied research problems covering various aspects of processing and structure-property relationship of polymers. He is one of the few faculty members who have undertaken international consultancy projects like characterization of Polypropylene hollow fibre for water purification and waste management systems and development of polymers for high performance composites.

Prof. Ghosh has to his credit 38 papers published in refereed international journal and over 40 papers in national and international conferences. One of his papers got the *Best Paper Award* in the Indian Science Congress Association, 2004. He also has five patents to his credit. Five students have completed their Ph.D. under his supervision and he has supervised 35 M.Tech theses. He is a recipient of *Young Alumnus Award* of Chemical Engineering Department, Calcutta University and *Meritorious Service Award* of Indian Plastics Institute, Mumbai.

All along Prof. Ghosh has been actively participating in technology development projects and he is a firm believer of using technology for the benefit of the society. Some of the distinguished research projects he has been involved are technology development for thermoforming process, development of mixture for foam material and most notably development of RUSTGARD, a special coating for use as rust converter. The product "RUSTGARD" has been developed and patented by him and the technology has been licensed to M/s. Multitrade Transactions & Solutions Pvt. Ltd., New Delhi.

Prof. Ghosh's interest on the environmental aspects related to plastics led him to work on life cycle analysis of plastics material using cradle to grave approach which resulted in publication of two books. Based on the environmental credentials as well as effect on the human health of the packaging materials, a comprehensive environmental model has been developed using life cycle assessment methodology. Life cycle analysis presents first comprehensive survey of the technical and environmental components involved with production, transportation, use and waste management of the packaging materials.

He has been a visiting faculty at various Institutes abroad such as Department of Polymers, Strasbourg, France and Technical University of Eindhoven, The Netherlands. He has also been a visiting Scientist in GE Plastics India, Gurgaon.

He has served as a member of various committees of The Ministry of Environment and Forests and The Ministry of Sports and Youth Affairs, Government of India. He is a member of many prestigious Committees/Boards such as, Editorial Board of International Journal of Plastics Technology, Project Evaluation Committee of Fast Tract Program, Department of Science & Technology, Academic Council of Central Institute of Plastics Engineering & Technology, Indian Institute of Packaging, International Scientific Committee for the 19th Polymer Processing Society International Conference, Ohio, USA (2004).

Prof. Ghosh participates actively in various national organizations. He is a member of National Academy of Science, India and Indian Science Congress Association. As a part of the Educational Committee of Indian Institute of Packaging, he was instrumental to initiate PG Diploma course in Packaging for the first time in the Northern Regional Centre, Delhi. He holds various positions in Indian Plastics Institute. He has been Convenor for number of conferences organised by PLASTINDIA and Indian Plastic Institute to benefit the industry in particular and academia at large.

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Stop Press !

Prof. V.S. Ramamurthy has taken over as the new Chairman Board of Governor of IIT Delhi from Prof. M.G.K. Menon, who has completed his term of 3 years. Prof. Ramamurthy has received many laurels during his distinguished stint as a scientist and an administrator in various departments and institutions of Govt. of India.

A lecture at the workshop

Workshop on "Design experiences in silicon"

In January this year, the first student project chip from IIT Delhi became a reality. It was fabricated in a 0.18 micron CMOS VLSI technology, through a MoU with Europractice, and was the culmination of several man-years of effort. Several persons from the industry helped through design reviews and through their insightful suggestions. In particular, the design reviews of Prof. Chandrashekhar (Director, CEERI), Mr. D.V.J. Ravi Kumar (National Semiconductors), and Mr. Rajat Gupta (Managing Director, Beceem Communications) were critical to the successful tape-out of the design.

The workshop organized on April 29, 2006, was to provide a forum for enlightening designers, faculty, and students about the difficulties that need to be surmounted to take a paper design to silicon chip, and to also create awareness about current design challenges and trends. Participants included students from IIT Delhi and other colleges, delegates from industries and academic institutions.

The seminar covered possible ways in which mistakes can be overlooked and ways in which they could be debugged in silicon. Real examples were used to give an idea of 'clever ' mistakes that a designer could overlook. Implementation trade-offs were examined using case studies. Guidelines and prevalent practices of Design for Manufacturability were also discussed. The speakers included Mr. D.V.J. Ravi Kumar (National Semiconductors), Mr. Mohandas (Cypress Semiconductors), Mr. Tapas Nandy (ST Microelectronics), Mr. Kaushik Saha (ST Microelectronics), Ms Sudeshna Guha (nVidia Systems), Mr. V. Girish (IIT Delhi), Mr. Anoop C. Nair (IIT Delhi), and Prof. Jayadeva (IIT Delhi).

The workshop was followed by a panel discussion organized under the aegis of the IEEE Circuits and Systems/Control Delhi Chapter. The discussion centred around the problems encountered in integrating analog designs with a shrinking digital design world.

Certificate course on Embedded Systems and Applications.

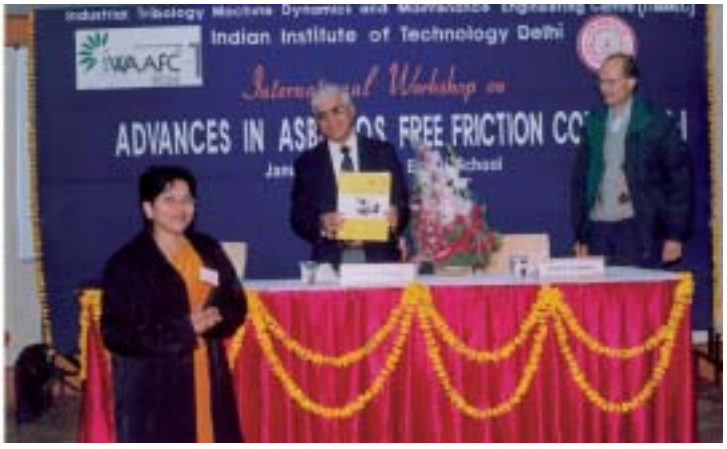
The Fifth Certificate Course on Embedded Systems and Applications was ended successfully on May 26, 2006.The Course was held from March 2 2006 to May 26, 2006. There were 38 participants for this course. The Academic coordinator for the course was Prof. Santanu Chaudhry, Electrical Engineering Deptt, IIT Delhi. Course faculty

(A participant receiving the Certificate from the Officiating MD, FITT)

comprises various departments & centers of IIT Delhi. They were Prof. Santanu Chaudhury, Elect. Eng; Prof. Subrat Kar Elect.Engg; Dr. I.N.Kar, Elect.Engg.; Dr.(Mrs) Lipika Dey, Maths Deptt.; Dr. S. M. K. Rahman., Centre for Biomedical Engg.; Dr. Kolin Paul, Computer Science & Engg. Deptt.

