

Director's Report

**Nineteenth Convocation
June 23, 2017**

Indian Institute of Technology Guwahati

Bharat Ratna, Prof. C. N. R. Rao, FRS, National Research Professor, Linus Pauling Research Professor & Honorary President, Jawaharlal Nehru Centre for Advanced Scientific Research, Bengaluru; Dr. Rajiv I. Modi, Chairman, Board of Governors; members of the Board of Governors; members of the Senate; faculty members, invited dignitaries, guests; graduating students and their family members; members of the media; officers and staff of the Institute; ladies and gentlemen – it is my pleasure to welcome all of you to the Nineteenth Convocation of IIT Guwahati.

I take this opportunity to express our solemn gratitude to Prof. C N R. Rao for accepting our invitation to be the Chief Guest of this Convocation and for kindly agreeing to deliver the Convocation Address.

I feel delighted to share with you that 155 PhD students, 619 undergraduate students and 534 postgraduate students will receive their degrees. I extend my heartiest congratulations to all of them.

I will now present a brief report on the activities and achievements of the Institute during the year 2016-2017.

THE BOARD OF GOVERNORS

Prof. Anoop Kr. Dass, Professor, Department of Mechanical Engineering, IIT Guwahati joined the Board in January 2017 as a nominee of the Senate. Prof. R. Alam, Professor, Department of Mathematics, has completed his tenure as the nominee of the Senate

in December 2016. On behalf of the Board, I welcome Prof. Dass to the Board and thank Prof. Alam for his valuable contributions.

MHRD-NIRF India Rankings 2017

A major achievement for the Institute came through the announcement of MHRD, National Institutional Ranking Framework (NIRF), India Rankings 2017 in which IIT Guwahati ranked eighth among all the participating universities and institutions and seventh among the top engineering institutions in the country. The credit for this success entirely goes to the faculty members, students, research scholars as well as the officers and staff members and well-wishers of the Institute. The Institute shall tirelessly strive in the coming days to achieve more.

PARAM ISHAN – Supercomputing Facility

IIT Guwahati has installed a high performance supercomputing facility of 250 TF peak computing performance with 300TB PFS storage with infiniband interconnect at Computer and Communication Centre of the Institute. The facility has been christened PARAM ISHAN – C-DAC-IITG Supercomputing Facility. Hon'ble Minister for Human Resource Development, Government of India, Shri Prakash Javadekar launched the Supercomputing Facility on 19 September 2016. With the installation of this state-of-the-art facility, the Institute is equipped to address challenging problems in science and technology.

ISHAN VIKAS

Started in 2014, and funded by MHRD with a vision on improving the scenario of school and college education in the North-Eastern part of the country, Ishan Vikas has achieved, albeit partially, the goals and objectives of the initiative. A large number of school children and engineering college students from various places of the

North-Eastern states are provided with the opportunity of visiting the IITs, IISERs, NITs and the NIAS, get trained by skilled faculty members and the technical staff, exposed to the state-of-the-art research facilities and interact with them.

About 1650 school students and 250 engineering students studying in various institutions in the North East have participated in the programme till date. Almost all the IITs, IISERs and NIAS have acted as host institutes for the participants and the participating students have greatly benefitted from the exposure that they received from such premier institutions in engineering, technology and the pure sciences.

NATIONAL PROJECTS

Project Vishwajeet is an ambitious project of MHRD, GoI to upgrade the facilities of selected IITs to world class level. IIT Guwahati is happy to inform about securing this project. GoI will invest about ₹2700 crores over next five years at IIT Guwahati to create advanced infrastructure and also advanced research and development facilities. Areas like healthcare, signal processing, flexible electronics, advanced manufacturing, water resources management, material science and engineering, and photonics, plasmonics and laser applications, have been identified to create advanced R&D facilities.

Global Initiative of Academic Networks (GIAN), an initiative of Govt. of India for Higher Education, was started in 2016. The major aims of GIAN are to tap the international pool of talented scientists/entrepreneurs with an objective to encourage their engagement with the institutes of Higher Education in India. The initiative is aimed to augment the country's existing academic resources, accelerate the pace of quality reforms, and elevate India's

scientific and technological capacity to global excellence. In the reporting year, 15 such courses were conducted by erudite scholars from international universities/institutions at the Institute. To name a few courses:

1. Dr. Maurizio Palesi, University of Catania, Italy – “Scalable On-chip Interconnects for many-core Systems”
2. Prof. Yannis Stylianou, University of Crete, UK – “Advanced Sinusoidal Modeling of Speech and Applications”
3. Dr. Jose Palomar, Universidad Autonoma de Madrid (Spain) – “Integration of Molecular Design to Process Simulation for the Development of Industrial Chemical Products and Processes”
4. Dr. Kari Tammi, Aalto University, Finland – “Design of Electric Vehicle Systems”
5. Dr. Richard Blanchard, Loughborough University’s (UK) – “Electricity Systems and Future Scenarios”
6. Prof. Mayank Tyagi, Louisiana State University, Baton Rouge, USA – “Reservoir Simulation – Mathematical Techniques in Oil and Gas Recovery”
7. Dr. Saurav Goel, Queen’s University Belfast, UK – “Advances in Ultra-precision Machining Processes”

The Institute is also engaged in creating e-course contents for the MHRD flagship programme **Central Sector Scheme-Massive Open Online Courses (CSS-MOOCs)** where courses are delivered through NPTEL online portal that are open for anyone with an Internet connection. In the first year of execution of CSS-MOOCs, IIT Guwahati has offered five courses under this scheme.

