



Director's Report

**Sixteenth Convocation
13 July 2014**

Indian Institute of Technology Guwahati

General (Dr.) Vijay Kumar Singh, PVSM, AVSM, YSM, (Retd.), Hon'ble Minister of State for Development of North Eastern Region (Independent Charge), External Affairs and Overseas Indian Affairs; Dr. R. P. Singh, Chairman, Board of Governors; members of the Board of Governors; members of the Senate; invited guests; graduating students; faculty and staff of the Institute; parents and guardians; ladies and gentlemen – it is my pleasure to welcome you all to the Sixteenth Convocation of IIT Guwahati.

I take this opportunity to thank General Vijay Kumar Singh for accepting our invitation to be the Chief Guest of this Convocation and for kindly agreeing to deliver the Convocation Address.

IIT Guwahati has entered the elite list of top 100 young universities of the world under 50 years. IIT Guwahati is the only Indian entry. With this India has joined the top 100 under 50 for the first time. The Times Higher Education 100 Under 50 2014 ranks IIT Guwahati at 87th. The ranking provides 'a glimpse into the future, showcasing not those institutions with centuries of history, but the rising stars which show great potential.' We are proud of this achievement and would like to congratulate all the members of the Institute for this remarkable milestone.

Today, BTech, BDes, MTech, MDes, MSc, MA and PhD degrees are going to be awarded to **1232** students. I extend my heartiest congratulations to all of them.

Now I am going to present a brief report on the activities and achievements of the Institute during the year 2013-2014.

THE BOARD OF GOVERNORS

Prof. Gautam Barua's term as the Director of the Institute has come to an end on 5 September 2013. Under his able leadership of ten years the Institute has grown in all the areas and reached new heights. On behalf of the Board, I offer our heartfelt gratitude and wish him all the best for his new role as the Mentor Director of IIT Guwahati.

Mr. Liansanga, former Engineer-in-Chief, PWD, Mizoram, joined the Board as the nominee of the North Eastern Region on 1 July 2013. Prof. Arun Chattopadhyay,

Professor, Chemistry, IIT Guwahati, joined the Board in January 2014 as a nominee of the Senate.

On behalf of the Board, I welcome them all to the Board and thank the outgoing Board members, Prof. Gautam Barua, Shri P. D. Sawyan and Prof. M. Jawed, for their contributions during their tenure.

To put on record, I took charge as the Director of this Institute on 6 September 2013.

ACADEMIC ACTIVITIES

The Institute offers

- Bachelor of Technology (BTech) Programmes in Biotechnology (BT), Chemical Engineering (CL), Chemical Science and Technology (CT), Civil Engineering (CE), Computer Science and Engineering (CS), Electronics and Communication Engineering (EC), Electronics and Electrical Engineering (EE), Engineering Physics (EP), Mathematics and Computing (MC), and Mechanical Engineering (ME);
- Bachelor of Design (BDes) programme in Design (DD);
- Master of Technology (MTech) programmes in BT, CL, CE, CS, EE, and ME;
- Master of Design (MDes) programme in Design;
- Master of Science (MSc) programmes in Chemistry (CH), Mathematics and Computing (MC), and Physics (PH);
- Master of Arts (MA) programme in Development Studies (DS) in the Department of Humanities and Social Sciences (HS);
- Doctor of Philosophy (PhD) programmes in all the Departments and in the Centre for Energy (EN), Centre for the Environment (EV), and Centre for Nanotechnology (NT);
- Dual (MTech+PhD) programme in the Department of Computer Science and Engineering (CS)

The total number of enrolled students in 2013-2014 is 4891. Of these, 48.70% are post-graduate students. The detailed break up is –

Preparatory Programme: 04

Four-year BTech and BDes: 2505

Batch	BT	CE	CL	CS	CT	DD	EC	EE	EP	MC	ME	Total
Fourth Year (2010 Batch)	38	58	57	80	30	40	73	44	28	42	80	570
Third Year (2011 Batch)	39	63	57	80	34	34	80	44	33	45	79	588
Second Year (2012 Batch)	46	71	59	88	40	41	78	45	36	51	88	643
First Year (2013 Batch)	50	80	67	81	45	41	74	42	44	43	80	647
From earlier batches												57
Total												2505

Two-year MSc: 243

Batch	CH	MC	PH	Total
Second Year (2012 Batch)	37	41	37	115
First Year (2013 Batch)	42	43	41	126
From earlier batches				2
Total				243

Two-year MA: 48

Batch	DS	Total
Second Year (2012 Batch)	22	22
First Year (2013 Batch)	26	26
Total		48

Two-year MTech: 771

Batch	BT	CE	CL	CS	EE	ME	Total
Second Year (2012 Batch)	31	86	51	55	54	79	356
First Year (2013 Batch)	31	85	43	45	56	90	350
From earlier batches							10
Total							716

Two-year MDes: 55

Batch	DD	Total
Second Year (2012 Batch)	28	28
First Year (2013 Batch)	27	27
Total		55

Dual (MTech + PhD) Degree: 10

Batch	CS	Total
Third Year (2011 Batch)	03	03
Second Year (2012 Batch)	03	03
First Year (2013 Batch)	04	04
Total		10

PhD: 1310

BT	CE	CH	CL	CS	DD	EE	EN	EV	HS	MA	ME	NT	PH
151	129	181	118	58	41	152	30	18	82	63	149	24	114

The new academic session (2013-2014) commenced from July 2013. 1425 students were admitted in various programmes across all the Departments/Academic Centres in July 2013. This includes 4 students in the Preparatory Programme. Another set of 69 students were admitted in PhD programmes in various Departments/Academic Centres in January 2014. Thus a total of **1494** students were admitted in the academic year 2013-2014. The details of new admission are given in the table below:

