

# THE IITG MONITOR



Indian Institute of Technology Guwahati

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## Techniche 2013

IIT Guwahati organised the annual techno-management festival – Techniche – 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 techno-management 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 extra-ordinary 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.



Jonathan Grudin, Principal Researcher at Microsoft Research, speaking

## Prof. Gautam Biswas—the New Director of IIT Guwahati

Prof. Gautam Biswas, has taken over the charge as the Director of Indian Institute of Technology Guwahati on 6 September 2013. A Professor of Mechanical Engineering at the Indian Institute of Technology Kanpur, he was the Director of CSIR-CMERI (Central Mechanical Engineering Research Institute), Durgapur before joining IIT Guwahati.



Prof. Biswas was the occupant of GD and VM Mehta Endowed Chair of Mechanical Engineering at Indian Institute of Technology Kanpur. He became Professor of Indian Institute of Technology Kanpur in the year 1995.

Well known for his deep involvement in research, Prof. Biswas has worked in the areas of computational fluid mechanics and heat transfer. He has been involved in numerical modelling of convective transport, and conjugate problems in complex geometries. He has also developed techniques for handling free surface flows, bubble formation in film boiling, dynamics of falling drops and turbulent transport.

Prof. Biswas is Fellow of various prestigious and scholastic academies of national and international repute, such as, Indian National Science Academy (INSA), Indian Academy of Sciences, Bangalore (IAS), Indian National Academy of Engineering (INAE), National Academy of Sciences, India (NASI), and the American Society of Mechanical Engineers (ASME). He is also a Fellow of the Institution of Engineers, India.

Prof. Gautam Biswas is one of the Indian representatives at the International Union for Theoretical and Applied Mechanics (IUTAM). He delivered prestigious Prof. CNR Rao Lecture in 2010. In the year 2011, he was awarded the esteemed J.C. Bose National Fellowship by the Department of Science and Technology, Govt. of India.

Prof. Biswas has served a full term as the Associate Editor of the Journal of Heat Transfer (Transaction of the ASME). He is a member of the editorial board of two other international journals, namely, Progress in Computational Fluid Dynamics (Inderscience, Switzerland) and Computational Thermal Sciences (Begell House).

Prof. Biswas is the author of more than 150 technical publications, including more than 100 in the reputed SCI journals. Prof. Biswas has completed guidance of fifteen PhD theses and a few are under progress.

Prof. Biswas was founder Director of Academy of Scientific and Innovative Research (AcSIR), a novel initiative of CSIR in the area of Higher Education, from December 2010 to August 2013.



(CSCW), and a pioneer of the field of CSCW and one of its most prolific contributors; Anil Kakodkar—nuclear scientist; Jayant Vishnu Narlikar—astrophysicist; Rosalind “Roz” Savage—English ocean rower, environmental advocate, writer and speaker who holds four Guinness World Records for ocean rowing, including first woman to row solo across the Atlantic, Pacific and Indian Oceans; 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.

Techniche is famous for its Lecture Series, where eminent scientists, business wizards, artists, entrepreneurs, adventurers from around the world deliver lectures on their work, share their experiences and thus greatly inspire the students. This year too, people from diverse fields of knowledge participated in the event and shared their knowledge and experience with the participants. Among them were Jonathan Grudin—Principal Researcher at Microsoft Research in the fields of human-computer interaction (HCI) and computer-supported cooperative work

Techniche 2013 saw the successful organisation of Industrial Conclave which provides an ideal platform for young entrepreneurs and budding corporates to broaden their horizons and understand the internal dynamics of the ever growing business industry. Stalwarts from the industry like Mohit Dubey—Co-Founder and CEO, CarWale.com; Arun Shourie—illustrious journalist, author and politician; Meera Sanyal—former CEO and Chairperson of the Royal Bank of Scotland (RBS) India and social worker; Soumodip



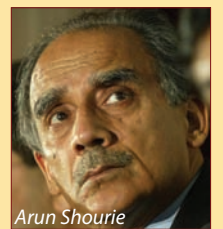
Rakeysh Omprakash Mehra



Exhibition of Indian Air Force



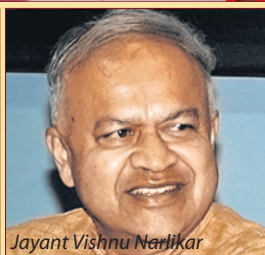
Shekhar Gupta



Arun Shourie



Roger Hunter



Jayant Vishnu Narlikar



Anil Kakodkar



Anuja Chauhan



Sarkar—noted economist; Dr. Pawan Agrawal—CEO, Mumbai Dabbawala Association and management guru;



Anuja Chauhan—well known author and former Executive Creative Director, J. Walter Thompson, a global advertising and marketing agency, took part shared their experiences.