The course was organized under the aegis of FITT.

AAFC-I Workshop at IIT Delhi



(Prof Surendra Prasad. Director, IITD at the inauguration of IWAAFC. On the left is Prof. J. Bijwe, co-ordinator of the workshop. On his right Prof. N.Tandon, Head, ITMMEC)

A two day International workshop on Advances in Asbestos –free Friction Composites – I (IWAAFC-I) was organized in Industrial Tribology Dynamics and Maintenance Engineering Centre (ITMMEC) at Indian Institute of Technology on January 5th and 6th 2006. The workshop was inaugurated by Prof. Surendra Prasad, Director IITD and presided over by Prof. N. Tandon, Head- ITMMEC. The inaugural function was conducted by the Coordinator and Convenor of the workshop Prof. Jayashree Bijwe. A proceedings of the workshop that included the compilation of papers presented by the Speakers in the workshop was also released in the inaugural function. As many as 80 delegates from across the world participated in the workshop as speakers, delegates and representatives from various industries.

HRD PROGRAMMES & TECHNOLOGY DEVELOPMENT

HRD Programmes

Since November 2005 and till now, 7 customized HRD programmes were held under the aegis of FITT. A list of some HRD programmes completed during the past few months, are given below:

S.No	Title	Sponsors/Participation	Date & Venue	Co-ordinator(s) &Deptt.
		HRD Programmes (Concluded)		
1.	Training on Topics in Networking for Siemens executives	Siemens Public Communication Networks (P) Ltd.	'Feb. 2006, IITD	Dr. Arzad Alam Kherani, CSE
2.	Training in Communications for Freescale Semiconductor	Freescale Semiconductor(I) Pvt. Ltd., Noida	Feb. 2 to April 5, 2006, Noida	Dr. Shankar Prakriya, EED Prof. S. D. Joshi, EED
3	Workshop on Theory & Algorithms in Combinational Optimization for IBM	Thomas J. Waston Research Centre, New York	April 8 & 9, 2006, IITD	Dr. Naveen Garg, CSE Dr. Amit Kumar, CSE
4	2nd Global Land Cover Network Workshop	The Food and Agriculture Organisation of the UN, New Delhi	April 3, 2006, IITD	Prof. A. K. Gosain, Civil
5	One Day Workshop on Design Experiences in Silicon	Participation based	April 29, 2006, IITD	Dr. Jayadeva, EE
6	Course on RF and Microwave Circuit Design	ASTRA, Hyderabad	May 10 -14, 2006, Hyderabad	Prof. S. K. Koul, CARE
7	Certificate Course on Embedded Systems and Applications	Participation based	March 2 to May 28, 2006, IITD	Prof. Santanu Chaudhury, EED, Dr. I. N. Kar, EED

Technology Development Projects at FITT

S.No	Title	PI	Deptt.	Client
1	Industrial Design of a Ceiling Fan	Dr. S.K. Atreya	IDDC	Havells India Ltd, Noida
2	Tech Devt. of C-band source & Detector	Prof. S.K.Koul	CARE	SICO, Ghaziabad
3	Networking for PNB	Prof. B.N. Jain	CSE	Punjab National Bank
4	Application of Membrane Systems to Alcohol Fermentation , water disinfection & waste water	Dr. T.R. Sreekrishnan	DBEB	Applied Membrane Technology Inc., USA
5	Measurement of thickness of A1 coils & composite slab in composite aluminium panel	Dr. Pulak Mohan Pandey	Mech Engg	Alubond Enterprises, Jammu
6	Energy Saving in Milling Equipment and characterization of particle size distribution	Prof. B. Pitchumani	Chemical Engg	SPL Ltd., Haryana
7	Development of Respiratory Instruments	Dr. SMK Rehman	CBME	Elfsys Embedded Solutions Pvt. Ltd, IIT Delhi
8	Enhancement of the performance of 40.34/2 MM tornado duct using hydraulic superjet machine	Dr. Srinivas V. Veeravalli	App.Mech	Dura Line India Pvt. Ltd , New Delhi
9	Design & Development of Interface for electrically addressed spatial light modulator	Prof. Subrat Kar	Elect. Engg.	IRDE (DRDO), Dehradun
10	Delineation of thematic layers	Prof. A.K. Gosain	Civil Engg.	National Informatics Centre, New Delhi
11	Video Querry Mining	Prof. Santanu Choudhury	Elect. Engg.	America Online Pvt. Ltd., Banglore
12	Animated Mixed isomer sulphone (A-MIS) as curing agent for epoxy	Prof.Veena Choudhary	CPSE	Solvay Advanced Polymers, LLC, USA
13	Technology Transfer Project " High Pressure Biogas (Gobar Gas) Enrichment & Bottling System	Dr. V.K. Vijay	CRDT	Indian compressors Ltd., New Delhi
14	System C Design Methodology	Dr P R. Panda	CSE	Mentor Graphics

Technology Transfer Agreement

Mr. Hemant Didwania MD, ICL exchanging Technology Transfer agreement with MD, FITT. On the right of MD is Prof. S. Prasad Director IITD

On March 23, 2005, a technology transfer agreement of **High Pressure Bio Gas (GOBAR GAS) Enrichment and Bottling System** was made between FITT & Indian Compressor Ltd. This was a know how agreement between Indian Compressor Ltd. & FITT. This technology has been developed by Dr. V. K. Vijay of CRDT, IIT Delhi.

MOU between International Technology Cooperation Centre at Korea Industrial Technology Foundation and FITT at IIT Delhi

FITT at IIT Delhi and the International Technology Cooperation Centre at Korea Industrial Technology Foundation (ITCC-KOTEF) have executed a Memorandum of Understanding in following areas of cooperation: (i) The sharing of work for promoting technology innovation and industrial cooperation between Korea and India; (ii) The exchange of human resources, technological information, research trends and commercialization opportunities of mutual interest by both parties ; (iii) The co-hosting of exhibitions, seminars and technology transfer & investing fairs; (iv) Providing industrial technology-related education for workforce development in universities in both countries and both parties; (v) other types of work upon which the parties mutually agree. FITT shall act as catalyst with the interfacing role for IIT Delhi as the main resource.