Department/Centre	BTech/ BDes	MSc/ MA	MTech/ MDes	PhD	Dual [MTech+PhD] Degree
Biotechnology	50	-	31	32	-
Chemical Engineering	67	-	43	35	-
Chemistry	45	42	-	39	-
Civil Engineering	80	-	85	34	-
Computer Science and Engineering	81	-	45	18	4
Design	41	-	27	12	-

Department/Centre	BTech/ BDes	MSc/ MA	MTech/ MDes	PhD	Dual [MTech+PhD] Degree
Electronics and Electrical Engineering	116*	–	56	25	-
Humanities and Social Sciences	-	26	–	15	-
Mathematics	43	43	–	15	-
Mechanical Engineering	80	–	90	35	-
Physics	44	41	–	29	-
Centre for Energy	–	–	–	8	-
Centre for the Environment	–	–	–	5	-
Centre for Nanotechnology	–	–	–	8	-
Total	647	152	377	310	4

* BTech in Electronics and Communication Engineering: 74, and BTech in Electronics and Electrical Engineering: 42.

Today, **1232** students, who have successfully completed their programmes will receive their degrees in the following disciplines:

Number of students obtaining degrees in 2014 –

Four-year BTech and BDes

Total	BT	CE	CL	CS	CT	DD	EC	EE	EP	MC	ME
547	36	56	57	86	33	39	66	37	24	32	81

Two-year MA

Total	DS
21	21

Two-year MSc

Total	CH	MC	PH
117	37	40	40

Two-year MTech/MDes

Total	BT	CE	CL	CS	DD	EE	ME
441	29	93	56	78	28	53	104

PhD

Department	No. of Students
BT	24
CE	7
CL	6
CH	16
CS	4
DD	4
EE	8
EN	5
EV	3
HS	10
MA	5
ME	7
NT	1
PH	6
Total	106

ACADEMIC INFRASTRUCTURE DEVELOPMENT

A number of new equipment have been added to the laboratories of the Departments and Centres. Some of the major equipment and facilities acquired by the Institute during the last year are –

- High Temperature Gel Permeation Chromatography – ₹ 68 lakh (CIF)
- Micro Particle Image Velocimetry – ₹ 65 lakh (CIF)
- Lab-Scale In-situ Sterilisation Bio-Reaction Calorimeter – ₹ 58 lakh (Dept. Biotechnology)
- Isothermal Titration Calorimeter – ₹ 51 lakh (CIF)

- Super Critical Fluid Extraction with Particle Formation System – ₹ 48 lakh (Dept. Chemical Engineering)
- Bench Top CNC Milling Machine – ₹ 46 lakh (Workshop)
- Nano-liter Disperser – ₹ 42 lakh (Dept. Biotechnology)
- Nanocomposite Melt Extrusion and Film Processing Line – ₹ 42 lakh (Dept. Chemical Engineering)

The Central Library is the central hub for academics and research with an excellent print collection of about 1.64 lakh books, back volumes and theses. As most of the research activities are heavily dependent on journal publications, the Institute emphasises on regular subscription to current journals. Further, for better accessibility of the contents, efforts have been made to increase the online journals over the printed journals. Presently we are subscribing to 525 titles across all academic areas of which 306 are online journals. In addition, the Institute is having access to 12350 online journals through 'INDEST-AICTE Consortium' and 'DeLCON: DBT – Electronic Library Consortium'. Apart from the above, Central Library has also procured some of the world's most renowned abstract database like SciFinder, MathSciNet, Scopus, Web of Science, INSPEC, etc. during the reporting period. For the benefit of the students, teachers, researchers and general public alike the library remains open from 8 in the morning till 12 midnight round the year.

To improve the infrastructure for better management and control of data processing and IT equipment and in order to meet its high uptime demands, work for construction of a data centre in the Computer and Communication Centre has already been taken up. The work is expected to be completed within the current financial year.

RESEARCH AND DEVELOPMENT

The number of PhD students on campus is increasing every year. This year has seen a big jump in numbers, growing from 1113 students last year to 1310 this year. The current faculty to PhD students' ratio stands at a satisfactory 3.83. The number of graduating PhD students has considerably increased to 106 from 65 in the previous year.

The other component of our research programme is sponsored (or directed) research. There are 250 research personnel engaged in various research projects at the Institute.

We offer a 'Start-up Research Grant' to newly-joined faculty members of the Institute to start their research activities. During this year, 13 projects worth ₹ 64.75 lakh have been sanctioned under this scheme. A total of 129 projects were sanctioned till date.

During the year 2013-2014 over 350 research and development projects were in progress, having a total sanctioned value of ₹ 198 crores. In the year 2013-2014, IIT Guwahati received new projects of about ₹ 90.14 crores. This is in comparison to ₹ 42.6 crores last year, while the total funds received were ₹ 33.67 crores as compared to ₹ 37.4 crores. The R&D projects were mainly sponsored by Government Ministries and Departments with major support coming from Ministries of Environment (MoE), Human Resource Development (MHRD), Steel, Departments of Science and Technology (DST), Biotechnology (DBT), Atomic Energy (DAE), Electronics and Information Technology (DeitY), Council of Scientific and Industrial Research (CSIR) and Defence Research Labs (DRL). The following table provides a comparison of this year's R&D project profile with that of last year. Even though the numbers of new sponsored research projects have decreased by a few numbers from the previous year, the total sanctioned value of the projects has increased substantially from ₹ 42.60 crores to ₹ 90.14 crores.