The Institute organised teacher training programmes under **Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMMNMTT)** – an MHRD, Govt. of India Initiative –

for in-service teachers of Assam and other states of India. The aim of this programme is to strengthen the quality of teaching and education of science and mathematics in the country.

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, ME;
- Master of Design (MDes) programme in Design;
- Master of Science by Research [MS(R)] programme in Energy (EN);
- 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); and
- Dual [MS (Eng.) + PhD] programme in Electronics and Electrical Engineering (EE).

Centre for Linguistic Science and Technology and Centre for Rural Technology, have started offering academic and research programmes from the new academic year. The areas covered for study are inter-disciplinary in nature with equal emphasis on new technology and developmental issues of the North Eastern region. While the Centre for Rural Technology is offering PhD and MTech programmes, the Centre for Linguistic Science and Technology is offering PhD programme.

The total number of enrolled students in 2016-17 is 5770. Of these, 55% are postgraduate students. The detailed break up is –

Preparatory Programme: 10

Four-year BTech and BDes: 2620

Batch	BT	CE	CL	CS	CT	DD	EC	EE	EP	MC	ME	Total
Fourth Year (2013 Batch)	44	72	58	86	39	39	80	46	39	49	87	639
Third Year (2014 Batch)	39	69	61	88	34	43	78	45	33	49	79	618
Second Year (2015 Batch)	44	69	59	88	38	50	81	45	38	50	76	638
First Year (2016 Batch)	54	80	69	80	44	44	73	41	43	45	78	651
From earlier batches												64
Total												2610

Two-year MSc: 274

Batch	CH	MC	PH	Total
Second Year (2015 Batch)	44	42	41	127
First Year (2016 Batch)	48	50	44	142
From earlier batches				5
Total				274

Two-year MA: 49

Batch	DS	Total
Second Year (2015 Batch)	22	22
First Year (2016 Batch)	27	27
Total		49

Two-year MTech: 792

Batch	BT	CE	CL	CS	EE	ME	RT	Total
Second Year (2015 Batch)	33	79	48	46	54	107	-	367
First Year (2016 Batch)	31	95	51	42	71	115	9	414
From earlier batches								11
Total								792

Two-year MDes: 52

Batch	DD	Total
Second Year (2015 Batch)	27	27
First Year (2016 Batch)	25	25
Total		52

Two-year MS: 24

Batch	EN	Total
Second Year (2015 Batch)	10	10
First Year (2016 Batch)	14	14
Total		24

Dual Degree: 32

Batch	(MTech + PhD) in CS	[MS(Eng.)+PhD] in EE	Total
Fourth Year (2013 Batch)	3	-	3
Third Year (2014 Batch)	3	-	3

Second Year (2015 Batch)	3	10	13
First Year (2016 Batch)	0	8	8
From earlier batches	5	-	5
Total	14	18	32

PhD: 1927

BSBE	CE	CH	CL	CS	DD	EE	EN	EV	HS	MA	ME	NT	PH
220	214	237	174	101	72	213	63	44	109	70	219	38	136
RT	CLST												
9	8												

The new academic session (2016-2017) commenced from July 2016. 1553 students were admitted in various programmes across all the Departments/Academic Centres in July 2016. This includes 10 students in the Preparatory Programme. Another set of 115 students were admitted in PhD programmes in various Departments/Academic Centres in January 2017. Thus a total of **1668** students were admitted in the academic year 2016-2017. The department/centre-wise details of new admissions, excluding the preparatory students, are given in the table below:

Department/Centre	BTech/ BDes	MSc/ MA	MTech/ MDes	MS(R)	PhD	Dual Degree
Biosciences and Bioengineering (BSBE)	54	-	31	-	42	-
Chemical Engineering (CL)	69	-	51	-	43	-
Chemistry (CH)	44	48	-	-	53	-
Civil Engineering (CE)	80	-	95	-	50	-
Computer Science and Engineering (CS)	80	-	42	-	17	-
Design (DD)	44	-	25	-	16	-

Department/Centre	BTech/ BDes	MSc/ MA	MTech/ MDes	MS(R)	PhD	Dual Degree
Electronics and Electrical Engineering (EE)	114*	–	71	–	25	8
Humanities and Social Sciences (HS)	-	27	–	–	11	-
Mathematics (MA)	45	50	–	–	7	-
Mechanical Engineering (ME)	78	–	115	–	35	-
Physics (PH)	43	44	–	–	23	-
Centre for Energy (EN)	–	–	–	14	18	-
Centre for the Environment (EV)	–	–	–	–	13	-
Centre for Nanotechnology (NT)	–	–	–	–	7	-
Centre for Rural Technology (RT)	–	–	9	–	9	
Centre for Linguistic Science and Technology (LST)	–	–	–	–	8	
Total	651	169	439	14	377	8

* *BTech in Electronics and Communication Engineering: 73, and BTech in Electronics and Electrical Engineering: 41.*

Today, **1308** students, who have successfully completed their programmes, will receive degrees in the following disciplines:

