

# ACADEMICS



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# Programmes Offered

## Undergraduate

- ⤴ Chemical Engineering
- ⤴ Electrical Engineering
- ⤴ Mechanical Engineering

## Doctoral

- ⤴ Chemical Engineering
- ⤴ Chemistry
- ⤴ Civil Engineering
- ⤴ Cognitive Sciences
- ⤴ Economics
- ⤴ Electrical Engineering
- ⤴ English
- ⤴ Mathematics
- ⤴ Mechanical Engineering
- ⤴ Philosophy
- ⤴ Physics
- ⤴ Sociology



# New Educational Initiatives

Indian Institute of Technology Gandhinagar aspires to be a leader and a trend-setter in education. In this endeavor, we enthusiastically encourage innovative and experimental approaches in education consistent with the Institute's mission and vision. Some of the recent initiatives are outlined in the pages that follow.

## Foundation Programme

The Foundation Programme is an innovative and exciting programme to be introduced in July 2011 for all new undergraduate students to help them make a smooth transition from the days of intense preparation for Joint Entrance Examination to a new phase of higher level learning on the way to becoming well-rounded human beings and responsible engineers. Before they face the heavy demands of regular semester course work, the students will undergo this five-week training in life-skills that will prepare them to take maximum advantage of the opportunities that the IITGN academic environment offers. For the last two years the Institute has been conducting a one-week orientation programme consisting of workshops on communication, theater, appreciation of architecture and various games that inculcate team work. The new Foundation Programme is a significant enhancement of the existing orientation programme.

## Improving Teaching-Learning Ambience

IITGN believes that the teaching-learning ambience can be greatly improved through a better understanding of the student body. To this end, the Institute has introduced a comprehensive viva-voce of all undergraduate students, to be conducted by a panel of faculty every semester. The viva-voce enables the Institute to spot talents and identify weaknesses of individual students. The students are encouraged to develop their talent in the right direction. The Institute also provides individual attention to those who need it.

## Curricular Initiatives

The Institute offers half-semester courses to provide a greater number of courses to our students within the limited time-slots and available faculty resources. Within this framework, Prof. Jayant Kanitkar taught two courses in Financial Accounting & Management and Introduction to Financial Engineering. Prof. Claude Petitpierre from Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland, taught a half-semester course in Computer Science during the second semester of 2010-11.

## Examinations without Invigilation

In the Fall semester of 2010, the Institute conducted several examinations without

invigilation. The aim of the exercise was to cultivate high moral values and emphasize the importance of integrity. The students received this new initiative with great enthusiasm. A carefully designed feedback system was devised to assess the efficacy of the experiment. Encouraged by the feedback received from the students, the Institute is deliberating over ways to improve the method and the prospect of expanding the experiment to include more students.

### Recognition of Outstanding Academic Achievement of Students

Undergraduate students with outstanding academic performance are recognized by the Institute every semester. A student with an SPI of 8.5 or more, and also satisfying other criteria set forth by the Academic Senate, will be placed on the Dean's List. Every student on the Dean's List will receive a letter of appreciation from the Dean of Academic Programmes and a topical book.

### Earn-While-You-Learn Programme

The Institute provides undergraduate students the opportunity to work in the library and computer centre, and to grade assignments. The programme instills the value of dignity of labour in students, and builds their self-esteem while providing them a monetary incentive. Thirty six undergraduate students (22 in Fall 2010 and 14 in Spring 2011) took advantage of this programme.

### Emphasis on Physical Education

With the belief that “a healthy mind lives in a healthy body”, the Institute has designed a programme to rekindle the passion for sports and outdoor activities in the students, many of whom had, for several years, confined themselves to academics before joining the Institute. A compulsory physical education component with flexible time slots has been introduced in the curriculum.

### Community Outreach

IITGN is committed to making a positive impact on the neighbouring community. Every week, a team of our students interacts with students of 6<sup>th</sup> to 9<sup>th</sup> grades of nearby Sakar School, Ahmedabad to excite them about Science and Mathematics. Recently our faculty and students have launched a very ambitious programme to help families of on-site construction workers increase their awareness about their medical and educational needs.