Particulars	2012-2013	2013-2014
New sponsored projects received	103	93
New consultancies received	133	120
Total sanctioned value of the new sponsored projects (in crores of ₹)	42.60	90.14
Total sanctioned value of the new consultancy projects and others (in crores of ₹)	2.30	1.30
Total amount received for all projects (new and ongoing) (in crores of ₹)	37.36	33.67
Total amount received for all consultancy projects and others (new and ongoing) (in crores of ₹)	3.08	3.99

Some of the major research projects received during the year are –

Project Title	Funding Agency	Department/ Centre	Amount Sanctioned (₹ in lakhs)
Development of a cost effective process for biodiesel production through direct trans esterification of wet algal biomass from high density heterotrophic cultivation	DST	Energy	50.00
Stem cell based Bioengineering of annulus fibrosus in an intervertebral disc model using North East silk biomaterials	SERB	Biotechnology	54.50
Dual mechanical port motor based electric vehicle power train	SERB	Electronics and Electrical Engineering	54.99
Molecular mechanism of ribosome assembly in bacteria	DBT	Biotechnology	58.80
Study on lowering of mixing and compaction temperatures of bituminous mixes through warm mix asphalt addition	SERB	Civil Engineering	59.00
Structural and functional characterisation of adaptation stage of CRISPR-Cas system in mycobacterium tuberculosis	DBT	Biotechnology	59.18
In vitro production of doubled-haploids in tea	DBT	Biotechnology	64.58
Silk2Heal - combining Indian silk and functionalised recombinant spider silk	DBT	Biotechnology	74.70
Genotyping single nucleoside polymorphisms (SNPs) with fluorescently modified nucleoside/oligonucleotide probes	DBT	Chemistry	82.12

Rural hybrid energy - enterprise system	DST	Energy	82.68
Exploration and characterisation of seri-bio resources of North East India for potential textile and non-textile applications	DBT	Environment	154.25
Centre of excellence on sustainable polymers	Dept. of Chemical and Petrochemicals	Chemical Engineering	600.00
Centre for excellence in research and development of nanoelectronics theranostic devices	DeitY	Nanotechnology	5775.00

DBT – Department of Biotechnology, Govt. of India

DST – Department of Science and Technology, Govt. of India

DeitY – Department Electronics and Information Technology, Govt. of India

SERB – Science and Engineering Research Board, Govt. of India

In addition to sponsored Research Projects, IIT Guwahati undertakes consultancy assignments for various State Government Departments, Railways, National Highways Authority of India, Oil and Gas Sector, Construction and Infrastructure Companies, Power Sector, Educational Institutes, Health and Pharmaceutical Industries and Financial Institutions. Consultancy projects are contributing to the industrial, economic and social growth of the country with special emphasis on this region.

A total of 120 consultancy projects were carried out during the year. The total value of consultancy projects undertaken during this year is ₹ 1.30 crores, and ₹ 3.99 crores was received for all consultancies.

The IIT Guwahati Technology Incubation Centre (IITG-TIC) was established to facilitate co-operation and interaction between the Institute and entrepreneurs in various sectors of science and engineering and promote innovation. Six incubatees are currently working in IT, Electronics, bio-engineering and innovative design related projects.

FACULTY AND STAFF

The faculty strength at the end of March 2013 was 342. This is an increase of 17 from 325 at the end of last year.

The number of non-teaching staff at the end of the financial year 2013-2014 was 350 which is 7 less from the previous year.

PUBLICATIONS

The faculty members of the Institute have been actively publishing research papers in international and national journals as well as in conference proceedings. The number of publications during the past one year is:

Papers in Journals:	784
Papers in Conference Proceedings:	464

In the previous year 592 papers in journals and 548 papers in conference proceedings were published by the faculty of the Institute.

CONFERENCES/WORKSHOPS/SCHOOLS/COURSES

Various conferences, seminars, workshops and schools were organised by the Departments and Centres of the Institute during the year. A few of them are –

- National Conference on Manufacturing: Vision for Future (MVF2013), October 2013
- Continuities and Discontinuities of Asian Engagement: Borders, Mobility and Identity in Northeast India and Asia, October 2013
- Workshop on Xilinx FPGA Architecture and Design flow, November 2013
- International Conference on Advanced Nanomaterials and Nanotechnology (ICANN-2013), December 2013
- 12th Indo-European Winter Academy, December 2013
- International Conference on Magnetic Materials and Applications (MagMA-2013), December 2013
- IARCS Annual Conference on Foundations of Software Technology and Theoretical Computer Science (FSTTCS 2013), December 2013

- Workshop on Image and Speech Processing (WISP 2013), December 2013
- National School on Sustainable Polymers and First Symposium on Advances in Sustainable Polymers (ASP-14), January 2014
- Asia Sweden Meeting on Understanding Functional Materials From Lattice Dynamics (ASMFLD 2014), January 2014
- Belle Analysis Workshop 2014 (BAW 2014), February - March 2014
- National Seminar cum Workshop on Translation and Assamese Literature, March 2014

MEMORANDA OF UNDERSTANDING AND INTERNATIONAL RELATIONS

The Institute currently has forty four active Memoranda of Understanding (MoUs) with various educational and research institutes across the world. The MoUs are mainly on academic and research collaborations. Eleven international and national MoUs were signed during the year under report. Some of these institutes are Macquaire University (Australia), Technological Units of Santander Bucaramanga (Columbia), Tallinn University of Technology (Estonia), Polytech Group (France), HOF University of Applied Sciences (Germany) and University of Porto (Portugal). The Institute has renewed 3 international MoUs with ENST, Bretagne (France), Ecole Centrale de Nantes (France) and Ecole Polytechnique Montreal (UK).