Number of students obtaining degrees in June 2017 – 1308

Four-year BTech and BDes

Total	BT	CE	CL	CS	CT	DD	EC	EE	EP	MC	ME
619	43	63	59	88	45	36	76	45	27	50	87

Two-year MA

Total	DS
20	20

Two-year MSc

Total	CH	MC	PH
119	39	41	39

Two-year MTech/MDes

Total	BT	CE	CL	CS	DD	EE	ME
390	28	96	47	62	27	45	85

Two-year MS(R)

Total	EN
5	5

PhD

Department/Centre	No. of Students
BSBE	21
CE	12
CL	9
CH	36
CS	4
DD	1
EE	20
EN	3
EV	1
HS	13
MA	10
ME	13
NT	1
PH	11
Total	155

ACADEMIC INFRASTRUCTURE DEVELOPMENT

Hon'ble Minister of State, Human Resource Development (Higher Education), Govt. of India, Dr. Mahendra Nath Pandey, visited IIT Guwahati on 28 October 2016 and inaugurated the newly installed high capacity servo hydro press Universal Testing Machine (UTM) at the Central Instruments Facility.

Dr. Rajiv I. Modi, Chairman, Board of Governors, IIT Guwahati recently inaugurated the 'Electron Microscopic Facilities' of the Central Instruments Facility (CIF) of the Institute which is expanded with installation of a Field Emission Transmission Electron Microscope (FETEM) and a Field Emission Scanning Electron Microscope (FESEM) at the cost of nearly ₹10 crores.

The new FETEM is a JEM-2100F (HR) instrument, a make of JEOL, is basically a next generation multipurpose TEM. The JEM-2100F can achieve the highest image quality and the highest analytical performance in the 200 kV class analytical TEM with a probe size under 0.5 nm. FETEM is also equipped with the latest GATAN Ultrafast Camera and Oxford make Energy Dispersive X-ray Spectrometer with 80 mm² high performance detector for elemental analysis with a detection limit from Boron to Uranium. This is the first field emission TEM of the northeast India.

The new Carl Zeiss Gemini 300 FESEM is a high performance instrument designed for gaining maximum information from the broadest range of sample and high flexibility in imaging, analysis, with future upgradability for any kind of in situ application. The Gemini 300 of CIF is equipped OXFORD Instruments' advanced Windowless Energy Dispersive X-ray Spectrometer (EDS) system for characterisation of nano-size features. The windowless EDS is a

recent technology of its kind. These instruments would boost up the research capabilities and empower the scientists to attempt much more analytically intense problems.

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 year under report are –

● Carl Zeiss F. E. Electron Microscope (Sigma 300)	₹133 lakh
● Electromagnetic Manufacturing Unit	₹123 lakh
● Inductively Coupled Plasma Mass Spectrometry	₹68 lakh
● Micrological Cultivation System	₹46 lakh
● HPC	₹44 lakh
● Semi-Automatic wire Bonder	₹42 lakh
● Electro Spinning Device	₹41 lakh
● Photo Electron Chemical Workstation	₹41 lakh

Lakshminath Bezbaroa Central Library is a major service centre of the Institute which provides services and facilities to support the teaching, learning, research activities. The Library has a collection of about 1.65 lakhs of printed books and bound volumes of journals, 1.53 lakhs of e-books, and 90 print and 24000 online journals along with a substantial number of other documents. During the reporting year, the Library has subscribed to some of the world's most renowned abstract/full-text database like Scopus, INSPEC, EBSCO Discovery Service, IEC Standards, etc. and some national level database i.e. CMIE Prowees, BIS Standards, EPWRF Time Series, etc.

Being member of e-ShodhSindhu: Consortium for Higher Education Electronic Resources and DeLCON DBT-Electronic Library Consortium, Library gets access to varied and vast collection of

academic publications. The Library is actively involved in different activities of the National Digital Library project of MHRD under NME-ICT. The Library remains open throughout the year.

The Computer and Communication Centre has augmented its facilities to provide better service in connectivity. The Centre also acts as a nodal centre for various network related activities of the North-Eastern states. Projects of the National Knowledge Network and the ERNET are being actively pursued in the Centre.

RESEARCH AND DEVELOPMENT

The number of PhD students on campus is increasing every year. This year too has seen a considerable increase in numbers, growing from 1743 students last year to 1927 this year. The current faculty to PhD students' ratio is 4.69. The number of graduating PhD students has also increased to 155 from 128 in the previous year

The other component of our research programme is sponsored (or directed) research. There are 440 research projects in progress with a total sanctioned value of about ₹260 crore. In the year under report we received 147 new projects with a sanctioned value of ₹69 crore. The R&D projects are mainly sponsored by Government Ministries and Departments with major support coming from Ministry of Human Resource Development (MHRD), Departments of Science and Technology (DST), Biotechnology (DBT), Atomic Energy (DAE), Electronics and Information Technology (DeitY), Defence Research and Development Organisation (DRDO). We also have a considerable number of industry supported research projects. 245 personnel are engaged in various research projects at the Institute with 250 Principal Investigators involved. During the reporting year ₹7.59 crores were spent under manpower head.

The Institute has applied for 20 patents in 2016-2017.