### Postgraduate Diploma Programme (DIIT)

The Institute has developed a DIIT programme with the aim of providing locally employed engineers and technical personnel easy access to IIT education to help them continue their education for their own growth as well as for that of their employers. Under this programme, employed engineers and technicians can attend courses in a field of their choice at IITGN as

per their convenience. The programme will be launched shortly.

### Non-degree Programmes

The Institute has initiated full-time and part-time non-degree programmes to enable students of other Institutes to get exposure to the IITGN environment or to take a few courses for credit. Through these programmes non-IITGN students get direct access to specialized courses being offered at IITGN. An undergraduate student of another institute took advantage of this programme and spent the first semester of 2010-11 here.

### Faculty Seminar Series

Every Wednesday a faculty member or a research scholar gives a thirty-minute presentation on his research interests. The talk, attended by faculty and research scholars, is tailored for non-specialists. These seminars are a very effective means of exchange of information on individual research interests, and help to create a more conducive research environment by promoting interdisciplinary research in the Institute. The series is coordinated by **Prof. Sriram K. Gundimeda, Prof. Dhiren Modi and Prof. Bireswar Das.**

### Summer Research Fellowships for Faculty of Other Institutes

To facilitate exchange of ideas and interaction among faculty members from different Institutes, IITGN has developed a Summer Research Fellowship programme under which faculty members from other Institutes can spend a summer at IITGN and collaborate with faculty on research and educational initiatives.

### Staff Skill Development Initiative

The Institute has initiated a programme to enable non-teaching staff to enhance their knowledge and skills through short courses and workshops conducted in-person or on-line. Such training also helps to improve an individual's personality and performance. On successful completion of the training, staff members are reimbursed the registration fees.

# Scholarships for Students

## Merit-cum-Means Scholarships

Merit-cum-Means (MCM) scholarships were awarded to 64 students of General and OBC categories during the year 2010-11. These are awarded to meritorious students (a high JEE rank for first year students and CPI greater than 6.5 for senior students), whose parents have limited income (up to Rs 4.5 lakhs per year). An MCM scholarship carries Tuition Fee waiver (current value Rs 50,000 per year) and Rs 1000 per month for ten months. In addition, tuition fee waiver (Freeship) was awarded to 5 students for the entire year and 3 students for one semester, who did not qualify for MCM on merit but needed financial assistance.

All students of SC/ST category avail the tuition fee waiver. In addition, 42 students in this category, whose parents' income was within the limit prescribed for MCM scholarships, were granted facility for free food in the student mess and Rs 250 per month for ten months.

## S. C. Mehrotra Scholarships

The S. C. Mehrotra Scholarship carries Rs 1500 per month for 10 months. The Institute also awards the recipients a tuition fee waiver as they satisfy the income criterion for MCM scholarships.



Vipul

**Mr Vipul Goyal** is the new recipient of S. C. Mehrotra Scholarship for the year 2010-11. He had the highest CPI (9.67) amongst the second year applicants.



Anusha

**Ms Gunturu Anusha**, a third year B. Tech. student and recipient of last year's S. C. Mehrotra Scholarship, continues to receive the scholarship.



## Guest Professors

The following academics have accepted offers to be Guest Professors and have committed to spend at least 10 days in a year at the Institute to contribute to its tryst with excellence.

**Dr Nikhil Balram**, President, Ricoh Innovations Inc, USA, an international media company, is a world-renowned innovator and expert on display technology and consumer electronics. The products developed by him and his team have won numerous awards in these areas. He has served in executive positions in several companies including Faroudja, Sage, Genesis Microchip, SONICblue, National Semiconductor and Marvell Semiconductor. He has numerous patents, technical papers and books. He received BS, MS and Ph. D. degrees in Electrical Engineering, from Carnegie Mellon University.



**Prof. Vijay Gupta**, Director, GD Goenka World Institute, New Delhi is well known for innovations in teaching and evaluation methods and for his books and teaching aids. During his long tenure at IIT Kanpur, he taught a wide range of courses and held many important positions, including the Dean of Academic Affairs. He was Gold Medalist in B. Tech. from IIT Delhi. He obtained his Ph. D. degree from the University of Minnesota in 1972.



