



DIRECTOR'S REPORT
AT
THE 4th CONVOCATION OF
INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
27th MAY, 2002

INTRODUCTION

His Excellency the Governor of Assam and Chairman of the Board of Governors of IIT Guwahati, Lt. Gen. S. K. Sinha, Hon'ble Chief Minister of Assam, Shri Tarun Gogoi, Chairman of the Atomic Energy Commission of the Govt. of India and the Chief Guest of today's Convocation, Dr. Anil Kakodkar, Members of the Board of Governors, Members of the Senate, graduating students, ladies and gentlemen.

It gives me great pleasure to extend a very warm welcome to all of you on the occasion of the fourth Convocation of the Indian Institute of Technology, Guwahati. We are indeed fortunate to have amongst us today Dr. Anil Kakodkar, who has been associated with the country's nuclear energy programme since its early days. He happens to be from the seventh batch of trainees of the BARC training school, which he joined immediately after his graduation in Mechanical Engineering, and then joined BARC after topping his batch in the training school. Leading the Reactor Engineering group which he headed before becoming the Director of BARC prior to his present assignment, he had a crucial role to play in the success of India's two nuclear tests which established India as a nuclear power, and which along with the space programme has proved India's capability in the field of science and technology. We as scientists and engineers are proud of these achievements and of people like you who have given shape to the dreams of millions. We extend a very warm welcome to you, Sir, and our students and faculty and all of us present here eagerly look forward to hear from you your message to the graduating students.

IIT Guwahati has entered the 8th year of its existence and today the fourth batch of B.Tech. and the third batch of M.Tech. students in Computer Science & Engineering, Electronics & Communication Engineering and Mechanical Engineering, the first batches of B.Tech. and M.Tech. students in Civil Engineering, the first batch of B.Des. students in Design, and the first batch of M.Sc. students in Physics, Chemistry and Mathematics will be receiving their degrees. The Institute will also be awarding Ph.D. degrees to eight research scholars today. I congratulate all the graduating students and wish them success in all their future endeavors.

I would now like to present before you a report of the activities of this institute during the past one year.

ACADEMIC ACTIVITIES

IIT Guwahati at present has the following academic departments :

1. Computer Science & Engineering (CSE)
2. Electronics & Communication Engineering (ECE)
3. Mechanical Engineering (ME)
4. Civil Engineering (CE)
5. Biotechnology
6. Chemical Engineering
7. Design
8. Physics
9. Chemistry
10. Mathematics
11. Humanities & Social Sciences (HSS)

The total no. of students on roll during the academic year 2001-2002 at the undergraduate, post graduate and Ph.D. levels were :

Undergraduate programme (B.Tech./ B.Des.)

4 th year	: 101 (CSE-35, ECE-25, ME-21, CE-8, Design-12)
3 rd year	: 112 (CSE-34, ECE-24, ME-21, CE-8, Design-12)
2 nd year	: 131 (CSE-40, ECE-32, ME-23, CE-7, Design-10)
1 st year	: 127 (CSE-35, ECE-35, ME-26, CE-20, Design-18)

M.Sc. programme

2 nd Year	: 24 (Physics-7, Chemistry-10, Mathematics & Computing-7)
1 st year	: 20 (Physics-6, Chemistry-7, Mathematics & Computing-7)

Post graduate programme

M.Tech. programme

2 nd year	: 67 (CSE-22, ECE-8, ME-15, CE-12)
1 st year	: 89 (CSE-24, ECE-22, ME-26, CE-17)

Ph. D. : 62 (CSE-1, ECE-3, ME-8, CE-6, Design-3 Physics-12
Chemistry-16, Maths-5, HSS-8)

Total no. of undergraduate and post graduate students = 733

It is worth mentioning that a considerable number of undergraduate students at the 3rd year level have been selected for summer training this year by various firms in different countries apart from those in India, offering them stipend and travel grants. These include 15 students of Computer Science & Engineering and 8 of Electronics & Communication Engineering, 4 of Mechanical Engineering and 2 of Design.

The number of successful candidates who are to receive their B.Tech, B.Des., M.Sc., M.Tech. and Ph.D. degrees today are as follows :

B.Tech.

Computer Science & Engineering	33
Electronics & Communication Engineering	24
Mechanical Engineering	21
Civil Engineering	08
Design	12

M.Sc.

Physics	05
Chemistry	10
Mathematics	02

M.Tech.

Computer Science & Engineering	21
Electronics & Communication Engineering	22
Mechanical Engineering	18
Civil Engineering	09

Ph. D

Mechanical Engineering	01
Physics	01
Chemistry	03
Mathematics	03

NEW PROGRAMMES / COURSES

The first batches of students will be joining the newly opened department of Biotechnology and the department of Chemical Engineering in July this year. The thrust in these new departments will be in the areas of plant biotechnology and bio-medical instrumentation and in petroleum engineering and green technology.