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

Project Title	Dept./ Centre	Funding Agency	Amount (₹ in Lakh)
Pilot scale study for biodiesel production using waste rubber seeds as raw material	Energy	MHRD	410
Mass cultivation of Microalgae for the production of high value bio-fuel fractions through Hydro-Thermal Liquefaction	Chemical Engg.	MHRD and MNRE	237
Production of Hydrocarbon oil via Hydro-Thermal Liquefaction (HTL) of recycled from HTL unit	BSBE	ONGC	182
Feasibility Studies and Optimisation of Electromagnetic Pulse Welding of Tubes for Nuclear Reactor Application	Mechanical Engg.	BRNS	164
ARTICULATE+: A system for automated assessment and rehabilitation of persons with articulation disorders	CLST	MHRD	137
North East Silk Biomaterial Based Injectable Hydrogels for Drug Delivery and Tissue Engineering	BSBE	DBT	134
Membrane based efficient energy storage, clean energy generation and waste water treatment system	Energy	DST	129
Development of BHISM for Blast and Impact Resistant Design and Testing of Products	Civil Engg.	MHRD	125

Project Title	Dept./ Centre	Funding Agency	Amount (₹ in Lakh)
Assessment of impact of climate change on crop water requirements and productivity of major crop in Sikkim, Himalayan region of North East India	Civil Engg.	DST	116
Design and development of a membrane reformer prototype for production of Ultra-Pure Hydrogen from Methanol for Fuel Cell based vehicle and power generators	Chemical Engg.	DST	114

BRNS – Board of Research in Nuclear Sciences

DBT – Department of Biotechnology, Govt. of India

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

MNRE – Ministry of New and Renewable Energy

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

A total of 103 new consultancy projects were carried out during the year. The total value of consultancy projects undertaken during this year is ₹4.19 crores, and ₹7.13 crores was received for all consultancies.

IIT Guwahati has a Technology Incubation Centre (IITG-TIC) which facilitates new start-ups. Presently fifteen incubating companies are working in the centre.

IIT Guwahati Research Park

IIT Guwahati is facilitating established companies to set up their R&D centre inside the Institute campus for industry-academia collaboration. At present the following companies got inducted at IITG Research Park:

- CADILA R&D Lab: Pharmaceuticals
- Kovid Lab: Big data analytics and Multimedia
- DESHYA Technologies: Teaching-Learning tools
- Silicon Microsystems: Embedded systems + IoT

Two more companies will join very soon.

FACULTY AND STAFF

The faculty strength at the end of March 2017 was 411. The number of non-teaching staff at the end of March 2017 was 459.

RESEARCH 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:	952
Papers in Conference Proceedings:	827

In the previous year 883 papers in journals and 705 papers in conference proceedings were published by the faculty of the Institute. The increase in research papers in journals as well as conference proceedings is satisfactory.

CONFERENCES/WORKSHOPS/SYMPOSIA

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

- International Conference on Waste Management (RECYCLE 2016) – April 2017
- Seminar on Revisiting Partition: Concepts, Dynamics and Manifestations with special focus on North East India – February 2017
- 3rd National Workshop on NEMS/MEMS and Theranostics Devices (NWNTD-2017) – February 2017
- 3rd Indian Control Conference (ICC-2017) – January 2017
- International Conference on Research into Design (ICoRD'17) – January 2017
- National Conference on Frontiers in Chemical Sciences (FICS-2016) – December 2016
- Conference on India-Myanmar Bilateral Ties: Ethnicity, Security and Connectivity – September 2016
- 22nd Himalayan Languages Symposium – June 2016
- National Conference on Recent Advancements in Environmental Research – June 2016
- 20th International Symposium on VLSI Design and Test (VDAT 2016) – May 2016
- 7th DAE-BRNS biennial symposium on Emerging Trends in Separation Science and Technology (SESTEC 2016) – May 2016

IIT Guwahati participated in a Joint Symposium on Applied Science and Technology of Bio-related Materials co-hosted by Gifu University in August 2016 in Japan. A joint degree programme with the partner universities were worked out in the symposium.

The Institute has also organised more than 30 short term courses, workshops, and training programmes under the Technical Education Quality Improvement Programme (TEQIP) and Electronics and ICT Academy, projects funded by the Govt. of India.

INTERNATIONAL COLLABORATIONS

Collaboration with Universities in UK

The Institute is making sustained efforts to establish contact with Universities in the United Kingdom. It is now actively engaged in communicating with 29 Universities/Institutes in the United Kingdom seeking avenues to establish a robust academic and research collaboration.

Collaboration with Universities in Japan

Faculty members of IIT Guwahati are engaged in collaboration with their counterparts from the Tokyo Institute of Technology, Japan, National Institute of Advanced Industrial Science and Technology, Japan (AIST) which resulted in the establishment of a DBT-AIST International Laboratory for Advanced Biomedicine (DAILAB) for advanced cancer research. It is only the second such laboratory to be established in India. Discussions on a Joint Masters-PhD programme with Gifu University, Japan is at an advanced stage and the programme is expected to commence in 2019.

His Excellency, Mr. Kenji Hiramatsu, the Honourable Ambassador of Japan to India visited the campus and addressed the students and faculty members of IIT Guwahati on Indo-Japanese bilateral relations and the prospects of academic and research collaborations between India and Japan. The visit of the honourable ambassador has added impetus to the relationship between IIT Guwahati and institutes in Japan.

Faculty members of IIT Guwahati are also actively engaged in collaborations with counterparts from Tokyo Institute of Technology, Hokkaido University, Kyoto Institute of Technology, Kagawa University, National Agriculture and Food Research Organisation (NAFRO), Kyoto University and Shibaura Institute of Technology, Japan.