Currently there are 34 foreign students enrolled for various fulltime programmes at IIT Guwahati. Eight out of them will receive degrees in this Convocation.

Five students and one faculty members of the Institute obtained fellowships under Erasmus Mundus (Interweave) Programme. Two staff members of the Institute have also obtained fellowships under Erasmus Mundus Interweave and Euphrates Programme, respectively. Besides, three foreign students from Spain and Portugal will also visit IIT Guwahati for full time MTech and part of the PhD programme under the above programme which aims at enhancing quality in higher education through scholarships and academic co-operation between Europe and the rest of the world.

Four foreign students also visited IIT Guwahati from international universities/institutions of repute having academic MOUs with IIT Guwahati

under student exchange programme. Besides, three students of the Institute have been selected for DAAD Masters Sandwich Scholarship 2014 and eleven students have been selected for the JENESYS 2.0 short-term programme in Japan. Seven faculty members from RWTH Germany, Trinity College, Cambridge and Karlsruhe Institute of Technology, Germany also visited IIT Guwahati under DAAD and other programmes.

FACULTY ACHIEVEMENTS

A number of faculty received awards during their year. Some of the major awards were:

Dr. Ranjan Tamuli, Associate Professor, Biotechnology, awarded Indo-US Research Fellowship 2013 by the Indo-US Science and Technology Forum (IUSSTF) for research at the University of California Riverside, USA.

Dr. Vikash Kumar Dubey, Associate Professor, Biotechnology, received B. M. Birla Science Prize in Biology for Year 2012 given in December 2013.

Dr. Biman B. Mandal, Assistant Professor, Biotechnology, received, the National Academy of Sciences, India - Young Scientist Platinum Jubilee Award 2013.

Prof. Arun Goyal, Biotechnology, received, J. V. Bhat Award (2013) from Association of Microbiologists of India for Best Paper published in Indian Journal of Microbiology (Springer) in 2012.

Dr. D. Bandyopadhyay, Assistant Professor, Chemical Engineering, Visiting Faculty, Yeungnam University South Korea, June 2013.

Prof. A. Chattopadhyay, Chemistry, Fellow of Royal Society of Chemistry (2014).

Prof. Arun Chattopadhyay, Chemistry, Member, Task Force on Nanobiotechnology, Department of Biotechnology, Govt. of India.

Prof. Parameswar K. Iyer, Chemistry, awarded "Head of Max Planck India Partner Group" in India by Max Planck Society, Germany and DST, India (2012-2017).

Mr. Avinash Shende, Assistant Professor, Design, received Good Design Award (USA) for 2012-2013 for designing wired CU! chair.

Mr. Keyur Sorathia, Assistant Professor, Design, was among the 'Top 30 Innovation' of the India Innovation Growth Programme – a joint initiative of DST,

Lockheed Martin Corporation, Indo-US Science and Technology Forum, Federation of Indian Chambers of Commerce and Industry; Stanford Graduate School of Business and the IC2 Institute at the University of Texas.

Dr. M.K. Bhuyan, Assistant Professor, Electronics and Electrical Engineering, received Fulbright Academic and Professional Excellence Fellowship (Fulbright Senior Research Fellowship 2013-14) to carry out a combination of teaching and research at School of Engineering and Technology, University of Purdue, Indiana, USA.

Dr. Amaresh Dalal, Assistant Professor, Mechanical Engineering, Visiting Faculty in the Department of Mechanical Engineering at Texas A&M University, USA, June - July 2013.

Dr. Deepak Sharma, Assistant Professor, Mechanical Engineering, Received DAAD's "Research Stays fellowship" to carry out research at Karlsruhe Institute of Technology, Germany, May - July 2013.

Dr. Pankaj Biswas, Assistant Professor, Mechanical Engineering, received IET Young Engineers Award 2013-2014.

Dr. Amarendra Kumar Sarma, Associate Professor, Physics, is awarded Dr. Biraj Mohan Das Memorial Science Award in 2014 for his work on 'Theory and application of Solitons and non-linear optics'.

Our congratulations to all of them.

CONSTRUCTION AND CAMPUS DEVELOPMENT

The construction activities of the Institute are increasing considerably in conformity with the increase in student intake.

Hostels for Boys and Girls

Construction activities of the tenth boys' hostel are progressing well. The hostel shall have 184 rooms with attached toilet for research/foreign students and 772 normal single seated rooms. Out of 772 normal single rooms, 400 rooms are going to be ready for occupation by the beginning of the new academic session. On completion of the tenth boys' hostel the total capacity of boys' hostel will be 5156.

Extension work of the only girls' hostel with additional 156 rooms is completed and will be in use from this academic session. Due to the positive trend of large number of girl students getting admitted in the Institute, construction of another girls' hostel of 500 capacity was started in October 2012. 336 rooms with kitchen, dining hall and other common facilities will be ready for the new academic session. On completion, the total capacity of girls' hostels will be around 1200.