National Technology Day Celebration

The National Technology Day was celebrated with fervor on May 11, 2006, in the Senate Room of IIT Delhi. There were four speakers from IIT Delhi on this occasion. The following lectures were delivered: The lecture on Technologies for Rural Industrialization, was delivered by Prof. P.L. Dhar from the Department of Mechanical. Engineering. The lecture on KritiKal Solutions: A Marathon Sprint was addressed by Prof. M. Balakrishnan., from the Department of Computer Science Engineering. The third speaker was Dr. Shantanu Roy, from the Department of Chemical Engineering. He spoke on Process Intensification and Monolith Reactors. The last speaker of the day was Dr. Manish Sharma from the Department of Physics. His topic was New Directions in Magnetism: Nanomagnetic Devices and Technologies. There were question answer sessions. The function was presided by Prof. Surendra Prasad, Director IITDelhi.

A view of the delegates of National Technology Day

FITT-Corporate Membership

An information support service unit had been set up in FITT since its inception in 1992 in order to keep abreast the industry with the technological developments, research activities and faculty and expertise of IIT Delhi and also to help IITD faculty to access details on industries as well as technology development information worldwide. In this endeavour a project has been developed at FITT known as Corporate Membership Scheme of FITT. FITT invites the industry/industry associations/R&D organizations and financial institutions to become corporate members of FITT at a nominal fees.

A Corporate Member client can participate in Technology Transfer and joint R&D programmes of the Institute on a priority basis, with FITT providing the interface.

To become a corporate member of FITT, please send the corporate membership form duly filled with a nominal fees, which can be available on request from FITT office or van be downloaded from the FITT website (htt://www.fitt-iitd.org).

Industry / Organisation / Industry Associations eligible to become Corporate Members at the following rates:

Type of Organisation	*Annual Turnover*	*Annual Admission Fees**
Large Scale Industry	Rs. 100 crores & above	Rs. 10,000
Medium Scale Industry	Between Rs. 2.50 crores to Rs. 100 crores	Rs. 5,000
Small Scale Industry	Rs. 2.50 crores or less	Rs. 1,000
R&D Org/Financial Institutions / etc.	Not Applicable	Rs. 5,000

(***Note : 12.24 % Service Tax (including Education Cess) in addition to the annual admission fees***)

For the details please visit the FITT website (http://www.fitt-iitd.org) or Contact:

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...Low Floor buses....*(Contd. from page 8)*

capacity bus," said TRIPP traffic expert Dr. Geetam Tewari. The survey conducted at South Moti Bagh, Munirka and Vasant Vihar bus stops, also showed that the low floor bus had a stoppage time of just 8 seconds as compared to 32 seconds for the others, meaning that low-floor buses are easier and quicker to board, said Tewari. More women, people with children and senior citizens were seen using high-capacity buses. But people will not use the high-capacity bus if the fare is higher as number of short trips is very high in buses. Also, there are only six such buses on the route and the passengers do not want to wait for so long. So both these factors need to be looked into for the success of such bus service in the city," said Tewari. Meanwhile the pilot project for the High Capacity Bus System (HCBS) on the Ambedkar Nagar-Dilli Gate stretch has yet again been stalled with the tender process being put on hold. This means the department may not be able to meet the deadline given by the Supreme Court for the implementation of the project. The contract for constuction of the pilot project stretch has to be awarded by February 2006 as per the court order.

(Source: The Indian Express (Express Newsline), January 12, 2006)

Aziz Premji to be convocation guest

Aziz Premji, Chairman of Wipro Technologies will be the chief guest at the 37th convocation to be held at the Institute in August this year. S.M. Ishtiaque, Dean of Students, IITD said: "We had planned to invite noted economist Amartya Sen for this year's convocation but he expressed his inability to be the guest because of prior engagements. We invite the chief guests as per the order in our lists. After Sen's refusal, we invited Premji and he readily agreed."

(Source: Education Times, May, 08, 2006)

IITian turns Author

Tushar Raheja, fourth year, Industrial Engineering, IIT Delhi student has penned a book titled "Anything for you, ma'am". This is for the first time that an IIT student has penned a novel during his stint in the college and hence Board of Student publications (BSP), IIT Delhi is organising a special function to acknowledge this achievement on April 20. The book is a piece of fiction. It runs into 250 plus pages and is a humorous love story set in IIT Delhi.

(Source: Education Times, April 17, 2006)

IIT to showcase streetsmart inventions at 'Open House'

The IIT's annual fiesta 'Open House' promises to be different this year. From UV umbrellas for protection from the sun to a sensor-driven cane for blind. The stress this time is on streetsmart innovations. Four students from the department of computer science have developed a smart cane for blind people. This has a detachable unit with an ultrasonic ranger, vibrator and a microcontroller that will offer an increased range of 3 meters and can detect obstacles above waist level. This information is conveyed to the user through a vibrator with the intensity of vibrations, varying inversely with obstacle distance. Rohan, Ankush, Dheeraj and Vibav the four boys who have devised the unique apparatus are excited about it. "There are two models of operation: Less than 1 meter range, useful while navigating within a room and a higher range which can be used while navigating outdoors," said Rohan. The cane also comes with a special set-up which helps in identification of buses and will help blind people to board. This device consists of two modules: A user module that is attached to the belt or tied around the waist and a bus module that is placed at the entry of the bus. When the users hears a bus approaching at the bus stop, he presses the button on the user module which transmits a signal to all buses in vicinity. Each bus module responds by transmitting its route number which is read out to the user. The user selects his bus by pressing a select button which generates a voice output. This acts as an auditory cue and helps the person to move towards the gate of the bus. The user will know which button to choose on the basis of instruction written in Braille. This system is priced between Rs.800 and Rs.1,000. But that's not all. There is also a special display of manual and automatic robots that can be employed for industrial use. These contraptions can carry weight between 1.5 and 3 kg. These were recently displayed at Robocon contest in Malaysia. "The automatic robot is fitted with two 'colour identifying sensors," said Professor SK Saha from Department of Mechanical Engineering. " If an object has to be transported from point A to point B, then we place white strips between the two points. These strips are detected by the robot to move from point A to point B." The manual robot has a wired remote attached to it and it can lift weight upto 3 kg. And then there is UV umbrella that provides protection against harmful solar radiations. It has a special UV protection factor and prevents problems like premature ageing and skin cancer.