**Prof. Suchitra Mathur**, Associate Professor of English at IIT Kanpur, is a teacher and scholar in the fields of Indian English Literature, Feminist and Postcolonial Theory, and Popular Culture studies. In addition to publications in various national and international journals in these areas, she has also been active in organizing workshops related to these fields as well as communication skills at various institutes across the country. Her recent work has focused on science studies as an interdisciplinary field that puts her interests in gender and communication in meaningful conversation with the S&T focus on her institutional location.



**Prof. Mythily Ramaswamy** is a Professor at the Tata Institute of Fundamental Research Centre for Applicable Mathematics, Bangalore where she is currently the Dean. She is one of the leading figures in the country in the field of Partial Differential Equations, more specifically, analysis and applications to control problems. She received her B. Sc. and M. Sc. degrees from the University of Bombay and Ph. D. from University of Paris 6, France.



**Prof. K. S. Gandhi** received his Bachelors degree in Chemical Engineering from Andhra University (1962), his Masters degree from the Ohio State University (1965), and his doctorate from the University of California at Berkeley (1971). He has taught at the Indian Institute of Technology Kanpur (1971–86) and at the Indian Institute of Science, Bangalore (1986–2005). His industrial experience includes work at J. K. Paper Mills, Rayagada and at Pilkington Brothers Research Centre in the UK. He is a member of the Indian Institute of Chemical Engineers, and a Fellow of the Indian Academy of Sciences, as well as the Indian National Academy of Engineering.



**Prof. Dheeraj Sanghi** is a Professor of Computer Science and Engineering at IIT Kanpur. His research interests lie in the area of Computer Networks, in particular, protocols at different layers, IPv6, mobility, security, etc. He has served as Director of LNM Institute of Information Technology, Jaipur, for two years. He is passionate about technical education in India, and writes regularly about it in magazines and blogs. He received his B. Tech. from IIT Kanpur, and MS and Ph. D. from University of Maryland, College Park.





## Distinguished Visitors

Visits by eminent personalities in diverse fields including science, engineering, technology, and education inspire the students, faculty and staff of the Institute. IITGN hosts lectures by such distinguished individuals both by special invitation and if they happen to be in the area for some other engagement. Faculty and students are encouraged to meet the distinguished visitors and engage in interactions. Some of the eminent persons who visited the Institute during 2010-11 are:

**Prof. Devang Khakhar**, Director IIT Bombay, visited the Institute on April 14, 2010 to participate in the Chemical Engineering Selection Committee. To take advantage of Prof. Khakhar's presence on the campus, a meeting with the IITGN faculty was organized to facilitate an exchange of ideas with him. Prof. Khakhar was the mentor Director of IITGN in its early days.



**Prof. Raghunath K. Shevgaonkar**, Vice Chancellor Pune University, visited IITGN on April 16, 2010 to participate in the Electrical Engineering Selection Committee. He had been associated with IITGN earlier when he was the Deputy Director of IIT Bombay.



**Mr Kushal Sacheti**, CEO Galaxy, a diamond business company in New York, visited IITGN on May 3, 2010. Mr Sacheti is a philanthropist with a passion for education. He obtained his M. Tech. in Chemical Engineering from IIT Kanpur. He has set up a Centre for Desert Development Technologies at BITS Pilani, from where he obtained his B. Tech. in Chemical Engineering. He is a donor for many other educational and humanitarian causes.



**Dr Shailesh Nayak**, Secretary, Ministry of Earth Sciences, a Ph. D. in Geology from M. S. University of Baroda (1980) is a versatile person with a distinguished career and proven track record of 29 years at Indian Space Research Organisation (1977-2006) and Indian National Centre for Ocean Information Services (2006-2008). He visited the Institute on October 9, 2010 and inaugurated the technical event Amalthea 2010.



