The 15th Convocation of IIT Guwahati was held on 8 June 2013 at the Institute’s auditorium. Dr. M. M. Pallam Raju, Union Minister of Human Resource Development, Government of India, was the Chief Guest and delivered the Convocation address. The Chairman of Board of Governors, IIT Guwahati, Dr. Rajendra Pratap Singh, was present at the Convocation and addressed the graduating students and guests. 940 students – including 431 BTech and BDes, 44 MA, 95 MSc, 305 MTech and MDes, and 65 PhD – were conferred their degrees at the Convocation. The number of degree recipients has increased by 9.56% compared to the 14th Convocation.

Delivering his Convocation speech, Dr. Raju stressed the need of quality education for development. Dr. Pallam Raju also highlighted the efforts of Government of India in establishing a number of technical and higher educational institutes in the north eastern region. Lauding the efforts of IIT Guwahati in various aspects of education and research, and appreciating various milestones that IIT Guwahati had achieved, Dr. Pallam Raju said, “In its short existence of nearly two decades, IIT Guwahati has achieved many milestones. It has been able to develop a state of the art infrastructure in this beautiful landscape. It has created advanced facilities for research and has regularly been getting a large number of sponsored research projects and consultancies. It was the first IIT to start a well subscribed undergraduate programme in design. The infrastructure and facilities created here have helped it to attract constantly good faculty”.

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<tbody>
<tr>
<td>BTech/BDes</td>
<td>340</td>
<td>362</td>
<td>431</td>
</tr>
<tr>
<td>MA</td>
<td>13</td>
<td>42</td>
<td>44</td>
</tr>
<tr>
<td>MSc</td>
<td>87</td>
<td>114</td>
<td>95</td>
</tr>
<tr>
<td>MTech/MDes</td>
<td>230</td>
<td>269</td>
<td>305</td>
</tr>
<tr>
<td>PhD</td>
<td>60</td>
<td>71</td>
<td>65</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>737</strong></td>
<td><strong>858</strong></td>
<td><strong>940</strong></td>
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</tbody>
</table>
academic, research and innovation leadership through active networking with all these existing and upcoming institutions”.

He urged the Institute to work towards mitigating natural disasters, develop technology with low input costs, upgradation of infrastructure in NE region, using the

Brahmaputra more fruitfully, etc. Dr. Pallam Raju hoped that IIT Guwahati will soon act as regional hub of National Knowledge Commission and NP-TEL and will engage further with the educational institutes of South East Asia. He urged the graduating students to think about the nation, inculcate leadership qualities and take the country to greater heights.

The Chairman, Board of Governors, IIT Guwahati, Dr. R. P. Singh, addressed the gathering and stressed the need of fruitful amalgamation of industry and academia and take India forward.

Prof. Gautam Barua, Director, IIT Guwahati presented a report on the activities and achievements of the Institute during the year 2012–2013. Prof. Barua’s report, filled with facts and figures, presented a picture of all round development of IIT Guwahati for the said year. The number of PhD students on campus is increasing every year, giving fillip to its continuous emphasis on research. Year 2012-2013 has seen a big jump in numbers of PhD students, growing from 895 students in 2011 to 1113 in 2012. The current faculty to PhD students’ ratio stands at a satisfactory 3.43. During the year 2012-2013 over 350 research and development projects were in progress, having a total sanctioned value of ₹ 151 crores. In the same year, IIT Guwahati received new projects of about ₹ 42.6 crores.

The faculty members of the Institute published 592 research journal papers and 548 conference proceedings during the year 2012–2013. While lauding this Prof. Barua also mentioned that the Institute fell short when it came to technology transfer and patenting but at the same time expressed his confidence that these areas would improve.
A QIP short-term course on 'Applications of Lasers in Manufacturing' was organised by the Department of Mechanical Engineering during 24–28 June 2013. A well number of participants from academic institutions of various parts of the country attended the course. Numbers of lectures covering the fundamentals of lasers, applications of lasers to machining, forming, welding and surface treatment and modelling and optimisation of laser based manufacturing processes were delivered along with demonstration of software packages. The participants also got hands on training on the programming of 2.5 kW CO₂ laser cutting machine which was set up at IIT Guwahati under DST-FIST programme. The course was coordinated by Dr. M. Ravi Sankar, Assistant Professor and Prof. U. S. Dixit, Mechanical Engineering.