(Source: HT Metro, April 19, 2006)

IITs plan 4-year UG design course: Delhi & Mumbai await nod

The Indian Institutes of Technology (IITs) in Delhi and Mumbai plan to launch undergraduate programmes in design, pending approval from the Central government. "The country is pressed for quality designers with the growing use of design in the manufacturing and service sectors. So, we are planning to launch a four-year under-graduate programme in design," Lalit Kumar Das, Head, Industrial Design at IIT-Delhi told ET. The programme that may soon be launched by IIT-Delhi would later be introduced by IIT-Mumbai. IIT-Delhi may begin this programme with 30 students. "We may begin with a low intake, and may further increase it when required," he said. At present most of the IITs offer M Des, PG programmes in industrial design. They focus on design and development of instruments and other industrial and consumer products. The Institute runs courses in electronics, industrial design and mechanical & optics. With increased intake, the Institute is also strengthening its faculty. With the boom in different sectors, IIT Delhi expects an exceptional response to its UG programme. "There is a need and demand for design education and training at basic level. The industry requires trained professionals to sustain itself in the competitive markets, and we are just contributing towards that," Mr. Das said. He was in Ahmedabad to attend a meeting of design institutes held at the National Institute of Design. At present only IIT-Guwahati offers undergraduate programmes in design.

(Source: The Economic Times, April 20, 2006)

IIT NEWS

PM opens telecom school at IIT-Delhi

The Bharti School of Telecommunication Technology & Management was inaugurated by Prime Minister Manmohan Singh at the IIT Delhi on Monday i.e., March 20, 2006. The school is a joint initiative of Bharati Foundation and IIT. Among those present were Surendra Prasad, Director IIT Delhi and Sunil Bharti Mittal, CMD, Bharti Enterprises.

(Source: The Times of India, March 21, 2006)

IIT's traffic-stopper invention

It is time for the Delhi Police to take a leaf out of IIT-Delhi's book and make traffic congestion a thing of the past. Students from the institute's Civil Engineering Department have developed a software for traffic management. It also gives the actual speed and trajectory of moving vehicles, an ability that will help detect traffic violations like speeding and lane-jumping. Traffic signals are designed in India based on traffic data. Usually, data is collected either manually or from videos of traffic flow. According to IIT's Ph.D. scholar Mallikarjuna and student Saurabh Jain, "Generally, the methods used in India to control traffic are improper. Traffic signals in India are based on data collected from homogeneous traffic conditions. It is assumed that vehicles are aligned in a queue and this is the premise on which the traffic light functions. This is wrong because this results in an extra stopover between the green lights. Normally, the cycle time between these two green lights should be 120-140 seconds, but in India it is above 200 seconds." Although similar systems exist abroad, in India this has not been a viable option considering the weather. Mallikarjuna said, "Our system comprises a video camera embedded with hardware. When mounted at any traffic intersection, the system measures speed and vehicle type. This information is processed with the help of a digital video. It can estimate delays in signal design." The system chooses suitable traffic characteristics which are different from the conventional ones. It can assimilate data on the collective behavior of traffic such as queue length and other factors," he added.

(Source: Hindustan Times, April 22, 2006)

IIT gives glimpse of future tech marvels

A smart cane for visually impaired, a robocon, automated mechanical flush for urinals, a mechanical mail sorter and leaves collector. These are not the gadgets out of a Bond flick, but some of the 200-odd projects displayed at I2Tech – Open house 2006, a day – long exhibition showcased at IIT Delhi. The display is an initiative, as Kushal Sen, professor Textile Engineering, IITD said, to boost the budding engineers, particularly the final year students of M.Tech, BTech, MS, MDs and PhD. Some other devices on array were sensor networks that come handy in habitat monitoring, remote sensing, battlefield surveillance and tsunami prediction. Most of such systems are deployed in areas where human intervention is impractical. The network, therefore, emphasizes on reducing power consumption and increasing robustness. An ultra-low cost robot suitable for experiments with accuracy of 2cms has also been invented, since the more expensive GPS doesn't work indoors. The 'Bio-inspired Self-Organising Sensor Network' has been developed by Aditya Agarwal and Aditya Garg, BTech, final year, Electrical Engineering (EE) and Shubham Mankhand, MTech, final year. An 'Object Tracking using Multiple Pan-tilt Cameras' that can track any object or person has also been developed by Rajiv Garg and Ashish Pant, BTech final year, EE and Maheshwar Singh, MTech final year, EE. " Initially, all the cameras will start, study and store the background. Now if any person enters, the cameras will detect the object and will become masters or managers and start tracking the object. The cameras will pass the information to the other cameras through the network", said Garg.

(Source: Times of India, April 23, 2006)

IIT has a cheap way of purifying water

Arsenic poisoning is a serious problem in Rajasthan, Assam, West Bengal, Jharkhand, Chhatisgarh and Bangladesh, to name a few. The chemical is found mixed in the groundwater that people from these areas drink. Keeping the socio-economic conditions in mind, students of IIT-Delhi have invented a chemical that can purify arsenic-laced water- and the cure is quite cheap. A series of such projects were unveiled at the IIT campus on Saturday morning for industrial and public viewing through IIT's fiesta "Open House". IIT Director Dr Surendra Prasad said, "We want to motivate schoolchildren to choose science and technology as a career option. This festival is geared up for that purpose besides showcasing IIT's talent. " Giving details of the chemical, R.C. Maheshwari from the Centre of Rural Development and Technology said, "Water in these regions contains two forms of arsenic: A3 and A5. The later is very hazardous for health and difficult to remove. In the present processes, it has to be first oxidized and then made to undergo a purification process. This requires a large investment". "IIT has developed a new chemical whereby water can be purified in a simpler and a more effective way. We have developed an iron-based compound, called SFCa, which has been put up for a patent. This compound has the ability to purify water using a special purification technique. This compound costs Rs 40 per kg," said Meenakshi, Karan, Parag, Deepak and Lalit, the student team involved in this. "In fact, 400 gm of the iron based compound can take care of a family of five for a duration of two months," said Dr Maheshwari.

(Source: HT METRO, April 26, 2006).