Joint Masters-PhD Programme with Heidelberg University and DBT

The above is a unique programme to be funded by DBT whereby 15 Master Students from 6 Premier Indian Institutions will be selected and sent to undertake their 4th semester of Masters Programme at the University of Heidelberg out of which 10 will be eventually selected for a Joint-PhD program in Big Data Analysis with Heidelberg University, Germany.

Linnaeus-Palme Partnership

The Linnaeus-Palme International Exchange Programme between IIT Guwahati and Lund University has been approved by the Swedish Council for Higher Education which will fund the programme for a period of seven years interspersed with periodic reviews.

Heritage Network

IIT Guwahati agreed to become part of the Heritage Network, a consortium of Institutions from India and Europe. The network was formed in May 2016 during the concluding event of the Erasmus Mundus Heritage Meeting held in IIT Guwahati.

Asia Technological Universities Network (ATU-Net)

This is one of the most recent of international networks that IIT Guwahati has joined to become a founding member. The vast network of 59 technical Institutes in Asia from 18 different countries creates an exciting platform for institutionalising engagements with reputed institutes abroad.

MEMORANDA OF UNDERSTANDING (MoUs)

IIT Guwahati at present has 108 national and international collaborations aimed at facilitating research collaborations, student and faculty exchange, joint PhD supervision, and other research related activities. The Institute signed twenty one new MoUs with various educational and research institutes in Japan, France, South Korea, Switzerland, China, Netherlands, Spain, etc. during the year under report.

INTERNATIONAL STUDENTS

A substantial number of international students from top universities visit IIT Guwahati every year to pursue full time masters, doctoral and short-term courses as exchange students and interns. As of today, there are about 75 International Students studying in the campus including Research Interns and Exchange Students.

There are also a large number of students, faculty and staff of IIT Guwahati who have visited other institutions for exchange programmes, internships or under flagship programmes such the Erasmus Mundus, DAAD, MITACS, Erasmus+ KA-107, etc.

ALUMNI ACTIVITIES

IIT Guwahati Alumni meet 2016 was successfully organised on the first week of November 2016 witnessing enthusiastic discussions amongst our alumni, students, and other dignitaries. SPARC, the

Students' PAN IIT Alumni Relations Cell successfully organised its first Student-Alumni Meet in July in Bangalore. The Institute organised interactive sessions with alumni and the present students aimed at providing career and academic guidance to the current students.

The Institute now has a fully functional alumni portal designed and managed by our own students.

FACULTY ACHIEVEMENTS

A number of faculty members received awards and brought accolades for the Institute during the year. Some of them are:

Dr. Biman Mandal and Dr. Sachin Kumar, Associate Professors, Biosciences and Bioengineering, won the NASI-SCOPUS Young Scientist Award 2016 in Medicine and Agriculture. This is probably the first and a very rare distinction that in the same year 2 winners (Medicine & Agriculture) out of total 9 are from IIT Guwahati (BSBE department).

Prof. Rakhi Chaturvedi, Professor, Biosciences and Bioengineering, received the Newton-Bhabha Leading Women Scientist Award 2016 in Crop and Agricultural Sciences instituted jointly by DBT, India and Cambridge University, UK.

Prof. Latha Rangan, Professor, Biosciences and Bioengineering, was awarded the Women Scientist Award 2015 of Biotech Research Society of India (BRSI). The award was conferred to her in December 2016. Prof. Rangan was also awarded Fellow of Association of Pharmacy and Biotechnology for the year 2016.

Prof. V. S. Moholkar, Professor, Chemical Engineering, and his research team comprising of Mr. Sushobhan Pradhan, Mr. Arup Jyoti Borah, Mr. Pritam Dikshit and Mr. Maneesh Poddar have been awarded National Award for Technology Innovation in the field of Petrochemicals and Downstream Plastic Processing. The prize comprises of ₹2 lakh cash award along with a shield and citation.

A team of researchers led by Prof. Arun Chattopadhyay, Professor, Chemistry, has invented an easy method for detecting jaundice.

Prof. S. K. Deb, Professor, Civil Engineering, was awarded the “A. S. Arya - IITR Disaster Prevention Award” of IIT Roorkee for his outstanding contribution in the area of Disaster Prevention/Mitigation.

Prof. Utpal Barua, Professor, Design, received Gold Medal for his visualisation work on this year's G20 theme: Freedom, Peace, Humanity and Environment as “outstanding work” in an International Exchange exhibition in Hangzhou, China, where all G20 countries had participated.

Prof. Arun Goyal, Professor, Biosciences and Bioengineering, won the Malaviya Memorial Award - Senior Faculty 2016 for outstanding contributions to Biotechnology by Biotech Research Society of India. He also won G. B. Manjrekar Award 2016 for contribution to fundamentals of applied values of Microbiology by Association of Microbiologists of India.

Dr. Shyam P. Biswas, Associate Professor, Chemistry, received Young Scientist Award 2017 by Chemical Research Society of India (CRSI).

Dr. Dipankar Srimani, Assistant Professor, Chemistry, attended Alexander von Humboldt Programme at RWTH Aachen University during April - July 2016.

Prof. Anil K. Saikia, Professor, Chemistry, was awarded Bronze Medal by Chemical Research Society of India (CRSI) for the year 2017 for his contributions to research in chemistry.

Prof. Sukumar Nandi, Professor, Computer Science and Engineering, was elected as Fellow of Indian National Academy of Engineering in November 2016.