The Institute has 108 flatlets designed for married scholars. We have taken up construction works of additional 96 flatlets taking in view of the present requirement. These units will be ready for academic session 2015.

Extension of Academic Complex

The Academic Complex which houses all departments and centres of the Institute had an initial floor area of about 74,000 m². Due to the continuous expansion of academic activities of the Institute, the Academic Complex of the Institute is also under continuous expansion. Following areas are added to different departments in phased manner. Phase-I and Phase-II works were completed in last financial year while the Phase-III works has been completed this year.

Phase-I:

Dept. of Physics: 1730 m² (Ground and 1st floor)

Dept. of Chemistry: 1000 m² (Ground floor)

Dept. of Electronics and Electrical Engineering: 1730 m² (Ground and 1st floor)

Phase-II:

Dept. of Design: 1730 m² (Ground and 1st floor)

Dept. of Chemical Engineering: 1730 m² (Ground and 1st floor)

Central Instruments Facility: 2500 m² (Ground and 1st floor)

Phase-III:

Academic Complex expansion (Phase-III) started in December 2010. Under this phase, expansions in the following departments were taken up:

Dept. of Chemistry: 1000 m² (1st floor)

Dept. of Mathematics: 1730 m² (Ground and 1st floor)

Dept. of Humanities and Social Sciences: 880 m² (Ground floor)

Dept. of Civil Engineering : 2275 m² (Ground and 3rd floor)

Dept. of Computer Science and Engineering: 1680 m² (Ground and 1st floor)

Phase–IV:

The expansion work in this phase is in progress as given under:

Dept. of Chemistry: 1994 m²

Dept. of Electronics and Electrical Engineering: 2044 m²

Dept. of Mechanical Engineering: 3200 m²

The expansion in the Department of Chemistry and Electronics and Electrical Engineering will be completed before the new academic session. The work of the Department of Mechanical Engineering will be completed within September 2014.

Phase–V:

Buildings, which were partially completed during Phase–I, II and III are proposed to be taken up in this phase as given below:

Dept. of Design: 1730 m² (2nd and 3rd floors)

Dept. of Computer Science and Engineering: 1730 m² (2nd and 3rd floors)

Dept. of Physics: 1730 m² (2nd and 3rd floors)

Dept. of Chemical Engineering: 1730 m² (2nd and 3rd floors)

Central Instruments Facility: 2500 m² (2nd and 3rd floors)

Dept. of Humanities and Social Sciences: 2595 m² (2nd and 3rd floors)

Dept. of Mathematics: 1730 m² (2nd and 3rd floors)

Centre for Educational Technology and clean room are also under planning in this phase.

Class Room Complex:

At present the number of class rooms in the Institute is 51, out of which 32 class rooms are of 50-90 capacity, 15 class rooms of 100-160 capacity and a separate lecture hall complex has 4 halls of 300 capacities each. With the increase in student intake, the Institute is facing a shortage of class rooms. Based on the projected student intake for the next five years and available class rooms, an assessment of required class rooms were made and it was decided to construct a class room complex having 6 lecture halls of 200 capacity and 18 class rooms

of 120 capacities with provision of future vertical expansion. The proposed floor area to be constructed in the first phase is 9,875 m². The structural work of the complex is going on and it is expected that the work will be completed within March 2015.

Research Building Complex

Presently, academic activities including research work of various departments are being done in the respective departments and centres. The laboratories in the Academic Complex are used both for sponsored research projects as well as for projects of student perusing undergraduate, postgraduate and PhD programmes. As such there arises shortage of laboratory space in Academic Complex as and when new project grants are obtained. Therefore, it has been decided to construct a multi-storied research building for housing the research facilities and catering to the requirements of time bound funded research projects of various departments. The building is designed as 10 storeyed framed structures having 1850 m² per floor. Presently, the construction including HVAC and electrical works will be taken up upto 4th floor and only civil works excluding partitions and false ceiling from 5th to 10th floor have been planned. The work was allotted in March 2013 and foundation work is completed and the structural work has been started. The scheduled date of completion is March 2016.

Kendriya Vidyalaya

The expansion work of the school building, residential quarters for principal, teachers, staff and an open auditorium of IIT Guwahati Kendriya Vidyalaya has been completed and handed over to the Kendriya Vidyalaya authority.

Residential Quarters

The work of 35 units of F-type residential quarters in 7 blocks is completed and handed over for occupation. With these the total units of F-type stand at 79. In order to meet the demand of residential buildings for faculty, the Institute is planning to take up about 100 units (G+9) of F-type multi-storeyed buildings. Empanelment of architect for these buildings is finalised.

The construction of 30 units of E-type in 5 blocks is almost completed. Out of these 5 blocks, 2 blocks were already handed over in June 2013 and the balance

3 blocks (18 units) will be completed very soon. On completion of these quarters, the total units of E-type will be 114.

Construction of 28 units of B-type (Phase-III) residential quarters were completed in October 2013. On completion of these quarters, the total units of B-type quarter is 175.

For conducting activities of welfare, cultural and technical boards, construction of another Student Activity Centre building, a covered stage at the cricket ground which can also be used for cultural activities as well as a pavilion during cricket matches and two canteens were awarded in November 2010. All these works have been completed and are in use.

The construction of a separate sports complex with badminton hall having five courts with wooden base and a weight lifting hall was completed in November 2013 and inter IIT sports meet was held successfully in the complex.