IITians get ready for African safari

Baja, an All-Terrain Vehicle (ATV) design contest organized by Society of Automobile Engineers (SAE) International, will witness another round of rivalry in South Africa in October this year. Around 40-50 teams will participate from all over the world in the ATV category. Mini Baja competition started in 1976 in South Carolina and since then has been a premier engineering design competition for university students. SAE organizes seven Mini Baja Competitions across the globe M-Baja East –USA, M-Baja West-USA, M-Baja Midwest-USA, M-Baja Mexico, M-Baja Brazil- Baja South Africa, M-Baja Korea. And, learning from their seniors' experience last year, students of the mechanical engineering department at the Indian Institute of Technology (IITD) are all set to take the legacy forward by participating and aiming for the top slot in this year's event too. Last year, inspite of being appearing in a Mini-Baja event for the first time, the team under the captaincy of Vijay Jain, managed to secure 29th rank out of 36 teams that participated. This year, a team compris-

ing Dhawal Parate, Prasun Jain, Shirish Upadhyay, Vardhman Jain, Karan Varamani, C Ashish Kumar, Pravesh Nehra (all second year); Vinayak Garg and Afzal (third year) and Vipul Jain (first year), mechanical engineering, IITD is already off the mark to participate in this year's event. The aim of the competition as Parate says is "to design and build a prototype of a rugged single seat ATV whose design can be used by a firm to manufacture the vehicle commercially". This ATV can be used by army personnel, agriculturist, motor sports enthusiasts to negotiate all terrains consisting of swamps, rocky areas, hills, shallow water, logs, steep incline and mud. The plan to design and build an ATV began in December 2005 when Parate and Jain interned at the research and development division of Maruti Udyog Limited (MUL). " The stint at MUL helped us to understand the intricacies of designing and manufacturing a vehicle," added Jain. An extensive modeling in ANSYS (software to test the design and which helps in simulation of actual working of the machine) will provide best designs at lowest weight. The target weight of the vehicle has been fixed at 200 kg. The team is using Comet CVT, custom made suspension, knuckles customized hub assembly, Rack and Pinion steering system and four onboard disc brakes. It's also using 19 X 7-12 (Bear Claw, KT 1718, tubeless) ATV tyres with aluminium rims for better traction. The team will start working on the project during the summer recess at IITD. The team has received Rs 3 lakh sponsorship from Maruti. "The total budget comes to around Rs. 14 lakh, the sponsorship amount takes care of the fabrication of the vehicle. We are looking for additional sponsors to cover the cost of air fare of team members and transportation of the vehicle to South Africa," said Parate.

(Source: Education Times (TOI), May 01, 2006)

A textile vein in your heart? IIT on the job

For thousands of heart patients awaiting bypass surgery in India, the textile technology department of IIT Delhi may soon have some help to offer. The department has started researching a biodegradable process of engineering blood vessels that will no longer require transplantation of the saphenous vein from the patient's thigh. The process is the latest in a series of innovative implementations in the field of biotextiles. The department has already patented a biodegradable knitting developed in the laboratory in 2002. " This knitting forms the base for cells from the patient's body that can be used to replace a damaged part. Within a few months, the biodegradable knitting is expunged by the body leaving behind a healthy body part," says Prof Bhuvanesh Gupta who is heading the research. The IIT's collaborators include a team headed by Prof D. Letourner of ISERM in Paris and another one headed by Dr. K.K. Talwar, Director of the Cardiology Department at PGI Chandigarh. These knittings are first made bio-receptive by a pocess of "plasma functionalisation" which allows protein molecules to be anchored onto the knitting". Once the knitting is ready, healthy cells can be deposited on either side of the knitted scaffold (engineered textile material). " While engineering urinry bladder tissue, we deposited urothelial and smooth muscle cells taken from the patient's body on either side of the scaffold." The body part can then be suitably transplanted to the appropriate organ. The department developed the technique for replacing damaged tissues of urinary bladder in collaboration with a team headed by Prof. J. Hilborn of the University of Uppsala, Sweden. Adds Gupta: "Next on the cards is implantation of engineered tissue in the reconstruction and repair of cartilage and bones, employing the same basic technique of using the biodegradable knitting as a support base. Besides these areas, this technique can also be effectively employed in the treating problems of the intestine, nerve, liver and artificial skin." The process for making the biodegradable knitting is to be published in an American journal, Journal of Applied Polymer Science. Human trials of the processes will follow after the granting of patents.

Biotextiles: where it works

Protective textiles such as surgeon's wear, operation drapes

External devices like wound dressings, bandages, pressure garments.

Prosthetic devices and implantable materials like sutures, vascular grafts, artificial ligaments

Sanitary napkins and towels.

(Source: Indan Express, March 25, 2006)

Awards received by IIT Delhi Faculty

Dr. Ashok Kumar Ganguli, Associate Professor in the Department of Chemistry, IIT Delhi has been awarded the "MRSI Medal 2006" for outstanding contribution in the area of "Materials Science and Engineering" on February 13,2006 in Annual meeting of the Materials Research Society of India held at Lucknow. The award carries a Medal, a certificate and an invitation for the award lecture

IIT team to study traffic flow at Delhi airport

Calling in the experts to sort out the traffic problems on the ground at the Indira Gandhi International Airport, the GMR Fra-port consortium has hired the services of Transport Research and Injury Prevention Programme (TRIPP) of Indian Institute of Technology (IIT). A step to make the approach to the airport a little easier, since air traffic in Delhi is growing at over 20 per cent every year, this is an attempt to ensure that infrastructure on the ground is able to cope with the increased demands. " The team from IIT will look at not only traffic flow on the ground in terms of cars, but also look at the passenger flow at the IGI airport. The idea is to use the space at the airport more efficiently. Some of the things that the IIT team will look at include the areas where passengers get off at the airport, walkways for them and the parking zones, " said airport sources. The research study will include looking at the existing problems related to "circulation conflicts" between passengers and parked motor vehicles at arrival and departure terminals in both the domestic and international terminals. The team will then suggest redesign of arrival and departure movement for pedestrians and vehicles based on existing and future demand. These design 'changes' will be for all the terminals of the airport. " The team from IIT will look at the traffic problems outside the terminals only. These suggestions will not only ensure that there are fewer traffic jams at the airport, but also make the airport safer for pedestrians," sources revealed. There are also plans to build a multilevel parking. Having studied the passenger flow at both the terminals, there is also a proposal to build an integrated terminal at Delhi.