Prof. Pradeep Yammiyavar, Professor, Design, with Mr. Anmol Srivastava, research scholar won the Best Demo Award at 18th ACM International Conference on Multimodal Interaction 2016 in Tokyo, Japan. Prof. Yammiyavar also won Most Distinguished Paper award at ICoRD 2017 with Ravi L., Sai Prasad Ojha.

Prof. Arupjyoti Saikia, Professor in History, Department of Humanities and Social Sciences, has been awarded the prestigious New India Foundation Fellowship for 2017. He will write a book on Assam after Independence.

Dr. Debasish Borah, Assistant Professor, Physics, won the first ever State Science Award, Assam in the segment 'Young Scientist/Innovator' instituted by ASTEC for his remarkable contributions in his field of study. The award was presented to him by the Hon'ble Chief Minister of Assam Sri Sarbananda Sonowal.

Dr. Sovan Chakraborty, Assistant Professor, Physics, has been nominated for a Max Planck-India Mobility grant.

Prof. Gautam Biswas, Director, and Professor of Mechanical Engineering, IIT Guwahati, was felicitated with Distinguished Alumnus Award – 2016 at the 62nd Convocation of IIT Kharagpur.

Prof. P. Muthukumar, Professor, Mechanical Engineering, won the Fulbright-Nehru Academic and Professional Excellence Award (Teaching and Research) 2017 from Indo-US Science and Technology Forum.

Prof. S. Kanagaraj, Professor, Mechanical Engineering, won the BIRAC-SRISTI GYTI Award 2016. He also won the DSIR-PRISM (Promoting Innovations in Individuals Start-ups and MSME) Award.

Prof. Anupam Saikia, Professor, Mathematics, joined the editorial board of Journal of Ramanujan Mathematical Society from January 2017.

Dr. Arup Chattopadhyay, Assistant Professor, Mathematics, received Fulbright-Nehru Post Doctoral Research Fellowship for 2016-2017 to work with Dr. Anna Skripka at University of New Mexico, Albuquerque, USA.

Dr. Mohammad Qureshi, Professor, Chemistry, received the Fulbright–Nehru Academic and Professional Excellence Fellowships (FNAPE) for 2016-2017 to work with Prof. Shane Ardo at University of California, Irvine, USA.

Congratulations to all.

CONSTRUCTION AND CAMPUS DEVELOPMENT

The Institute has seen considerable growth in number of students in the recent past. In conformity with this we are upgrading our infrastructure with new constructions and extensions.

Students' Hostels

In the tenth boys' hostel – Lohit – all the 804 single seater rooms and 48 rooms with attached toilets were already handed over. The remaining 152 rooms with attached toilets should be ready soon. Construction work of boys' hostel number eleven is also progressing as scheduled. The entire hostel should be ready for occupation by March 2018. The extension work of the married scholars' hostel with 96 units of flat-lets was completed and handed over for occupation.

Class Room Complex

The construction work of the Class Room Complex is going on. The complex will have six lecture halls of 200 capacity each and eighteen class rooms of 120 capacity with provision of future vertical extension. Finishing work including heating, ventilation and air conditioning (HVAC) and electrical works for eighteen 120 capacity halls is completed. For the six 200 capacity halls, structural works of roof is in progress. The work is expected to be completed within October 2017.

Research Building Complex

The construction works of the multi-storied research building for housing the research facilities and catering to the requirements of time bound funded research projects are in progress. The building is designed as ten storied framed structures having 1850 sqm. per floor. In this phase, the RCC structure with external finish of the building will be constructed upto G+9 storied. However internal finish with

HVAC and electrical works would be taken up upto 4th floor. The work is expected to be completed within October 2017.

Expansion of Academic Complex (Phase-V)

The expansion of the Academic Complex under Phase-V started in 2015 and the construction work is in progress. The work is expected to be completed by the end of 2017.

Residential Quarters

The site development work of the 160 units of F-Type residential quarters in 4 towers having G+9 storied residential buildings is completed. The tender for the construction will be floated shortly.

Architectural preparations for the proposed 80 units of D type, 40 units of C type and 50 units of B type residential quarters are going on.

The Institute took up construction of 12 units of residential quarters in prefabricated structure to meet the immediate demand for accommodation of faculty and staff. The superstructure work of the construction is going on. The work is expected to be completed by July 2017.

New Guest House

The finishing work of the new guest house is progressing well. Out of the 165 rooms (including 8 VIP rooms) 32 general rooms are in use. It is expected that the Guest House construction would be completed by the end of 2017.

Boundary Wall

The boundary of the Institute campus is being strengthened with the construction of new boundary walls. Already 50% of the boundary has been covered and work on the remaining portion is going on.

Community Work

As a service to the community residing nearby the campus, the Institute took up a project of construction of a crematorium and a park with approach roads after getting requests from social organisations. The work is under progress.

INSTITUTE EXPENDITURE

The details of expenditure during the year 2016-2017 are as follows (in crores of ₹):

Recurring:	184.95
Non-recurring:	186.35
Sponsored Research:	75.44
Total Expenditure:	446.74

In comparison, in 2015-2016, ₹443.5 crores were spent.

VISIT OF PARLIAMENTARY COMMITTEE

The Parliamentary Committee on Papers Laid on the Table of the Rajya Sabha visited Guwahati and had an interaction with the key officials of the Institute on 13 January 2017. The Committee expressed its pleasure in timely submission of Institute Audit and Annual Report 2015-16 to both the Houses of the Parliament. The august members of the Committee were also apprised about the various projects and activities going on in the Institute.