**Prof. Rajmohan Gandhi**, Research Professor at the University of Illinois at Urbana-Champaign, ex-Rajya Sabha member and grandson of Mahatma Gandhi and C. Rajagopalachari, visited the Institute on January 4-5, 2011. Prof. Gandhi has written extensively on India's independence movement and its leaders, Indo-Pakistan relations, human rights and conflict resolution. In 2002 he received the Sahitya Akademi Award for a biography of C. Rajagopalachari titled "Rajaji". He was the editor of the newspaper "Himmat" during its entire publication period from 1964 to 1981.



**Prof. Chitra Banerjee Divakaruni**, Creative Writing Programme, University of Houston, is the author of 15 books. Her work has been published in over 50 magazines, including the Atlantic Monthly, The New Yorker, and has been printed in over 50 anthologies, and translated into 13 languages. She visited the Institute on January 27, 2011 and delivered a talk.



**Mr Harsh Manglik**, Co-Chairman of Accenture India Pvt Ltd since January 2011 and Chairman of the executive council of NASSCOM (2010-2011). He received his B. Tech. from IIT Kanpur, a master's degree in mechanical engineering from Case Western Reserve University and MBA from Carnegie Mellon University.



## Other Visitors

The other eminent persons who visited the Institute during this period are as follows:

**Prof. C. S. Desai**, University of Arizona USA; **Prof. Nitish Thakor**, Johns Hopkins University USA; **Prof. Shyam Sundar**, Yale University, USA; **Prof. D. V. S. Jain**, Punjab University Chandigarh; **Prof. Dipan Ghosh**, **Prof. Shiva Prasad** and **Prof. Kushal Deb**, IIT Bombay; **Prof. Lilawati Krishnan**, **Prof. Ashwini Kumar** and **Prof. Maninder Agarwal**, IIT Kanpur; **Prof. Mihir Ravel**, Olin College, USA; **Prof. S. P. Shah**, Northwestern University, USA; **Prof. Sandeep Gupta**, Arizona State University, USA; **Dr Praveen K. Malhotra**, Strong Motions Inc., USA; **Dr Karen Chad**, University of Saskatchewan, Canada and **Prof. M. V. Pitke**, formerly of TIFR Mumbai.

## Conferences/ Symposia/ Workshops

Conferences, short courses, symposia and workshops on focus themes are important academic activities to stimulate discussion on different areas of importance. Many of these activities invite and receive participation from other organizations, which bring additional benefit of increasing the Institute's visibility to the outside world. The following activities were organized during 2010-11:



### ▲ **First International Conference at IITGN**

The first International conference of the Institute was held on **Cognition, Experience and Creativity** during October 29-31, 2010. The conveners of the conference were **Prof. Jaison A. Manjaly** of IITGN and **Prof. Bipin Indurkha** of IIIT, Hyderabad. The conference attracted over 80 participants from the United States, the United Kingdom, Ireland, France, Italy, Bulgaria, Japan, Canada and Portugal, besides India. Forty five scholars

presented their work in nine scientific sessions and one poster session. An essay competition, on **What is it like for a robot to feel pain?** open to all students on the occasion attracted wide participation. The first prize, worth Rs 3000 in cash, was won by **Anu Vivek** (B. Tech. student, IITGN) while the second prize, worth Rs 2000 in cash, was won by **Amit Goldy** (M. Sc. student, University of Allahabad). Partial financial support for the conference was provided by the Department of Science and Technology and Department of Information Technology.

### ▲ **Workshop on Cosmology (COSMO-2010)**

A workshop on Cosmology, COSMO-2010 was organized in collaboration with Cosmos Safari, New Delhi, during April 10-11, 2010. The event comprised lectures, film shows and star-gazing sessions for over 100 students from institutes including IITGN, DAIICT and Nirma University. The speakers included **Dr Santosh Vadawale** and **Dr P. Janardhan** (PRL, Ahmedabad), **Prof. Atul Gurtu** (TIFR, Mumbai), **Dr C. K. Raju** (Centre for Studies in Civilizations, New Delhi), **Dr Arvind Paranjape** (IUCAA, Pune), **Dr Arvind Ranade** (Vigyan Prasara, New Delhi), **Prof. D. S. Kulshreshtha** (Delhi University), **Dr Anil Kulkarni** (ISRO, Ahmedabad), **Mr Sandeep Nigam** (Cosmos Safari, New Delhi) and **Mr Amitabh Pande** (Amateur Astronomy Association, New Delhi). **Prof. Ameeya Bhagwat** and **Prof. Pallavi Ghalsasi** of IITGN coordinated the event.