(Source: Hindu, 22-05-06)

Action needed on IPR enforcement front

Piracy remains a major stumbling block in Indo-US business relations. The US-India CEO Forum on Friday came out with a proposal that coordination of intellectual property rights (IPR) enforcement efforts be done nationally and specialized courts be established to handle both civil and criminal IPR matters. While acknowledging that there is an increasing convergence in the approach to IPR legislation by both countries, the Forum calls for more action on the enforcement front. IPR enforcement is handled by the states and results vary dramatically as many units lack specialized training, the forum noted in its report. The goal should be a national unit dedicated to IPR enforcement and the first steps would have to be coordinated by the Ministries of Information and Broadcasting and Human Resource Development. The forum has also called for setting up specialized intellectual property courts. This, it points out, will not only help clear the huge backlog of cases, but judges and prosecutors will be able to function better after specialized training. Other countries in the region, such as Thailand, have already set up such courts. The Forum also mooted an agreement between India and the US on cyber security to include data privacy, IPR etc. and create universal standards in data privacy to build confidence in Indian IT providers.

(Source: The Financial Express, March 03, 2006).

IT's not happening, drug firms rule patents list

India may be the world leader in Information Technology but it trails in a big way when it comes to patents in the IT sector. While the top 10 patents holders across the world are IT companies, in India, no IT firm has patents. The list of top 10 patents holders in India comprises only pharmaceutical and bio-tech companies. In India, 184 patents are held by the Council of Scientific and Industrial Research (CSIR), followed by Ranbaxy (56) and Dr Reddy's Laboratories (19). Worldwide, though the highest number of patents is held by IBM (3,248) followed by Matsushita Electric industrial company (1,934) and Canon (1,805). " In India the software industry has a very small share of the total number of patents issued, unlike the international scenario, where the IT companies have the maximum number of patents," said Pravin Anand, a patents attorney. A major deterrent for these IT companies is the Indian patent law, which does not allow software per se to be patented. " Multinational IT companies have huge research facilities in India but refrain from filing for patents due to the Indian patents law. Even for inventions in their India labs, filings are made in the US or Europe," said H Subramanium, another patents attorney. However research in the pharmaceutical sector has been given a major boost after the 2005 amendments to the patents law, which allow for product patents. In the US the number of pharmaceutical companies like GlaxoSmithKline and Elililly that feature in the patents holders' list is only 40. "Pharmaceutical majors feature low on the list of patents holders as the pace for research in the sector is much slower than in the IT sector," added Subramanium. "The cost of researching new molecules is much higher than the cost of discovering new algorithms. While it makes commercial sense to get patents for newer versions of a software, it is not so for newer molecules," said an industry expert.

(Source: Business Standard, January 05, 2006)

2,000 software patents applications in 2005

The number of applications for patents filed in the software sector has seen a huge increase in the last two years. Recent changes in the patents law have made this possible, as evident in 2,000 applications being filed in the last one year alone. The number of applications was mainly between 2000-2003. The number of patents granted has also shot up from 110 between 2000-03, to about 600 in 2004. In 2005, about 1,100 patent applications are awaiting opposition proceedings. The department of information technology has constituted a five-member team to study the sudden increase in the number of patents applications. " The government is concerned with the dramatic increase in the number of patents applications that have been filed in the last two years," officials told Business Standard. Since 85 per cent of these applications have been filed by multinational companies, the department has asked the team to submit its report in the next two months. " The biggest worry is that 85 per cent of these patents applications are being filed by MNCs," the official added. In 2004, about 1,500 applications were filed for software patents, out of which 500 were issued patents. This increase, however, is welcomed by patents experts as this makes India a hub of innovation in technology. " In 2005, computer-related inventions were allowed patents and this has spurred patents activity in the last one year. The number of applications has increased tremendously since 2004, and this is likely to go further up," said patents attorney Pravin Anand. Recent changes made in the Indian patents law allow patents for computer-related inventions like applied software-software used in cars, washng machines and music systems. Till recently only embedded software-where software is intrinsically linked with hardware- was allowed patents. The pace is likely to pick up even more in the coming year. " With more and more MNCs setting up research labs in India, the number of patents granted for software is only going to increase," added Anand.

(Source: Business Standard, January 04, 2006)

IPRs are the most valuable corporate assets

Intellectual property rights (IPRs) services were rated as one of the most happening professions in the United States a couple of years ago. Perhaps, it is not yet time to say the same about India. However with the establishment of the WTO and the signing of the agreement on Trade Related Intellectual Property Rights (TRIPS) in 1995, the profile and scope of IPRs have undergone a sea change in India. So what are IPRs? Broadly stated, IPRs consist of patents, trademarks, copyrights, designs and geographical indications. In order to keep up with its obligations under TRIPS, India amended several of its IPR legislations and introduced some new ones. Just to name few changes, India now offers protection for product patents, service marks are now registrable and a new sui generis legislation for protection of geographical indications has been enacted. These changes are being ushered in at a time when the effect of liberalization on the Indian economy is a hot topic for discussion in the international media. Opening up the economy has definitely had a positive impact on the growth of IPRs in India. The advancement of technology has also led to certain new-age IPRs such as domain name rights, digital copyrights, web casting rights, SMS rights and the like. The Indian government and judiciary have certainly kept pace with these developments.

The establishment of the new.IN domain registry and the recent decision of the Madras High Court recognizing SMS rights in cricket scores are just two illustrations at hand. Against this background, IPR-related services in India are certainly poised for an upward movement. Regular awareness workshops on IPRs are being conducted by the government for the benefit of corporate houses, government departments, stakeholders, students etc. IPRs are also being taught as part of the curriculum even at top technical and management institutions in the country. So IPRs have certainly caught the attention of more than one segment of the society and are being recognized as a major tool for economic and social development. Hence, the Indian Scenario vis-à-vis IPRs has certainly evolved and there doesn't seem to be any major impediment in its progress except, perhaps, the continuing lack of awareness among the very right holders. Often we hear about patenting dosas and Mysore silk sarees, and copyrighting ideas and inventions. Such lack of awareness among right holders simply leads to the misuse of the very IPRs that are their economic tools. The question is what can be done to check misuse of IPRs? First and foremost, be aware of the nature of your right and the means of its protection. Not all IPRs are protected the same way and for the same duration. Hence, while copyrights do not require a registration, patents and designs certainly need to be registered without which there would not be any potection; while patents are protected for 20 years only, trademarks may be protected perpetually, provided the owner cares to renew it; while what is protected by copyight is the originality of expression in an idea, patent protects a workable and novel idea. It is essential to understand the difference between various kinds of IPRs. The on-going awareness workshop must, therefore, be more frequent and educative to cater to this aspect. Once the nature of the right is identified, necessary steps may be taken to protect the same. For large corporate houses owning hundreds of trademarks and patents, it is advisable to appoint a watch agency to keep an eye on any kind of misuse of the right and immediately report the same to the owner. Another aspect that deserves a mention here is the renewal of rights once the term expires in the case of patents, designs, trademarks and geographical indications. One must also be diligent while licensing rights to third parties. Inadequately and improperly worded license agreements could land an owner in litigation. A classic example at hand is publishing agreements signed by authors without giving a proper reading and later realizing that the agreement is worded heavily in favour of the publisher. Finally, since it is a spcialised field, it would be imperative to seek appropriate legal counsel to deal with IPR issues. This would not only guard and protect the rights, but would also save the owner the cost of legislation which could be several times more than hiring a good legal counsel. After all, IPRs are today the most valuable assets of a company.