D. Dixit and P. R. Sahu, “Performance of QAM signalling over TWDP fading channels”, *IEEE Transactions on Wireless Communications*, 12 (4), 1794–1799, 2013


D. Dixit and P. R. Sahu, “Performance of QAM signalling over TWDP fading channels”, *IEEE Transactions on Wireless Communications*, 12 (4), 1794–1799, 2013


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D. Dixit and P. R. Sahu, “Performance of QAM signalling over TWDP fading channels”, *IEEE Transactions on Wireless Communications*, 12 (4), 1794–1799, 2013


P. Sharma and A. Barua, “Analytic vs. continental philosophy: Space for the lived experiences”, *International Journal of Humanities and Social Science Invention*, 2 (6), 11–13, 2013


**Physics**


**Centre for Energy**


**Centre for Nanotechnology**


**Book/Book Chapter**

**Civil Engineering**


**Mechanical Engineering**


Dr. Piruthivi Sukumar, Assistant Professor, Biotechnology, was runner up in Young Research Workers Prize presentation at British Cardiovascular Society Annual Conference 2013 held in London, UK during 3–5 June 2013.

Dr. Manish Kumar Goyal, Assistant Professor, Civil Engineering, has been selected and appointed as editorial board member for the American Journal of Water Resources, Science and Education Publishing and for the Open Journal of Modern Hydrology, Scientific Research Publish.

Dr. Manas Kamal Bhuyan, Assistant Professor, Electronics and Electrical Engineering, received Fulbright-Nehru Senior Research Fellowship 2013–2014 (Fulbright-Nehru Academic and Professional Excellence Fellowship) to carry out a combination of teaching and research at School of Engineering and Technology, Purdue University, Indiana, USA. Moreover, he has been elevated to the grade of IEEE Senior Member.

Dr. Deepak Sharma, Assistant Professor, Mechanical Engineering received DAAD (German Academic Exchange Service) Research Stays fellowship for a research visit to Karlsruhe Institute of Technology, Germany to carry out research for a period of two months starting from 15 May 2013.

Shri Sarabjot Singh, President of India gold medallist, BTech, Electronics and Communication Engineering (2010 batch) and Shri Harpreet Dhillon, BTech, Electronics and Communication Engineering (2008 batch) received best paper award along with their advisor Prof. Jeffrey G. Andrews, at the IEEE International Conference on Communications held in Budapest, Hungary, June 2013. ICC is the flagship conference of the IEEE Communications Society.

Shri Padmanabh Baruah and Shri Rabindra Pator, BTech students of the Department of Mechanical Engineering received best oral presentation award in the 5th National Symposium for Materials Research Scholars, MR-13, held at IIT Bombay during 8–10 May 2013.

RuTAG-NE (Rural Technology Action Group-North-East), IIT Guwahati organised an exhibition under the theme, ‘Gramya Prayukti: Technology for Improving Rural Life’ was held recently at NEDFi Haat, Guwahati where technologies developed by RuTAG-NE were showcased for prospective entrepreneurs as well as general public. Some of the innovative technologies exhibited were mechanisation of weaving of plain muga silk fabric, modified bicycle for carrying heavy loads of fruits and vegetables for the benefit of farmers, kilns (bhattis) for making charcoal from bamboo, during the operation of which vinegar is also produced as a by-product, eri cocoon opener, etc. Prof. Pradyut Kumar Goswami, Vice Chancellor, Assam Science and Technology University, inaugurated the exhibition.

New Research Projects

Chemical Engineering

Title: Natural gas purification by CO₂-selective silica membrane; Sponsor: CSIR; Duration: 3 years; Principal Investigator: Bishnupada Mandal

Title: Concurrent electrochemical generation of hydroxyl radicals or its precursor H₂O₂ both at anode and cathode surfaces and its utilisation in pharmaceutical wastewater treatment; Sponsor: SERB; Duration: 3 years; Principal Investigator: Animes K. Golder

Chemistry

Title: Arresting pre fibriller aggregates of Alzheimer’s amyloid by synthetic antibodies; Sponsor: DBT; Duration: 3 years; Principal Investigator: Bhubaneswar Mandal