EQUAL OPPORTUNITIES

The Institute is committed to extend all the required supports to the members from the reserved categories and differently abled persons. Government guidelines are followed in this regard. The Head of the Section has proactively initiated several philanthropic initiatives.

STUDENTS' ACTIVITIES

Alcheringa, the annual cultural festival of IIT Guwahati, was held during 2-5 February this year. Alcheringa is now regarded as a much anticipated students' cultural event in 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.

Techniche-2016 – the annual techno-management festival of the Institute – was held during 1–4 September 2016. Techniche has been an extra-ordinary platform to showcase the latest inventions, exhibitions and technological advances from all over the globe. The student teams organise a plethora of events and competitions all designed to make the participants step outside their comfort zones and challenge the institution of conventional thinking. In this edition of Techniche IIT Guwahati hosted Prof. Ada E. Yonath, 2009 Nobel Prize winner in Chemistry from Israel. Prof. Yonath delivered a special lecture and had interactive discussions with the students.

Other regular student events like Manthan, Spirit, Spardha were successfully organised by the students during the year. Moreover, there have been regular events and competitions organised by the various clubs and societies of the Institute.

STUDENTS' ACHIEVEMENTS

Mr. Idul Ahmed, our alumnus of 2010 BTech Mechanical Engineering batch has topped Indian Engineering Services 2016, in Mechanical Engineering.

Mr. Akash Pandaurya, Mr. Chandrahas Kumar and Mr. Nitesh Jindal, all BTech 1st year students, were awarded Samsung Star Scholars for four years with financial support of ₹2 lakh per year for expenses related to tuition fee, hostel fees or mess charges.

Ms. Tushara L. Balabolu, a BTech 2016 batch student of Computer Science and Engineering, won the prestigious Aditya Birla Scholarship for the year 2016 in Engineering stream. She is one of the fifteen best students from IITs/BITS in engineering to receive the scholarship. The scholarship entails each scholar receiving an amount of ₹65,000 per annum.

Mr. Polanati Sai Arun Kumar and Ms. Galla Lahari, BTech students, won WS Laxman Unstoppable Scholarship. The scholarship amount is ₹50,000 per annum for four years.

Mr. Jithin Krishnan B., BTech student of Mechanical Engineering, was selected for the prestigious Honda YES (Young Engineer and Scientist) Award 2016-17. He will receive US\$ 3,000 in equivalent Indian Rupees.

Mr. Kalind Baraya, BTech student of Mechanical Engineering, won ONGC Gold Medal. The award consists of cash award ₹1 lakh and a gold plated medallion. The ONGC Gold Medal is awarded to the BTech topper of Mechanical Engineering.

Mr. Sanjeev Kumar, BTech, Mechanical Engineering; Mr. Mandeep Deka, MTech, Mechanical Engineering; Mr. Sudhakantha Girmohanta, MSc, Physics; Ms. Reshmi Dani, MSc, Chemistry, received ONGC Scholarship. The scholarship amount is ₹5,000 per month for a year.

Mr. Mohammed Suhail, Mr. Parth Tiwari, Mr. Suyash Pati Tripathi and Mr. Shubham Tripathi, all BTech students were selected for prestigious O. P. Jindal Engineering and Management Scholarship (OPJEMS) 2016. The scholarship amount is ₹65,000 for a year.

Mr. Bibhas K. Bhunia, research scholar, Biosciences and Bioengineering, won the Talent Search contest on Innovative Research Ideas leading to Entrepreneurial venture in Biotechnology and allied areas organised by Guwahati Biotech Park in January 2017 for his project ‘Affordable Bio-artificial Disc for Low Back Pain Management’.

Mr. Somnath Chanda, research scholar, Centre for the Environment, won first prize in IITG-TIC Innovation Competition for his project ‘formulation of herbal cosmeceuticals and nutraceuticals from Assam green tea leaves’ in October 2016.

Mr. Bibhas Kumar Bhunia, Mr. Prerak Gupta, Ms. Dimple Chauhan, Mr. Manishekhar Kumar, Mr. Yogendra Pratap Singh, Ms. Janani G and Mr. Joseph Christakiran M., research scholars, Biosciences and Bioengineering, won second prize in IITG-TIC innovation competition for their project ‘Silk based affordable tissue grafts and healthcare products’ in October 2016.

Mr. Rishikesh Shukla, research scholar, Biosciences and Bioengineering, won the Young Scientist Award of Association of Microbiologists of India (AMI) at Gauhati University, Guwahati.

Ms. Devivasha Bordoloi, research scholar, Biosciences and Bioengineering, received Young Scientist Award for her paper at the International Conference on Nutraceuticals and Chronic Diseases (INCD-2016), Kerala.

Mr. Prerak Gupta and Ms. Shreya Mehrotra, research scholars, Biosciences and Bioengineering were selected for Indo-US Fulbright Fellowship 2017-2018 in Bioengineering.

Mr. Akhilesh Kumar Pal, research scholar, Chemical Engineering, won the Gandhian Young Technological Innovation Award for 2017. Mr. Pal also received the Marshall Award for Student at the 11th Asia Pacific Chitin and Chitosan Symposium 2016.

Mr. Ayan Pal, research scholar, Chemistry, received first best paper award at 6th DAE BRNS Interdisciplinary Symposium on Material's Chemistry (ISMC-2016) held at BARC, Mumbai.