Various departments also introduced 31 new courses at the undergraduate and post-graduate levels under the existing programmes during the academic year. A course in **Modern Biology** is being introduced for the first time this year as a core course for all undergraduate students.

RESEARCH AND DEVELOPMENT ACTIVITIES

Research in basic and applied sciences and technology is a regular practice at the Institute. In addition to the Ph.D. programmes and in-house research and development works in the departments, most of the faculty members are also engaged in sponsored research and consultancy works.

Sponsored Research

There are currently 48 ongoing sponsored research projects in the Institute. The bulk of the projects are sponsored by agencies like MHRD, DST, CSIR, ARDB etc. The total funding for these ongoing projects is approximately Rs.4.7 crores.

New sponsored projects started since the last convocation are as follows:

Department of Chemistry

1. Study on Inter and Intra-Molecular Interaction and Molecular Recognition in Polyaromatic Compounds

Department of Mechanical Engineering

1. Design of a Mechatronic wheelchair with Modular Features
2. Design and Development of a High Performance Biogas Digester for the North-Eastern Region of India
3. Mathematical Modeling and Computation of Turbulent Flow

Department of Computer Science and Engineering

1. Designing of a PC based Integrated VLSI CAD Tools for Low Power Logic Synthesis and Testing
2. Campus-wide Electronic Payment System

Department of Civil Engineering

1. Developing a Remote Sensing Laboratory for Better Water Resources Management and Flood Mitigation

2. Distribution, Fractionation and Deposition of Phosphorus in the Flood Plain Sediments
3. Design of a Concrete Dam Under Seismic Excitation Considering Fluid Structure Interaction
4. Urban Flood Hazard Mitigation of Guwahati City by Silt Monitoring and Watershed Modeling

Department of Electronics and Communication Engineering

1. Real-Time Control of Stiff Systems
2. Digital Signal Processing Application in Medical Engineering

The total project cost of the above projects is approximately Rs.86.94 lakhs.

Consultancy Service

In addition to the sponsored R&D projects, the Institute also offered consultancy services to many government, public and private sector firms. The total value of the consultancy projects during the year is approximately Rs.27.48 lakhs.

The Institute has been associated with important developmental projects such as the Rural Roads Projects under the Pradhan Mantri Gram Sadak Yojana, in which IIT Guwahati has been appointed by the Ministry of Rural Development, Govt. of India, as the State Technical Agency for scrutinizing the rural road projects for the State of Assam and Meghalaya. The first phase of the project for Assam and Meghalaya has been completed.

Laboratory and other Facilities

The Institute has been procuring latest equipment for its various laboratories both for teaching and research. Some of the costly equipment procured and under procurement during the year are as follows :

1. X-Ray Diffraction system XRD 3003 T/T
2. 2-colour Offset Press with computerized scanning
3. HP8591 E Spectrum Analyser
4. Radio Frequency Vector Network Analyser
5. MTS Actuator Systems for static and Low Frequency applications
6. 400 MHz FT NMR Spectrometer System
7. Rapid Prototyping Machine

INSTITUTE PROGRAMMES

Interaction with other Institutions

The Institute has been constantly widening the scope of interaction with other institutions at various levels.

While interaction with other local institutions has been increasing constantly, during the year under review, the following associations with international institutions have been established :

An Academic Alliance between Microsoft USA and IIT Guwahati has been finalized. Under this program, Microsoft is supplying source code of many of their products. They are also providing developer tools for most of their software. They are also going to fund a few research and student projects.

An MOU with IBM, USA is also being negotiated. Under this, IBM will supply their Websphere and DB2 software for use in research and teaching.

Under another agreement, Rational USA has supplied at a concessional rate their software Rational Rose. This is used in software engineering projects by many leading Software Corporations of the world.

Conferences, Short Term Courses, Workshops and Seminars

The department of Mechanical Engineering organised the first International event at IIT Guwahati in the form of an International Symposium on 'Recent Trends in Heat and Mass Transfer' from 6th to 8th January 2002. About 12 eminent experts in the area of heat and mass transfer gave keynote lectures on advanced topics while about 100 participants participated/presented research papers in the poster sessions. Proceedings of the International Symposium on 'Recent Trends in Heat and Mass Transfer' was brought out in the bound volume and also on CD.

A short-term course on "Renewable Energy Systems" sponsored by Ministry of Non-Conventional Energy Sources (MNES), New Delhi, was organized during September 7-11, 2001 at IIT-Guwahati. Proceedings of the short term course was brought out as a bound volume.

The Department of Mathematics organized a four-week training programme titled "Mathematics Training and Talent Search (MTTS) Programme" in June 2001 for the third consecutive year.