Guest House 2

The existing guest house is having 72 rooms, out of which 12 rooms are for VIP suites. Considering the present and future expansion of the Institute it was decided to construct another guest house. The new guest house will have 153 general rooms and 8 VIP suites. The work, awarded in March 2013, is under progress. In the first phase, 80 general rooms and 8 VIP suites are expected to be completed by December 2014.

Community Hall Near D-Type Quarters

For social get-together and different cultural activities of the Institute community, two community halls were constructed till date. Among the two community halls, one is for Institute faculty and staff and the other is for students. As the members of campus residents are increasing day by day, it was decided to construct one more community hall and accordingly work was started in 2013. The community hall is expected to be completed by the end of July 2014.

Boundary Wall (Phase-IV)

The construction work of the boundary wall of the entire campus was originally assigned to CPWD. The CPWD completed about 6 km length on eastern, northern and partially on southern and western side out of the total of about 9 km of boundary wall in the campus. Subsequently, the remaining length of the boundary wall was allotted to the BRTF in 1999. However, due to land dispute in the southern and western side, the BRTF could complete only about 800 m. The remaining portion of the wall measuring about 2.5 km was taken up by the Institute after discussion with families residing near the boundary wall on the southern side of the campus. As these walls were constructed by different agencies and at different times, the designs of the walls are different and the height of the wall has gone down due to developmental activities on both sides of the wall. The height of the existing boundary walls is not enough to stop trespassers. Moreover in many locations, the walls have tilted and are showing distress. In few locations on the hills, the walls are totally broken, thus posing serious threat to campus security.

A new design of boundary wall has been evolved by the Institute by engaging an architect consultant and a portion of 250 m length was done as per new design near the entrance gate on the northern side. Subsequently, another 135 m was extended beyond the already constructed 250 m.

It was proposed to construct boundary wall as per the approved design from the Faculty School gate to the main entrance gate. The total length proposed to be taken up is 4.7 km, out of which 1.3 km is on the hills and the balance 3.4 km is on low lying areas. The work was allotted in December 2013. The foundation work of the boundary wall in few stretches is going on.

Augmentation of Electrical and AC Infrastructure

With the expansion and growth of the Institute, electrical demand has grown substantially. In order to cater to the increased demand, augmentation works of electrical substation in the academic area along with standby power supply through installation of new DG sets have already been completed in the last financial year. In the current financial year, augmentation of the main 33KV substation by installation of one 7.5 MVA new transformer has been taken up. Simultaneously, augmentation work of the 11KV substations in the hostel areas

are also taken up. To reduce the growth of electrical demand to an optional level, energy conservation and energy efficiency measures are also being emphasised. As a part of such initiatives, solar water heaters will be installed in the 10th boys' hostel which is under construction. The same hostel will also be lit by energy efficient LED lights.

INSTITUTE EXPENDITURE

The details of expenditure during the year 2013-2014 are as follows (in crores of ₹):

Recurring: 110.80

Non-recurring: 176.30

Sponsored Research: 49.07

Total Expenditure: 336.17

In comparison, in 2012-2013, ₹ 271.67 crores were spent.

STUDENTS' ACTIVITIES

Alcheringa 2014

Alcheringa, the annual cultural festival of IIT Guwahati, was held during 30 January – 2 February this year. Alcheringa is now regarded as a much anticipated students' cultural event of the North-East where thousands of students across the country take part in various youth oriented competitions, workshops, seminars and informal events. The performances of musicians and performing artistes of repute are the real crowd puller. In the past Alcheringa has featured some exhilarating performances from some of the biggest names in the entertainment industry, namely Sonu Niigaam, Shaan, Strings, KK, Euphoria, Parikrama, The Raghu Dixit Project, Shankar Ehsaan Loy, Mohit Chauhan, Javed Ali, Anoushka Shankar, the Swiss folk metal band Eluveitie, Orphaned Land – Israeli progressive metal band, etc. This year the well known playback singer Shilpa Rao and Michael Angelo Batio, American instrumental rock guitarist, performed before huge crowds.

Techniche 2013

Techniche-2013 – the annual techno-management festival of the Institute – was held during 29 August–1 September 2013. Started in 1999, Techniche was conceptualised with an aim to motivate the youth to think out of the box, expand their horizons and reach the zenith of success in all technomanagement

spheres. It has stayed true to its vision since; and from its humble beginnings, Techniche now revels in being one of the premier techno-management festivals of the nation. With a reach of thousands of colleges and school students from across the country, Techniche plays a phenomenal role in the bringing out the true potential of the young generation. In the past, Techniche has brought great and accomplished personalities from all over the world, all branches of study and all walks of life under the same roof to provide an unparalleled learning experience to all its participants and attendees. Techniche has been an extraordinary platform to showcase the latest inventions, exhibitions and technological advances from all over the globe and organises a plethora of events and competitions all designed to make the participants step outside their comfort zones and challenge the institution of conventional thinking. The 2013 edition of this festival saw the congregation of eminent personalities like Jonathan Grudin—Principal Researcher at Microsoft Research in the fields of human-computer interaction (HCI) and computer-supported cooperative work (CSCW), Anil Kakodkar—nuclear scientist, Jayant Vishnu Narlikar—astrophysicist, Arun Shourie—illustrious journalist, author and politician, Roger Hunter—Kepler Project Manager at NASA, Shekhar Gupta—Editor-in-Chief, *The Indian Express*, Pat Spain—National Geographic programme host, and Rakeysh Omprakash Mehra—filmmaker.