Techniche also presented a great opportunity to showcase students' talent on different technical issues. Robotics competition was one such module which witnessed large participation from all over the nation.

Some of the other events of Techniche-2013 were Guwahati half marathon, and Technothon – the international school olympiad, exhibitions by the Indian National Army, Indian Railways, DRDO, NDRF, philatelic associations, etc. and cultural nights.

## Independence Day Celebrated

The 67<sup>th</sup> Independence Day of India was celebrated on 15 August 2013 in the Institute campus. The Director of the Institute, Prof. Gautam Barua, hoisted the tricolour and addressed the gathering. This was followed by colourful cultural programmes presented by the students of the Institute, Akshara School and children of the campus. Employees and students of the Institute and residents of the campus were present throughout the function.



## Publications (Research Journal/Book/Book Chapter)

### Biotechnology

S. Prakash, P. Saha, A. K. Saikia and V. K. Dubey, 'Molecular mechanism underlying antileishmanial effect of oxabicyclo[3.3.1]nonanones: Inhibition of key redox enzymes of the pathogen', *European Journal of Pharmaceutics and Biopharmaceutics*, 85 (3-A), 569–577, 2013

M. Das, S. Prakash, S. Sundar and V. K. Dubey, 'Miltefosine unresponsive Leishmania donovani has better ability of resist reactive oxygen species', *Federation of European Biochemical Societies (FEBS) Journal*, 280, 4807-15, 2013

S. Hazra, S. Ghosh, M. Das Sarma, M. Das, S. Prakash, V. K. Dubey, S. Sundar and B. Hazra, 'Evaluation of a diospyrin derivative as antileishmanial agent and potential modulator of ornithine decarboxylase of Leishmania donovani', *Experimental Parasitology*, 135, 407-413, 2013

N. Sarkar and V. K. Dubey, 'Exploring critical determinants of protein amyloidogenesis: A review', *Journal of Peptide Science*, 19, 529-36, 2013

S. Singh, A. N. Singh, A. Verma and V. K. Dubey, 'Biodegradable polycaprolactone (PCL) nanosphere encapsulating superoxide dismutase and catalase enzymes', *Applied Biochemistry and Biotechnology*, 171 (7), 1545-58, 2013

A. N. Singh, S. Singh and V. K. Dubey, 'Immobilisation of procerain B, a cysteine endopeptidase, on amberlite MB-150 beads', *PLoS ONE*, 8 (6): e66000, 2013

S. Singh, A. N. Singh, A. Verma and V. K. Dubey, 'A novel superoxide dismutase from Cicer arietinum L. seedlings: purification and characterisation', *Protein and Peptide Letters*, 20, 741-8, 2013

### Chemical Engineering

M. Sivaiah and S. K. Majumder, 'Mass transfer and mixing in an ejector-induced downflow slurry bubble column', *Industrial and Engineering Chemistry Research*, 52 (35), 12661-12671, 2013

M. Sivaiah and S. K. Majumder, 'Hydrodynamics and mixing characteristics in an ejector-induced downflow slurry bubble column [EIDSBC]', *Chemical Engineering Journal*, 225, 720-733, 2013

R. Parmar, S. K. Majumder, 'A stochastic analysis of liquid mixing in bubble column', *American Journal of Fluid Dynamics*, 3 (3), 75-79, 2013

A. K. Giri and S. K. Majumder, 'Pressure drop and its reduction of gas-non-Newtonian liquid flow in downflow trickle bed reactor (DTBR)', *Chemical Engineering Research and Design*, DOI: 10.1016/j.cherd.2013.07.004, 2013

R. Anantharaj and T. Banerjee, 'Aromatic sulphur-nitrogen extraction using ionic liquids: Experiments and predictions using an a-priori model', *American Institute of Chemical Engineers Journal*, DOI: 10.1002/aic.14224, 2013

D. Rabari and T. Banerjee, 'Biobutanol and n-propanol recovery using a low density phosphonium based Ionic Liquid at T=298.15 K and p=1atm', *Fluid Phase Equilibria*, 355, 26-33, 2013

S. Bose and C. Das, 'Preparation and characterisation of low cost tubular ceramic support membranes using sawdust precursor as a pore-former', 110, 152-155, *Materials Letters*, 2013