Mr. Abhishek, research scholar, Computer Science and Engineering, received Fall 2016 Linguistic Data Consortium (LDC) Data Scholarship.

Ms. Hema K. Yarnagula, research scholar, Computer Science and Engineering, received Best Paper Award at IEEE ANTS 2016, Bengaluru.

Mr. Tushar Semwal, research scholar, Computer Science and Engineering, received TCS Fellowship.

Mr. Vikram Aditya, Mr. Suprabho Dhenki, Mr. Amarvaj Likhith, Mr. Ajinkya Karale and Mr. Harmeet Singh of Department of Design won the 1st prize in CHI 2016 Student Design Challenge.

Mr. Neeraj Kumar, Electronics and Electrical Engineering, received US NIH R25 grant to pursue post-doctoral at University of Illinois at Chicago.

Mr. Avinash Kumar, research scholar, Humanities and Social Sciences, was selected as Research Fellow at Institute for Advanced Studies on Science, Technology and Society (IAS-STS), Graz, Austria, from October 2016 to June 2017.

Mr. Aniruddha Poria, research scholar, Mathematics, received the prestigious Fulbright-Nehru Doctoral Research Fellowship for 2016-17 to work with Dr. Radu Balan at University of Maryland, College Park, USA.

Mr. Dawit Gudeta, research scholar, Mechanical Engineering, won best paper award, at the National Conference on Sustainable Mechanical Engineering: Today and Beyond (SMETB), at Tezpur University in March 2017.

Mr. Devarshi Kashyap, research scholar, Mechanical Engineering, won S. Rajeshwari award 2016 at National Conference on Emerging Biomaterials, Bharathiar University Coimbatore in October 2016.

Mr. Ashish Kumar Rajak, research scholar, Mechanical Engineering, won best paper award at International Conference on Advances in Materials & Manufacturing, Hyderabad in December 2016.

Mr. R. S. Malani, research scholar, Centre for Energy, received best paper award in “Environmental System” session during “LAMSYS-2016” held at SDSC SHAR (ISRO) Sriharikota.

Ms. Shyamali Sarma, research scholar, Centre for Energy, has been selected for the Newton-Bhaba PhD Placements Programme (2016-2017) to pursue a part of her PhD research work at the University of Nottingham, U.K.

Mr. Vikas Kumar, MS-R student, Centre for Energy, received Excellent Paper Award at the ASAR International conference held at Dehradun in August 2016.

Ms. Satarupa Dutta, Department of Chemical Engineering and Mr. Nilanjan Mandal Centre for Nanotechnology, won Gandhian Young Technology Innovation BIRAC-SHRISTI Appreciation Award 2017.

Mr. Mitradip Bhattacharjee, Centre for Nanotechnology, won best paper award in REFLUX-2017, IIT Guwahati.

IIT Guwahati launched the Student’s Chapter of Indian Green Building Council (IGBC). The Student Chapter is an important initiative to address the growing ecological issues and concerns with emphasis upon energy and water management.

The performance of IIT Guwahati sports team at the 51st Inter IIT Sports Meet 2016 held at IIT Kanpur is very encouraging. A total of 13 medals were won in the sports meet. Above all Ms. Sajitha S. won the “Best Athlete” Female title, Ms. Bhaswati Gohain Barua won the Best Player Badminton Female title and Ms. Namami Goswami bagged the Best Table Tennis Player Female title. In the Inter IIT Staff Sports Meet 2016 one medal was won.

Our heartiest congratulations to all of them.

CAMPUS PLACEMENT

The placement scenario at IIT Guwahati for the year 2016-2017 has been impressive so far. A total of 115 companies from various sectors have already participated in campus recruitment. The total number of registered students for campus placement in the year 2016-2017 is 1107. The overall placement of BTech and BDes students is 70%. For BTech and BDes, the total number of jobs offered is 413 for 590 students. An average package offered for BTech and BDes students is ₹15.11 lakhs per annum (treated as CTC).

The placement for MTech and MDes students is reasonable and stands at 33%. An average package offered for MTech and MDes students is ₹10.82 lakhs per annum (treated as CTC). For MSc programmes, 4 students have been placed out of 88 registered candidates. For MSR programme, 2 students were placed out of 7 registered candidates. For PhD programmes, 14 PhD students have received job offers out of 45 registered candidates in the education and research sector.

CLOSING REMARKS

Dear graduates, on the occasion of the Nineteenth Convocation, on behalf of the Academic Senate and on my personal behalf, I congratulate each one of you on your great achievement. From today, you are on your own. As individuals you will choose the profession what excites you, what generates intellectual passion within yourself, and finally what engages your powerful mind in the best possible way.

Your talent would be echoed through your innovative applications of science and technology. Your authentic applications of knowledge in service to the community will benefit not only our country, but the human civilization at large.

You will have to convert this world in to a livable place for all. Because of your training, your passion, and your knowledge you will bring about this change. Initiate, Innovate and Transform. Find a better way to help our countrymen. Discover how to create wealth for the benefit of the human society. Develop a better policy leaving no community or section behind. Graduate of 2017, I and my faculty colleagues, admire you for the work you have done at IIT Guwahati and our good wishes will accompany you for the work you will do in future.

Jai Hind

Gautam Biswas, FNA
JC Bose National Fellow and Director
Indian Institute of Technology Guwahati