Following are the other regular events organised by the students during the year:

- Manthan – the intra-IIT cultural festival
- Spirit – the inter-college invitation sports competition
- Spardha – the annual sports meet
- Zest – the annual athletics meet

Along with these, there have been regular events and competitions organised by the various clubs and societies of the Institute such as the Movie Club, the Fine Arts Club, the Literary Club, the Photography Club, etc.

Inter-IIT Sports Meet 2013

The 49th Inter IIT Sports Meet – the biggest sporting extravaganza of the entire IIT community consisting of 16 IITs – was held at IIT Guwahati during 16-23 December 2013. IIT Guwahati hosted this grand sport event for the second time

after successfully conducting the 42nd Inter IIT Sports Meet in 2006. All the sixteen IITs took part in this event. It witnessed 3000 participants participating in different sports like Athletics, Aquatics, Basketball, Badminton, Cricket, Football, Hockey, Table Tennis, Tennis, Squash, Volleyball and Weight Lifting. Moreover, the Inter IIT Sports Meet was also held for the employees of various IITs separately.

The general championship for the boys was awarded to IIT Kanpur and girls to IIT Roorkee. The first and second runner up of general championship for the boys were awarded to IIT Madras and IIT Kharagpur sharing with IIT Bombay, respectively, while the girls were awarded to IIT Guwahati and IIT Kanpur, respectively. IIT Guwahati's Mr. Mahesh Dangi and Mr. Praveen Patidar made new records in weight lifting (Clean & Jerk and SNATCH Category).

STUDENTS' ACHIEVEMENTS

Mr. Mohit Chhajed, BTech student of Computer Science and Engineering selected for Aditya Birla Scholarship 2013 with a scholarship amount of Rs. 65000/- per annum.

Mr. Surojit Ganguli, BTech, Mechanical Engineering, was recommended by the Institute for ONGC Gold Medal. The ONGC Gold Medal is awarded to the topper of BTech in Mechanical Engineering. The medal includes one lakh rupees and a medallion.

Mr. Aritra Sasmal, BTech, Mechanical Engineering, Mr. Saurabh Sharma, MTech, Mechanical Engineering, Ms. Bipasha Paul, MSc, Physics and Mr. Aniket Mishra, MSc, Chemistry were recommended by the Institute for ONGC Scholarship. The scholarship amount is Rs. 5000/- per month for a year.

Mr. Aritra Sasmal, BTech, Mechanical Engineering, Mr. Manish Garg, BTech, Civil Engineering, and Mr. Kumar Biswaranjan, BTech, Electronics and Electrical Engineering were selected for O.P. Jindal Engineering and Management Scholarship (OPJEMS) 2013. The scholarship amount is Rs. 65000/- for a year.

Mr. Shohin Mukherjee, BTech, Mechanical Engineering, and Mr. Shashank Goyal, BTech, Electronics and Communication Engineering have been selected (out of 14 selected students among all IITs) for Honda YES (Young Engineer and Scientist) Award 2013. The award recognises brilliant students who would drive

future society towards an ecotechnological orientation. He will receive US \$ 3000 in equivalent Indian Rupees.

Mr. Aadi Moolam Ramesh, doctoral student in Biotechnology under supervision of Prof. L. Rangan received Young Scientist Award for the best paper in area of Biochemistry and Molecular Biology during national conference on Science of Omics for Agricultural Productivity: Future Perspectives held at G.B. Pant University of Agriculture and Technology, Pantnagar during 4-6 March 2014.

Mr. Surojeet Das, second year MTech student in Biotechnology under Dr. B. B Mandal was selected for Gandhian Young Technological Innovation Award (GYTI) 2014 by National Innovation Foundation (NIF) and SRISTI for his MTech work on 'Injectable silk fibroin hydrogels for tissue engineering and drug delivery'.

Ms. Shraddha Shukla, doctoral student in Biotechnology under Prof. Arun Goyal successfully completed joint international collaborative research project with University of Helsinki, Finland under Centre for International Mobility (CIMO) fellowship for doctoral programme during June 2013 to December 2013.

Mr. Saurav Prasad, MTech Student in Biotechnology under Dr. S. Senthikumar received best project award as well best oral presentation award for his postgraduate project thesis entitled "D-Lactic acid production from whey permeate using Lactobacillus sp." at national level Young Researcher's Conference (YRC) 2013, ICT Mumbai.

Mr. Kelothu Suresh, Mr. Debashis Kundu, MTech, Chemical Engineering, received Ambuja Young Researcher's Award 2012 and Mr. Rahul Mayank, BTech, Chemical Engineering, received the Chemical Weekly Prize for Best Research Paper 2012 by the Indian Institute of Chemical Engineers (IICChE).

Mr. Ramalingam Anantharaj, doctoral student in Chemical Engineering received Thermax Asset Award for Best PhD Thesis 2013 in the field of separation science by BARC, Mumbai on 28 February 2014 and "ProSPER.Net - Scopus Young Scientist Award 2013" for Sustainable Development in Transport Category.

Mr. Chinna Kaniganti, doctoral student in Chemical Engineering received best paper award in International Conference on Chemical and Bioprocess Engineering (ICCBPE), NIT Warangal, 16-17 November 2013.

Ms. Richa Sharma, doctoral student in Chemical Engineering received best paper award in CHEMCON 2013.

Mr. Santosh Kumar Sahoo, doctoral student in Chemistry, received Eli Lilly and Company Asia Outstanding Thesis Awards for Best Thesis. The award was given at IISER Bhopal During 9th J- NOST Meeting held during 4-6 December 2013.