P. Mishra, S. Edubilli, H. P. Uppara, B. Mandal and S. Gumma, 'Effect of adsorbent history on adsorption characteristics of MIL-53 (Al) metal organic framework', *Langmuir*, 29, 12162-12167, 2013

A. Mondal and B. Mandal, 'Synthesis and characterisation of crosslinked poly (vinyl alcohol)/poly (allylamine)/ 2-amino-2-hydroxymethyl-1, 3-propanediol/ polysulfone composite membrane for CO<sub>2</sub>/N<sub>2</sub> separation', *Journal of Membrane Science*, 446, 383-394, 2013

S. Chakma, V. S. Moholkar, 'Numerical simulation and investigation of system parameters of sonochemical process', *Chinese Journal of Engineering*, Volume: 2013, Article ID: 362682, pp 14, 2013

S. Chakma, J. B. Bhasarkar, V. S. Moholkar, 'Preparation, characterisation and application of sonochemically doped Fe<sup>3+</sup> into ZnO nanoparticles', *International Journal of Research in Engineering and Technology*, 2, 177-183, 2013

P. P. Goswami, H. A. Choudhury, S. Chakma, V. S. Moholkar, 'Sonochemical synthesis of cobalt ferrite nanoparticles', *International Journal of Chemical Engineering*, Article ID: 934234, 2013

### Chemistry

M. Dubey and M. Ray, 'Retention of Cs–Cl bond induces coordination polymer formation over trinuclear chiral assembly of copper(II) complexes of L-leucine derived ligand', *Crystal Engineering Comm*, 15, 9648-9654, 2013

### Civil Engineering

A.K. Nayak, V. S. Varma and A. S. Kalamdhad, 'Effects of various C/N ratios during vermicomposting of sewage sludge using Eisenia Fetida', *Journal of Environmental Sciences and Technology*, 6 (2), 63-78, 2013

P. Sonowal, K. Dhamodharan, M. Khwairkham, A. S. Kalamdhad, 'Feasibility of vermicomposting of dewatered

sludge from paper mill using *perionyx excavatus*', *European Journal of Environmental Sciences*, 3 (1), 17-26, 2013

V. S. Varma and A. S. Kalamdhad, 'Composting of municipal solid waste (MSW) mixed with cattle manure', *International Journal of Environmental Sciences*, 3 (6), 2068-2079, 2013

J. Singh, R. Prasad, A. S. Kalamdhad, 'Effects of on bioavailability and leachability of heavy metals during rotary drum composting of water hyacinth', *Research Journal of Chemistry and Environment*, 17 (8), 26-34, 2013

J. Singh, A. S. Kalamdhad, 'Speciation of heavy metals during vermicomposting of water hyacinth', *Ecological Engineering*, 60, 214-223, 2013

J. Singh, R. Prasad, V. S. Varma, A. S. Kalamdhad, 'Estimation of compost stability during rotary drum composting of municipal solid waste', *Global Journal of Environmental Science and Technology*, 1 (1), 1-7, 2013

J. Singh, A. S. Kalamdhad, 'Effect of rotary drum on speciation of heavy metals during water hyacinth composting', *Environmental Engineering Research*, 18 (3), 177-189, 2013

M. K. Goyal and C. S. P. Ojha, 'Evaluation of rule and decision tree induction algorithms for generating climate change scenarios for temperature and pan evaporation on a lake basin', *ASCE-Journal of Hydrologic Engg*, DOI: 10.1061/(ASCE)HE.1943-5584.0000795, 2013

T. T. Devi and B. Kumar, 'Comparison of flow patterns of dual rushton with CD-6 impeller', *Theoretical Foundations of Chemical Engineering*, 47 (4), 410-421, 2013

T. T. Devi and B. Kumar, 'CFD simulation of flow patterns in dual impeller stirred tank', *International Journal of Modelling and Simulation*, 33 (2), 2013

B. Sarma, A. K. Sarma and V. P. Singh, 'Optimal ecological management practices (EMPs) for minimising the impact of climate change and watershed degradation due to urbanisation', *Water Resource Management*, 27, 4069-4082, 2013

### Humanities and Social Sciences

A. Barua, S. Katyaini, B. Mili and P. Gooch, 'Climate change and poverty-building resilience of rural mountain communities in South Sikkim, Eastern Himalaya', *Regional Environmental Change*, DOI 10.1007/s10113-013-0471-1, 2013

### Mechanical Engineering

S. Bansal, S. Sahoo, and R. Tiwari and D. J. Bordoloi, 'Multiclass fault diagnosis in gears using support vector machine algorithms based on frequency domain data', *Measurement*, 40, 3469-3481, 2013