A Workshop on 'Bamboo finishes and small tools and equipment development' was conducted jointly by the Department of Design of IIT Guwahati and Industrial Design Centre of IIT Bomaby, organized by CBTC, Guwahati in January, 2001.

The Department of Computer Science and Engineering conducted the following short term courses and workshops during the year :

1. Short term training programme on "Electronic Design Automation — Tools and Techniques", sponsored by ISTE, 2nd July 2001 to 14th July 2001.
2. Workshop on "Electronic Payment Systems — An Overview" on 24th February under MHRD sponsored project on "Campus-wide Electronic Payment Systems".
3. A two-day (15-16th March 2002) training programme entitled "Web Page Design & Office Automation Using Assamese" was organized by the Resource Centre for Indian Language Technology Solutions, IIT Guwahati (A project funded by the Ministry of Communication and Information Technology, Govt. of India.) The main objective was to motivate State Govt. officials to use Assamese for Office Automation chores.

Visitors & Visits by Faculty

More than 42 distinguished visitors from India and abroad visited the Institute during the year for varying lengths of time and delivered seminars, lectures and interacted with faculty and students.

A large number of the faculty members also visited several countries abroad for presenting papers in International Conferences and also on short and long term assignments and fellowships during the year.

FACULTY ACTIVITIES

The present faculty and staff strengths of the Institute are 97 and 205 respectively.

The faculty of the Institute are actively involved in formulating new courses of study, in the setting up of the research laboratories at the under-graduate and the post-graduate levels and are actively involved in undertaking research and developmental activities at the Institute. Apart from the regular teaching and research activities at the Institute, many of the faculty members have presented their works in conferences and workshops in the country and abroad and have lent their expertise in various consultancy projects.

Honours

Dr. J. B. Baruah of the Department of Chemistry represented India as a delegate to Uzbekistan for identification and formulation of research proposals under INDO-UZBEK exchange activities.

Dr. Sukumar Nandi of the Department of Computer Science & Engineering was elevated as a Senior Member IEEE in November 2001.

Publications

The faculty of the Institute have been publishing their research findings in various national and international journals and conference proceedings .The total number of publications during the year under report include:

Journal Papers	: 62
Conference Papers	: 116

LIBRARY FACILITIES

The Library presently serves 1500 plus regular members and has extended its facilities to about 150 visitors. The total number of documents transacted during 2001/02 was 1,50,000. To expedite the daily transaction, the Library is currently **bar coding** its collection.

The Central Library has currently over 50,000 volumes, including textbooks, reference books, conference proceedings, back volumes, standards, and non-book materials such as CD-ROMs, audio tapes, video tapes, slides, etc. The Library also subscribes to about 600 current periodicals.

The Library has increased its working hours from 8 hours to 13 hours on weekdays and opens for 8 hours on Saturdays & Sundays. All operations of the Library are automated with the help of an integrated library software package called LIBSYS. The database for the entire collection has been created which is available through On-Line Public Access Catalogue (OPAC) to the users via campus network.

At present the Library has one workstation providing the search facilities on CD-ROM abstracting services on Engineering Index (COMPENDEX), Science Abstracts (INSPEC ON DISC), Psychological Abstracts (PsycLit) and Current Content on Diskette (CCOD). In addition to this, the Library has acquired IEEE/IEE Electronic Library, contains data since 1988, covering full text images from more than 4,000 publications.

The Central Library has designed its web page as a part of IIT Guwahati Home Page, which provides information about the library services, e-journals and recent arrivals of current periodicals to the academic community of the Institute.

INFRASTRUCTURE

Campus Facilities Completed

All major activities, academic and administrative, are being carried out presently from the Academic Complex phase-1.

Two lecture galleries and 8 classrooms in the permanent Academic Complex are used for conducting some of the undergraduate and postgraduate classes.

From the next semester, all undergraduate and postgraduate classes will be held in the permanent Academic Complex. Shifting of the departments is expected to start progressively by July and may be completed within the next 8 to 10 months.

It is planned to shift the administrative department to the main Administrative Complex by the end of July.

At present there are three hostels, called the Manas, the Dihing and the Kapili, occupied by the students. Half of the hostel Manas has been separated and used for the female students.

The Institute Guest House having 12 VIP suites, 60 double bedded rooms, conference rooms, dining rooms and kitchen is complete and has been in use since the beginning of this year.

The Director, members of the faculty, officers and staff have been accommodated in the Director's Bungalow, 4 F-type, 24 E-type, 61 D-type, 36 C-type and 98 B-type units completed so far.

A Crèche, a Play-school, a Kindergarten school and a primary school for the wards of the institute employees have started functioning.