Dr. Atul Kumar Dwivedi, doctoral student in Chemistry was awarded 2nd Prize of Lilly Outstanding Thesis Awards 2013. The award consists of US \$ 1000 and a Lilly plaque.

Dr. Krishna Chaitanya Nadimpally, doctoral student in Chemistry selected for Gandhian Young Technological Innovation Awards / Appreciations 2014 (GYTI) for his project: "Concept of β -Breaker Dipeptides and its Application in Alzheimer's Amyloid Disruption". The award was given at IIM Ahmedabad on 29 March, 2014.

Mr. Syed Humayun Basha, a PhD student in Department of Civil Engineering, received Best Paper Award at International Conference on Structural Engineering and Mechanics (ICSEM-2013), 20-22 December 2013, NIT Rourkela.

Mr. Thainswemong Choudhury, a PhD student in Department of Civil Engineering, received Erasmus Mundus scholarship to work at Milan, Italy for a period of eight months.

Mr. Rishi Barua and Mr. Parag Agrawal, BTech, Computer Science and Engineering, received innovative student project 2013 award from the Indian National Academy of Engineering (INAE).

Mr. R. Pamula, doctoral student in Computer Science and Engineering, received Best Paper award in the second international conference on business and information management for his research paper titled "An outlier detection method based on cluster pruning".

Mr. Sandip Chakraborty, doctoral student, and Mr. Subhrendu Chattopadhyay, MTech student in Computer Science and Engineering, received Best Paper award in the Seventh IEEE ANTS conference for their research work titled "Surpassing Flow Fairness in a Mesh Network: How to Ensure Equity among End Users?"

'Pill Time' – a mobile application designed to increase patient adherence rates, designed by Ms. Soumya Tiwari, a third year BDes student won Annual Student Academic Project competition under User Interface Design category at Pune Design Festival.

Mr. Himanshu Seth, an MDes student, won Gandhian Young Technological Innovation Award 2014 for his low cost TB adherence medikit – Parichaya.

Ms. Shruti Hemani, doctoral student, Design, received 'Outstanding Paper Award' at the IADIS International Conference on Sustainability, Technology and Education (STE) 2013 for her paper 'Design Education for Sustainability – Envisioning a Sustainable Guwahati Railway Station Complex of the Future'.

Mr. Harshvardhan Upadhyay, an MDes student, was awarded Indira Gandhi Priyadarshini Award for his Master's Thesis Project based on National Unity and Integration. Award was presented by All Indian National Unity Conference on 20 November 2013 at the India International Centre, New Delhi.

Mr. N. Yadaiah, doctoral student in Mechanical Engineering, was awarded first best paper in the International Conference on Advances in Mechanical Sciences held in Hyderabad during 9-11 January 2014.

Mr. Biswajit Pathak, doctoral student in Physics won the best paper award under the category of Optical Instrumentation and Techniques in OPTICS14: International Conference on Light held at NIT Calicut in March 2014.

TRAINING AND PLACEMENT

The placement scenario at IIT Guwahati for the year 2013-2014 has been good so far. A total of 109 companies from various sectors have participated in the recruitment process. Out of a total of 1038 students [BTech (478), BDes (37), MTech (315), MDes (27), MSc (75), MA (16) and PhD (90)] registered for placement, 60.58% BTech and BDes have been placed so far.

The percentage of placement till now for the MTech and MDes is reasonable and stands at 33.04%.

For MSc programmes, 6 students have been placed out of the 75 registered candidates. 9 PhD students have also received job offers through the Institute placement cell in education and research sectors.

Companies from various sectors have participated in the campus recruitment process. The percentages of participation from various sectors are 22% in Core Engineering, 52% in IT and 26% in others.

The branch-wise placement details are:

Discipline	UG (BTech/BDes)			PG (MTech/MDes/MA/MSc)		
	No. of Student Reg.	No. Student Placed	% of Student Placed	No. of Student Reg.	No. Student Placed	% of Student Placed
CS	74	65	88	48	35	73
EC	67	52	81	51	11	22
EE	41	21	51	–	–	–
ME	71	29	41	73	23	31
CE	56	15	27	71	21	29
CL	50	25	50	42	4	10
BT	28	18	64	30	3	10
MC	39	30	77	–	–	–
CST	29	13	45	–	–	–
EP	23	12	52	–	–	–
DD	37	32	86	27	16	59
PH (MSc)	–	–	–	15	3	20
CH (MSc)	–	–	–	26	–	–
MC (MSc)	–	–	–	34	3	9
DS (MA)	–	–	–	16	–	–

CLOSING REMARKS

On this occasion of 16th convocation, I offer my hearty congratulations to all the degree recipients. IITG has given you the depth and breadth of knowledge as well as a unique value system. Our fervent prayer to almighty is that you should excel in your life and contribute in your professional career. Some of you will go for higher studies, some will prefer to work in the industry, some of you will be

entrepreneur, some of you will go for a career in management, some of you will be faculty members in the universities/ institutes, and some of you will serve the country as civil servants. Please accept our best wishes for your chosen profession; please remember that dedication should remain your guiding principle. Always try to integrate the symbiotic relationship between science, technology, life-long learning and the society. IITG is proud of you. Your contributions will enrich the heritage of IITG. We will always remain keen to hear about your progress. Our relationship now enters into a new paradigm, that of mutual friends. This new relationship is the most beautiful treasure that we will share from today.

Jai Hind.

Gautam Biswas

Director

Indian Institute of Technology Guwahati