- ▲ **Workshop on Computational Methods in Chemical Engineering using MATLAB** was conducted by **Prof. Nitin Padhiyar** of IITGN in coordination with **Prof. Z. Z. Painter**, Vishwakarma Government Engineering College (VGEC), Chandkheda for VGEC students during April 15-16, 2010.
- ▲ **Workshop on Digital Prototyping using Autodesk Inventor** was conducted by **Mr Ramesh S. Pudale** of Autodesk India (P) Ltd for IITGN students during May 2-5, 2010. The Institute intends to forge a strong relationship with Autodesk.
- ▲ **Indo-UK Workshop on Critical National Infrastructure Protection** was jointly organized by C-DAC Mumbai, IIT Gandhinagar and City University London, in Mumbai during May 14-15, 2010. **Prof. Dhiren Patel** of IIT Gandhinagar was the Program Chair. More than 90 delegates represented organizations such as Indian Statistical Institute Kolkata, IITs, TCS, ABB, IBM, C-DAC, NIA, DIT, Air Tight Networks, HDFC Bank, Secure-matrix, and City University London.
- ▲ **Summer Course on Processor Architectures** was jointly organized by IITGN and DA-IICT Gandhinagar from June 7-26, 2010 for Electrical Engineering students of the two Institutes. The course lecturers included **Prof. R. N. Biswas** (NIIT University, Rajasthan and formerly of IIT Kanpur), **Prof. D. Nag Choudhuri** (DAIICT and formerly of IIT Delhi) and **Dr Kaushik Saha** (ST Microelectronics). **Prof. Samaresh Chatterji**, DAIICT and **Prof. Joyce Mekie**, IITGN coordinated the course.
- ▲ A **National Workshop on Seismic Retrofitting Policy** was organized by **Prof. Sudhir K. Jain** on October 22, 2010. It was sponsored by Building Materials Technology Promotion Council, Ministry of Housing & Urban Poverty Alleviation, Government of India.





- ▲ **Training Programme on CADENCE Design Systems** was conducted by **Mr R. Bhanuprakash** and **Mr Santosh V. R. Avancha** of CADENCE from November 30 to December 3, 2010. Twenty IITGN students, 14 DAIICT students and 3 VGEC students participated in the training programme co-ordinated by **Prof. Joyce Mekie**.
- ▲ **Mini-Symposium on Prospects of Nuclear Power in India** was conducted on March 12, 2011. **Prof. S. P. Sukhatme**, Professor Emeritus, IIT Bombay; former Chairman, AERB; former Director, IIT Bombay, and an Honorary Distinguished Professor of IITGN was the Chief Guest. Distinguished speakers included **Mr S. S. Bajaj**, **Mr S. A. Bhardwaj**, **Dr Rakesh Chawla**, **Dr J. B. Doshi**, **Dr Manfred Groll**, **Dr Kannan N. Iyer**, **Dr Corey McDaniel**, and **Mr Gary T. Urquhart**. The symposium was sponsored by the Board of Research in Nuclear Sciences, Atomic Energy Regulatory Board, Council of Scientific and Industrial Research, Hindustan Construction Company, Westinghouse Electric Company and was coordinated by **Prof. Manmohan Pandey**.



- ▲ **Creating Comics: The Power of Visual Communication** by **Prof. Suchitra Mathur**, IITGN Guest Professor on March 19, 2011. Six students and one faculty member participated in this interactive workshop.
- ▲ **National Seminar on Enigma of Health: Maladies and Politics of Healing** was organized by **Prof. Koshy Tharakan** in collaboration with the Balvant Parekh Centre for General Semantics and Other Human Sciences, Baroda on March 25-26, 2011.

# Invited Lectures

The following invited lectures were delivered by acknowledged experts in their respective field. The lectures are attended by the students, faculty and staff.