D. J. Bordoloi and R. Tiwari, 'Optimisation of controller parameters of active magnetic bearings in rotor-bearing systems', *Advances in Vibration Engineering*, 12 (4), 319-327, 2013

R. Tiwari, D. J. Bordoloi, S. Bansal and S. Sahoo, 'Application of wavelet analysis in multi-class fault diagnosis of gear using SVM', *International Journal of Condition Monitoring and Diagnostic Engineering Management*, 16 (3), 17-24, 2013

A. Mishra and U. S. Dixit, 'Determination of thermal diffusivity of the material, absorptivity of the material and laser beam radius during laser forming by inverse heat transfer', *Journal of Machining and Forming Technologies*, 5 (3-4), 207-226, 2013

A. K. Deepati, P. Biswas, M. M. Mahapatra and N. R. Mandal, 'A study on friction stir welding of 12mm thick aluminum alloy plates', *Journal of Marine Science and Applications*, 12, 493-499, 2013

D. N. Basu, S. Bhattacharyya and P. K. Das, 'Development of a unified model for the steady-state operation of single-phase natural circulation loops', *International Journal of Heat and Mass Transfer*, 62, 452-462, 2013

H. K. Mohanty, M. M. Mahapatra, P. Biswas and N. R. Mandal, 'Predicting the effects of tool geometries on friction stirred aluminum welds using artificial neural networks and fuzzy logic techniques', *International Journal of Manufacturing Research*, 8 (3), 296-312, 2013

H. Sarangi, K. S. R. K. Murthy and D. Chakraborty, 'Experimental verification of optimal strain gage locations for the accurate determination of model stress intensity factors', *Engineering Fracture Mechanics*, 110, 189-200, 2013

B. Satya Sekhar and P. Muthukumar, 'Performance tests on a double-stage metal hydride based heat transformer', *International Journal of Hydrogen Energy*, 38 (35), 15428-15437, 2013

### Physics

P. Kumar and A. K. Sarma, 'Ultrafast and selective coherent population transfer in four-level atoms by a single nonlinearly chirped femtosecond pulse', *Physical Review A*, 88, 033823, 2013

### Centre for Energy

S. Singh, V. S. Moholkar, A. Goyal, 'Optimisation of carboxymethylcellulase production from *Bacillus amyloliquefaciens* SS35', *3-Biotech*, DOI 10.1007/s13205-013-0169-6, 2013

H. A. Choudhury, R. S. Malani, V. S. Moholkar, 'Acid catalysed biodiesel synthesis from jatropha oil: Mechanistic aspects of ultrasonic intensification', *Chemical Engineering Journal*, 231, 262-272, 2013

H. A. Choudhury, V. S. Moholkar, 'Synthesis of liquid hydrocarbons by fischer-tropsch process using industrial iron catalyst', *International Journal of Innovative Research in Scientific Engineering and Technology*, 2, 3493-3499, 2013

## New Research Projects

### Biotechnology

**Title:** Understanding the mechanism of substrate delivery through solute-binding proteins related to ABC transporters;

**Funding Agency:** SERB; **Principal Investigator:** S. P. Kaunaujia

An investigation of the therapeutic potential of buttein isolated from *Toxicodendron vernicifluum* against human oral squamous carcinoma; **SERB;** A. K. B. Kunnumakkara

Stem cell based bioengineering of annulus fibrosus in an intervertebral disc model using North East silk biomaterials; **SERB;** B. B. Mandal

Stimulation of stem cell differentiation on silk fiber reinforced composite with tunable strength and degradation towards enhanced osteogenesis; **DST;** B. B. Mandal

Role of store operated calcium entry in diabetes and hyperlipidemia induced vascular smooth muscle dysfunction; **SERB;** P. Sukumar

### Chemical Engineering

Ionic liquid assisted thermal dehydrogenation of ammonia borane; **SERB;** T. Banerjee

Application of radiotracer techniques in design of circulating fluidized bed for higher production of propylene; **BRNS;** A. Singh

Study of interaction between pneumatic spray nozzle and bubbling gas fluidized bed using radioactive particle tracking (RPT) and  $\gamma$ -ray densitometry; **BRNS;** P. Tiwari

Identification of competent alkali-surfactant-polymer formulations for enhanced oil recovery of Assam crude oil; **SERB;** P. Tiwari

Design and development of intelligent catalytic nanobots; **SERB;** D. Bandyopadhyay