Physics

Title: Development of semiconductor nanowire based advanced bio-sensors for biomedical applications; Sponsor: CSIR; Duration: 3 years; Principal Investigator: P. K. Giri

Centre for Energy

Title: ‘Small-scale anaerobic digestion’ under the “Rural Hybrid Energy-Enterprise Systems (RHEES),” Indo–UK Collaborative Research Initiative on ‘Bridging the Urban and Rural Divide’, Sponsor: DST; Duration: 3 years; Principal Investigator: P. Mahanta

Title: Development of bioelectrodes for biofuel cell applications; Sponsor: Ministry of New and Renewable Energy, Govt. of India; Duration: 3 years; Principal Investigator: P. Goswami
A one-week QIP short-term course on Biotechniques for Pollution Control and Resource Recovery was organised by the Centre for the Environment during 1-5 July 2013. A total of twenty four teachers from AICTE recognised institutions participated in the programme. The participants were from diverse academic background, which included civil engineering, chemical engineering, mechanical engineering, environmental science, pharmacy and biotechnology. The primary goal of this short term course was to provide in depth understanding of recent advances made in the use of bioprocesses and bioenergy for solving the environmental problems that confront our society. In addition to regular class room lectures, laboratory as well as field visits were conducted for the participants. Dr. Kannan Pakshirajan, Associate Professor, Biotechnology, was the coordinator of the programme.

IEEE Students Branch at IIT Guwahati Organised Two Workshops

The IEEE students branch at IIT Guwahati organised two workshops – 1) IEEE Workshop on Compressive Sensing and Technical Writing on 6–7 April 2013; and 2) IEEE MATLAB Workshop 2013, 22–23 June 2013.

The workshop on Compressive Sensing and Technical Writing is the first ever workshop conducted by a IEEE students branch in the north-east region. Over 150 participants attended the workshop from various institutes of the north-east region. The workshop was well received by the participants. The workshop was inaugurated by Prof. Debatosh Guha, Chairman, IEEE Kolkata section.

The national level IEEE MATLAB Workshop 2013 was divided into five sessions to discuss the basics of MATLAB, theory and simulation aspects of signal processing, image processing, communication and control toolboxes of MATLAB. The workshop attracted 132 participants from different parts of the country making it a success for the IEEE student branch, IIT Guwahati.
PhDs Completed During April–June 2013

<table>
<thead>
<tr>
<th>Department/Centre</th>
<th>No. of Students</th>
</tr>
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<tbody>
<tr>
<td>Biotechnology</td>
<td>1</td>
</tr>
<tr>
<td>Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>1</td>
</tr>
<tr>
<td>Electronics and Electrical</td>
<td>1</td>
</tr>
<tr>
<td>Engineering</td>
<td></td>
</tr>
<tr>
<td>Humanities and Social Sciences</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics</td>
<td>1</td>
</tr>
<tr>
<td>Physics</td>
<td>1</td>
</tr>
<tr>
<td>Centre for Energy</td>
<td>2</td>
</tr>
<tr>
<td>Centre for the Environment</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

New Joinings

- R. Prasanna Venkatesh
  - Assistant Professor
  - Chemical Engineering

- Prasad Subhasrao Onkar
  - Assistant Professor
  - Design

- Kalpana Dhaka
  - Assistant Professor
  - Electronics and Electrical Engineering

- Sangamesh Deepak R.
  - Assistant Professor
  - Mechanical Engineering

- Sachin Singh Gautam
  - Assistant Professor
  - Mechanical Engineering

Course on Role of Numerical Analysis in Scientific Computing

A QIP short-term course on Role of Numerical Analysis in Scientific Computing was conducted by the Department of Mathematics during 20–24 May 2013. 25 teachers from various AICTE approved technical institutes took part in the programme. The programme was coordinated by Prof. S. Natesan, Mathematics.

Guest Lecture/Seminar

**Mathematics**

Prof. S. Pattanayak, former Director, Institute of Mathematics and Applications, Bhubaneswar, Orissa, delivered a lecture on ‘Random Fourier Series’ on 8 April 2013.

Prof. A. K. Nandakumaran, Department of Mathematics, Indian Institute of Science, Bangalore, gave a lecture on ‘Homogenisation of optimal control problem in a domain with oscillating boundary’ on 31 May 2013.