- ^ **Issues in Natural Circulation Based Nuclear Reactors** by **Dr S. K. Gupta**, Distinguished Scientist and Director, Safety Analysis and Documentation Division, Atomic Energy Regulatory Board, Mumbai, April 8, 2010.
- ^ **Brain Machine Interface** by **Prof. Govindan Rangarajan**, Professor, Department of Mathematics, Indian Institute of Science, Bangalore, April 21, 2010.
- ^ **Action Perspectives in Engineering Education and Research** by **Prof. V. Giri**, Department of Electrical Engineering, University of Wisconsin, Madison, June 29, 2010.
- ^ **Securing the Digital World** by **Dr N. Subramanian**, Assistant Professor, Department of Electrical and Computer Engineering, University of Texas, Tyler, USA, August 2, 2010.
- ^ **Engineering Smart Systems** by **Prof. K. Mani Chandy**, Simon Ramo Professor and Professor of Computer Science, California Institute of Technology, Pasadena, USA, August 5, 2010.
- ^ **Micro and Nano Electro-Mechanical Systems** by **Prof. G. Ravichandran**, John E. Goode Jr Professor, Graduate Aerospace Laboratories, California Institute of Technology, Pasadena, USA, August 5, 2010.
- ^ **Infrared, Solar and Bio-Sensor Technologies** by **Dr K. Chelvakumar**, President, EPIR Technologies, Inc., Chicago, USA, August 12, 2010.
- ^ **Green and Safe Nuclear Power in India** by **Shri H. S. Kushwaha**, Former Director, Health, Safety and Environment Group, Bhabha Atomic Research Centre, Mumbai, August 16, 2010.
- ^ **Fluid Mechanics** by **Prof. Emmanuel Deriat**, University Paris, Ouest, France, August 24, 2010.
- ^ **Bollywood at Large: Who is Watching Bollywood Films?** by **Prof. Anjali Gera Roy**, Department of Humanities and Social Sciences, IIT Kharagpur, September 3, 2010.
- ^ **World of Materials: Present Practices, Aspirations and Challenges** by **Prof. S. P. Mehrotra**, Professor, Department of Materials and Metallurgical Engineering, Indian Institute of Technology, Kanpur, October 7, 2010.
- ^ **Security and Privacy Risks in a Networked World - an insight in to undergraduate research** by **Prof. Atul Prakash**, Professor, Department of Computer Science, University of Michigan, Ann Arbor, November 3, 2010.
- ^ **Digital Signal Processing: Road To The Future** by **Prof. Sanjit K. Mitra**, University of Southern California, Los Angeles, and University of California, Santa Barbara, December 28, 2010.
- ^ **Becoming a Designer** by **Prof. Sandeep Purao**, Penn State University, December 29, 2010.