(Source: The Financial Express, April 21, 2006)

Govt urged to hold IPRs on ayurvedic drugs

Given the global trend of overseas players seeking patents on what has been considered 'traditional Indian knowledge', a newly-formed association of ayurveda practitioners has suggested the Centre hold all such patents. This, they maintained would be the first step towards getting the nearly Rs 8,000 crore industry to standardize. Standardisation is critical if ayurveda is to survive, hence the government should also bring in intellecual property rights protection (IPR) for formulations. 'We need to standardize ayurvedic formulations, if we are to survive in the global market. But in India, we do not have protection for formulations hence individual ayurvedic institutes and practitioners prefer to keep their formulations secret. So, the government must also bring in an IPR protection regime for formulations which will ensure that the practitioners get their royalties," observed J B Abhyankar, newly appointed President of the Maharashtra Ayurvedic Aushadhi Utpadak Sangh. The newly-registered umbrella organization covers the entire value chain in the sector, from the farmers who grow the aushadhi (medicinal plants), to its suppliers and vaids (ayurvedic doctors). It has over 150 members across the state and its first priority is to set up a centralized ayurvedic formulations testing laboratory. All practitioners would be able to test all their products here, Mr Abhyankar said. The government laboratory in Mumbai is not capable of handling the volumes, it was pointed out.

(Source: The Economic Times, 23-05-06)

PHDCCI flays govt. on data protection

Industry body PHDCCI on Thursday criticized the government for neglecting the issue of data protection under the Intellectual Property Rights (IPR) regime. "The commerce ministry has capitulated to pressures from the lobbies against data exclusivity and that poses a serious threat to innovation in the Indian industry," PHDCCI said in a release here. The chamber said the government must address concerns of database creators and safeguard customary access to data by users from scientific, education and library communities. Database protection under IPR law is an obligatory step towards making India a technology superpower, it said. " India should ensure clear protection of proprietay databases," PHDCCI Secretary General Bibek Debroy said.

(Source: Financial Express, 21-04-2006)

Summary of the salient features of the (Amended) Patent Rules 2006 w.e.f. 5-5-2006

1) The provision for submission of documents through fax followed by submission of duly signed copies within one month has been completely withdrawn. Also the expected provision of submission of documents electronically has not been activated. **Therefore, deadline for observing any action will have to be met by submission of duly signed documents by that date.**

2) The provision for making half payments or deferred payment within one month of the action has been withdrawn. **Therefore, any payment in respect of any action will have to be made in full either by the applicant or by their attorney at the time of action itself.**

3) The time available for submission of duly executed Forms has been extended from 3 months to 6 months from the date of filing of the application. The **provision** will immensely facilitate applicants whose inventors are not in station at the same place and for taking signature therefrom is a time consuming exercise.

4) The time available for complying with the objections raised by the patent office in the First Examination Report (FER) has been extended from 6 months to one year from the date of FER. However, the provision for extension possible for such compliance has been

(.....Contd. on Pg 18)

IPR NEWS & ARTICLES

List of IPR Applications Filed during the year 1-4-2005 to 31-3-2006

S.No.	*Title of the work*	*P. Inventor/Deptt/Centre*	*Status*
1.	Crypto System Identification Using Neural Networks	Prof. B. Chandra, Mathematics	Filed
2	US Patent titled "Suspended Stripline to Non-Radiative Dielectric Wave Guide Transition	Prof. S. K. Koul, CARE	Filed
3	Indian Patent titled "Suspended Stripline to Non-Radiative Dielectric Wave Guide Transition	Prof. S. K. Koul, CARE	Filed
4.	Indian Patent titled "T-Connected Autotransformer Based Eighteen-Pulse AC-DC Converter	Prof. Bhim Singh, Elect. Engg.	Filed
5	Removal of Oil from Steel-Rolling Mill Effluents using Electrocoagulation	Dr. A.N. Bhaskarwar, Chem. Engg.	Filed
6.	Development of pollution-preventing eco-friendly, volatile-organic compounds (VOCs) free and biodegradable writing, stamping, screen and off-set lithographic printing ink	Dr. A. N. Bhaskarwar, Chem. Engg.	Filed
7	Biogas enrichment and compression in cylinders to use it as vehicular fuel	Dr. V. K. Vijay, CRDT	Filed
8.	Hybrid passive filter for harmonic mitigation in AC-DC converters feeding variable frequency drives	Prof. Bhim Singh, Elect. Engg.	Filed
9.	Planar Microstructures in Surface Micromachining Technology for MEMS using trench formation, backfill and CMP process	Dr. Sudhir Chandra, CARE	Filed
10.	Preparation of Phospho-Silicate-Glass (PSG) film using RF sputtering process	Dr. Sudhir Chandra, CARE	Filed (P)
11.	Oral Insulin Delivery Capsules	Prof. Harpal Singh, CBME	Filed
12.	Process for Interfacial polymerization using diisocynate and diamines (polyurea capsules)	Dr. Ashwini K. Agarwal, Textile Tech.	Filed
13.	Process for and Insitu polymerization using melamine form aldehyde	Dr. Ashwini K. Agarwal, Textile Tech.	Filed
14.	A Method for enhanced Transdermal Delivery of Bioactives & Modulated d-c iontophoresis Device	Prof. Sneh Anand, CBME	Filed
15.	An iontophoretic device & method of use thereof	Prof. Sneh Anand, CBME	Filed
16.	Pipe Restrainer Device and Mechanism thereof	Dr. Sudipto Mukherjee, Mech. Engg.	Filed
17.	A System and Method for routing of data in sensor networks	M/s. Elfsys Embedded Systems	Filed

No. of Indian patents filed : 17
No. of US patents filed : 01

...Summary of the Salient features of the (Amended) Patent Rules 2006 w.e.f. 5-5-2006 *(Contd. from Pg 17)...*

completely withdrawn. The **applicants** or their attorneys will have sufficient **period of time** to interact among themselves and **with the Examiners** for bringing the application **in order for grant**.