Construction Programme

The civil construction of **the main academic complex**, comprising of 16 blocks for departments, 4 core blocks having common facilities and 2 classroom blocks, is progressing well.

Civil work of 4 blocks, 1 core block and 1 class room block will be made ready for use by the end of June.

The work of air conditioning, power supply (including standby power), telecommunication network, water supply, drainage and sewerage has started and is expected to be completed within 6 to 8 months time so that shifting of the laboratories becomes possible.

The civil construction work of **the administrative complex** is almost complete. The planning of the internal partitioning and furniture is in progress. The infrastructure facilities will also be completed along with that of the main academic complex.

The civil work of **the library and the computer centre** has started and is expected to be completed within 2 years.

The main approach road to the campus from NH-31, ending in a railway over-bridge leading directly into the campus, is under construction by Assam PWD. The work is expected to be completed by March, 2003.

STUDENTS' ACTIVITIES

Scholarships / Medals / Prizes

The following awards are given to outstanding students in academic as well as extra-curricular fields.

1. The President of India (Gold) Medal is awarded to the scorer of the highest C.P.I. among all graduating students at the B.Tech. and B.Des. level.
2. Institute Silver Medal is awarded to the highest C.P.I. scorer among the graduating students of each department offering B.Tech., B.Des. and M.Sc. degrees.
3. The Dr. Shankar Dayal Sharma Gold Medal is awarded to the best B. Tech. student in terms of general proficiency including character, conduct, excellence in academic performance, extra-curricular activities and social service.

A total number of 93 students have been awarded merit-cum-means scholarships during the academic year 2001-2002.

Cultural Activities

Alcheringa – 2002, the annual cultural mega festival of IIT Guwahati was celebrated with a three-day programme from February 01 to 03, 2002. This year, an unprecedented number of students (7000 approx.) representing 30 colleges and universities from different parts of the region, participated in various cultural and literary events of the festival. Apart from the scheduled events, a couple of nationally renowned vocal group 'Parikrama', and artiste Sandeep Vyas enthralled the audience on the concluding day of the programme

Apart from the above, a number of cultural programmes were organized under the IIT Guwahati sub-chapter of Spic Macay. Renowned artists like Pandit Hariprasad Chaurasia, Grammy award winner Pandit Vishwa Mohan Bhatt and Padmashree Teejan Bai performed at the Institute under the aegis of Spic Macay.

The students also organized the first intra-class cultural festival 'Manthan' in the month of October, 2001.

Festivals like Diwali, Holi, Saraswati Puja and Bihu were celebrated in the campus by the students and staff of the Institute.

Sports Activities

A contingent of 64 students accompanied by the Chairman (Sports) and two PTIs represented the Institute in the **Inter IIT Sports Meet** held at IIT Kharagpur from December 14 to 19, 2002. Our students participated in seven games and athletics and bagged one gold medal, one silver medal and one bronze medal. Apart from this, the sports section

of the Institute held a series of friendly volleyball, football and cricket matches with the local colleges of Guwahati. Inter-batch sports events were also organized during the last two semesters without disrupting the academic schedule. Boarders of the Institute hostels have been provided with outdoor, indoor and gymnasium facilities.

Placement

Campus placement activities for the year 2001-2002 began on August 01, 2001, and were concluded on March 03, 2002. As many as 22 organizations including multi-national companies, public sector and Govt. of India organizations participated in the above exercise. The percentage of the on-campus placement was 85.

Technical Festival

Techniche-01, the IIT Guwahati annual technical festival was held with a three-day programme on 31 August, 01, September and 02 September, 2001, in which students from as many as 23 colleges from all over the country participated. Techniche is now undoubtedly the most popular rendezvous for exchange of technical knowledge amongst the student community of the North-Eastern region. About 700 school children from Guwahati got a close look at "technology at work" with their visit to **Techniche-01**. The second **Technical Book Fair** in the region was held during **Techniche-01** with some leading book publishers from all over the country and abroad.

Student Achievements

Mr. Abhishek Girotra and Mr. Sumit Johar, 3rd year students in the Department of Electronics and Communication Engineering, won first prize in the National Design Competition (hardware) held at IIT Kharagpur in Dec. 2001.

Mr. Sachin Bhatia, a first year B.Tech. student in the same department, received "Kishore Vaigyanik Yojna" fellowship in 2001.

CONCLUDING REMARKS

In conclusion, I would like to remind our students that the country has invested enormously in Institutions like the IITs with the hope that the product of these institutions would be able to fulfil the dreams of the entire nation in the future. That dream is to see India as one of the top ranking countries in the field of science and technology without having to depend on borrowed ideas and technologies. We have nurtured you to be leaders, not followers. It is my sincere hope that you, who have been fortunate enough to receive better education than the most, would be instrumental in making that dream become a reality.

Thank you and Jai Hind.