- ⤴ **Why Energy is Challenging for Electronic Systems** by **Prof. Amara**, Paris Institute for Electronics (ISEP), December 30, 2010.
- ⤴ **Introduction to IMPACT Lab's Research on Cyber Physical Systems** by **Dr Sandeep Gupta**, Arizona State University, USA, January 5, 2011.
- ⤴ **India as a World Power: Potential and Realities** by **Prof. Rajmohan Gandhi**, Research Professor, University of Illinois, Urbana-Champaign, January 5, 2011.
- ⤴ **Engineering of Advanced Particulate-based Materials for Pharmaceutical and other Industries** by **Prof. Rajesh N. Dave**, Distinguished Professor of Chemical, Biological and Pharmaceutical Engineering, New Jersey Institute of Technology, January 10, 2011.
- ⤴ **Enhancing Research Innovation by Applying the Axiomatic Design Principles** by **Prof. Vipin Kumar**, Department of Mechanical Engineering, University of Washington, Seattle, January 13, 2011.
- ⤴ **Prof. Nitesh V. Chawla**, Notre Dame University visited the Institute on January 14, 2011. Prof. Chawla briefed the students about research in Computer Science at Notre Dame University.
- ⤴ **Career Development for IIT Students** by **Prof. Ravi Bhaskaran**, formerly of IIT Kharagpur, January 17, 2011.
- ⤴ **Women and Witch Hunt** by **Prof. Soma Chaudhuri**, Michigan State University, January 19, 2011.
- ⤴ **UL-IITGN Research Collaboration** by **Dr Pravinray D. Gandhi**, Director, Corporate Research, Underwriters Laboratories Inc., Chicago, USA, January 26, 2011.
- ⤴ **A Writer's Journey** by **Prof. Chitra Banerjee Divakaruni**, University of Houston, January 27, 2011.
- ⤴ **Science and the Sacred** by **Prof. Ravi Ravindra**, Professor Emeritus, Dalhousie University, Halifax, Canada, January 28, 2011.
- ⤴ **Imagining the Future: World of Engineering** by **Prof. K. D. P. Nigam**, Department of Chemical Engineering, Indian Institute of Technology Delhi, February 8, 2011.
- ⤴ **Importance of Engineering for the Future** by **Prof. Jean-Claude Badoux**, former President, Ecole Polytechnique Federale de Lausanne, Switzerland, February 25, 2011.
- ⤴ **Switchgrass for Biofuels** by **Dr Gautam Sarath**, Research Molecular Biologist, Grain, Forage and Bioenergy Research Unit, University of Nebraska, USA, February 28, 2011.
- ⤴ **Sustainable Development: Engineering, Biology & Medicine** by **Prof. Anupam Madhukar**, Kenneth T. Norris Professor of Engineering, Departments of Biomedical Engineering, Chemical Engineering, Materials Science, & Physics, University of Southern California, March 17, 2011.
- ⤴ **Do Current Engineering Paradigms Have a Future?** by **Dr Vijay K. Stokes**, formerly with IIT Kanpur (1964-1978) and GE (1978-2002), March 24, 2011.
- ⤴ **Democratic Participation Among Poor Women Workers in India, and Impact of the Indian Diaspora on Indian Development** by **Dr Rina Agarwala**, Assistant Professor, Department of Sociology, Johns Hopkins University, March 24, 2011.

## Courses on Extracurricular Topics

Courses on extracurricular topics are organized for the well-rounded growth of IITGN community. A guest faculty delivers 8-10 lectures for each course. Students, staff and faculty of the Institute and other colleges are welcome to attend these courses. However, an IITGN student attending the course also earns one course credit, which is shown on the student's grade card. These courses also help develop better links among local colleges. The following courses were offered during 2010-11:

- ▲ **Making of a Professional Engineer: Professional Ethics & Tools for Thinking** by **Prof. Raj Chhabra**, Department of Chemical Engineering, IIT Kanpur on August 7, 2010.
- ▲ **Entrepreneurship Opportunities for Engineers** by **Arvind K. Singhal**, Chairman, Technopak Advisors Pvt. Ltd, Gurgaon on August 21-22, 2010.
- ▲ **Cosmology - The Story of Our Universe** by **Dr Raghavan Rangarajan**, Physical Research Laboratory, Ahmedabad from August 24 - September 7, 2010.
- ▲ **Energy Efficiency: An Overview** by **Mr Virendra S. Kothari**, Director, Innotem Services Pvt. Ltd, New Delhi, October 23-24, 2010.
- ▲ **The Pleasure of Reading: An Introduction to the Study of Literature** by **Dr Suchitra Mathur**, IIT Kanpur, October 11-13, 2010.
- ▲ **The Promise of Molecular Programming** by **Mr Niranjana Srinivas**, California Institute of Technology, January 1-2, 2011.
- ▲ **Technical Innovation** by **Dr C. V. Natraj**, IISc Bangalore, **Dr M. V. Shankar**, Honeywell Technology Solutions Lab Pvt. Ltd, Bangalore, and **Dr Balachandar Ramadurai**, Mind Tree, Bangalore, January 15-16, 2011.
- ▲ **Case Studies in Converting Technical Innovation Into Sustainable Business Success** by **Dr Nikhil Balram**, President of Ricoh Innovations, USA and Guest Professor, Indian Institute of Technology Gandhinagar, March 18-19, 2011.