5) The time available for filing "Request for Examination" (RE) has been extended from 36 months to 48 months from the date of filing. **The new provision is consistent with the 48 months period time available for filing RE for applications filed before 1-1-2005**. The period can be suitably utilized by the applicants for evaluating their inventions before pursuing the protection by filing the needful "Request for Examination".

6) The period of filing RE for a divisional application is 48 months from the date of filing or 6 months from the date of such division, whichever is later.

The above is not an exhaustive list of amendments to the Patent Rules. A comprehensive amended document pertaining to Patent Rules 2006 can be obtained from www.ipindia.nic.in

For further information on IPR related matters of FITT & IIT Delhi please contact :

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Widespread innovation will sustain momentum

Innovation comes from applying creativity or applying thought. It is about action versus ideas. It is about implementation as much as it is about designing. "These were Wipro Chairman Azim Premji's words at the recent Nasscom Leadership sumit. He is just one among many who are beginning to talk about the need for innovation in Indian companies. **Navyug Mohnot**, CEO of QAI India, a company which facilitates enterprise-wide deployment of process initiates that stimulate operational excellence, spoke to **Thanuja BM** on the new buzz in industry circles-innovation.

A comment on the quality movement in India.

Several sectors have taken a proactive, even aggressive, approach to the deployment of quality programmes, standards and frameworks. Notably among these are the Indian IT and BPO firms. This widespread adoption has been a key determinant of India's brand in the IT and BPO markets worldwide. The continued adoption of newer approaches to quality indicates that organizations have seen significant business value and continue to do so. Having delivered billions of dollars of high-quality services and products, the Indian IT and BPO sectors recognize that for continued dominance. Widespread 'innovation' will sustain the momentum and leadership.

What do you mean by innovation and how can it help industries grow?

Innovation is a holistic process involving the entire organization. The goal of innovation is to create business value by developing ideas from 'mind to market'. In the past innovation was defined largely by creativity and the development of new ideas. Today the term encompasses coordinated projects directed towards honing these ideas and converting them into developments that boost the bottom line. Creativity and design are necessary but not sufficient.

Innovation requires multi-disciplinary terms and is a complete lifecycle process. Seen as the creator of new value, innovation isn't hit-or-miss, trial-and error lateral thinking, but a repeatable process that successfully manages idea-to-cash.

How can innovation help Indian industries, specially the IT and ITes sectors?

These sectors have demonstrated that it is possible to not only survive – but also prosper – by finding innovative business models within the very same contradictions that seem to force others into making compromises. Two questions come to mind when you witness such success stories: how can these organizations maintain their innovative streak as they evolve to take on bigger roles in the global marketplace; and can other Indian organizations replicate their success stories.

And the answer to both these questions will lie in the manner in which organization go about creating a structure that instutionalises and sustains the process of innovation. Besides solving complex business and technical problems that hinder operational excellence, the body of knowledge on innovation can be leveraged by the Indian industries and other civil and defence establishments to move towards business excellence. It is early days and there is no real figures available for the Indian industry.

The Nasscom-McKinsey study shows a potential of several billions dollars that can be earned over and above the hugely complimentary and bullish projections that they have made for Indian IT and ITES by and through innovation.

(Source: Economic Times, 23-02-2006)

IIT Delhi Students win the DD-MIT-Robocon 2006's Most Popular Manual Robot Award

ROBOCON is an annual international robotics competition organized by the Asian Broadcasting Union (ABU) since 2002 to bring students of different countries together for the development of Mechatronics skill and friendship. Robocon 2006 will be held in Kuala Lumpur, Malaysia, in the first week of September, 2006. In India, the competition is organized jointly by the Doordarshan (DD) and Maharashtra Institute of Technology (MIT), Pune, which was recently held in Pune during March 4-5,2006. Out of 23 teams, a team from IIT Delhi received the MOST POPULAR manual robot award which performed consistently well in all the matches it played. It scored the maximum points possible in all the matches. The robot is sought by the DD (it represents India in ABU) and the champion team, Nirma Institute of Technology, Ahmedabad, to be included in the final set of robots that will represent India in the International competition. DD had live telecast of the event on March 5, 2006 from 9-9.30 in DD-I, and 10:30-11:30 am, 2:2:30pm, 5-6pm in DD-Sports to show the inauguration, quarter-,semi-,, and final matches, respectively. Later, DD-I telecast the review of the games in the same night between 11:30-12:00. The Robots by the IIT Delhi students were shown to the general public during the Open House (April 22, 2006).

Students with the Robot which won them award.

Mission of FITT

To be an effective interface with the industry to foster, promote and sustain commercialisation of Science & Technology in the Institute for mutual benefits.

TECHNOLOGY TRANSFER

Technology Transfer - VCO and Detector

Prof. Nigam exchanging Technology Transfer agreement with SICO MD Mr. B.N. Sinha

An exclusive Knowhow transfer agreement (license agreement) was made between SICO (The Scientific Instruments Company) & FITT on 16th January 2006, pertaining to the development of VCO and Detector circuit. The validity of the license is for a duration of 10 years.

Design of Target Classification Method for Passive Surveillance Sonar

A Technology Transfer agreement exchange between Vice Admiral P.C. Bhasin & Director IITD, Prof. S. Prasad

The above project, commissioned under the Advance Technology Vessel Programme (ATVP) of the Ministry of Defence, Govt of India was completed successfully by the Signal Processing Group in the Centre for Applied Research in Electronics (CARE) of Indian Institute of Technology Delhi. The formal technology transfer took place on the 27th May 2006 in the Senate Room of IIT Delhi. The technology was handed over by Prof. Surendra Prasad, Director, IIT Delhi to the Vice Admiral PC Bhasin (Retd.), Director General ATVP, Ministry of Defence, New Delhi.

Stop Press !

Dr. Anil Wali will be joining as the new MD of FITT on June 14, 2006. Currently he is holding the position of GM (R&D), IPCL.

Attention!

For any information regarding latest courses, seminars, conferences, symposia or workshops at IIT Delhi and FITT, please keep in touch with the websites : **http://www.fitt-iitd.org** and **http://www.iitd.ernet.in**

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