### Chemistry

Effect of electron donating and electron withdrawing substituents on single strand breaks in selected DNA fragment induced by low energy electron; **SERB;** M. Sarma

### Civil Engineering

Evaluation and enhancement of seismic capacity of Assam-Type housing; **DST;** Hemant B. Kaushik

### Mechanical Engineering

Development of high performance computing tool for structure topology optimisation using multi-objective evolutionary algorithm; **SERB;** D. Sharma

Improving productivity and product quality in machining of thin-walled components; **DST;** S. K. Joshi

Nanofinishing of freeform surfaces using magnetorheological fluid based finishing process; **SERB;** Manas Das

### Physics

Innovation in science pursuit for inspired research; **SERB;** S. Bhattacharya

### Centre for Energy

Investigating the effect of co-digestion and advance sludge pretreatment methods on the anaerobic conversion potential of the organic waste (RGY); **DBT;** V. V. Goud

Rural hybrid energy- enterprise system; **DST;** P. Mahanta

Optoelectronic and transport studies on thin silicon films (nc-Si and nc-Si/a-Si:H superlattice) and solar cells; **CSIR;** P. Agarwal

## Awards and Honours

**Mr. Mohit Chhajed**, BTech, first year, Computer Science and Engineering, won Aditya Birla Scholarship for the year 2013. The prestigious Aditya Birla Scholarships cover a large part of academic fees as well as the hostel fees for the IITs and other institutions. Mohit is the first student to win this scholarship from IIT Guwahati.

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

**Dr. K. S. R. K. Murthy**, Associate Professor, Mechanical Engineering, was awarded outstanding reviewer of *Engineering Fracture Mechanics Journal*, for 2012-2013.

**Dr. Biman B. Mandal**, Assistant Professor, Biotechnology, has been selected for NASI-Young Scientist Platinum Jubilee Award (2013), by the National Academy of Sciences, India; and received INSPIRE faculty award (Innovation in Science Pursuit for Inspired Research) by DST, Govt, worth ₹ 35 lakhs for conducting research on 'Bio-artificial Pancreas'.

**Mr. Naveen Kumar** and **Dr. Arindam Dey** received the best paper and presentation award at the North-East Students GeoCongress on Advances in Civil Engineering held at Assam Engineering College on 28 September 2013. Mr. Naveen Kumar, MTech, second year, Civil Engineering, presented the paper.

**Mr. K. Dhamodharan** and **Mr. V. Sudharsan Varma**, research scholar, Civil Engineering, won best paper awards at



Mohit Chhajed while receiving the Aditya Birla Scholarship

International Conference on Technologies for Sustainable Waste Management in Developing Countries, 23-14 August 2013, Vignana University, Guntur. Both of them are doing

research under the guidance of Dr. Ajay Kalamdhad, Assistant Professor, Civil Engineering.

**Mr. Gaurav Saxena**, research scholar, Electronics and Electrical Engineering, stood second in M V Chauhan All India Student Paper Contest 2013 organised by IEEE India Council at All

India Student Conference 2013.

**Miss Rumi Khandelia**, research scholar, Chemistry, received the best poster award at the Young Scientists' Colloquium (YSC)-2013 of Materials Research Society of India, Kolkata Chapter, held at Jadavpur University, Kolkata on 28 August 2013.

## Hindi Divas Celebrated

IIT Guwahati observed Hindi Fortnight during 1-15 September 2013. Various competitions like art competition, Hindi poetry recitation competition, Hindi extempore speech competition, Hindi essay writing competition for children, Hindi essay writing competition for students and staff and group discussion for students were organised during this period.

Hindi Divas 2013 was celebrated with great enthusiasm with campus children, students and staff participating in the programme. Prof. Gautam Biswas, Director, IIT Guwahati, graced the occasion as the Chief Guest. Prof. S. Nandi, Deputy Director and Dr. B. N. Raychoudhury, Registrar, IIT Guwahati, were also present on the occasion.

The Hindi Divas programme began with lighting of the auspicious lamp by the Director, who was accompanied by the Deputy Director, the Registrar and the Chairman of the Official Language Implementation Committee, IIT Guwahati, Prof.



Prof. Gautam Biswas inaugurating the Hindi Divas in the presence of Prof. S. Nandi, Dr. B. N. Raychoudhury and Prof. Rajen K. Sinha.

Rajen K. Sinha. Prizes were awarded by the Chief Guest to the winners of the various competitions held during the Hindi Fortnight. A cultural programme was also organised in which campus children, and IIT Guwahati students participated.

## STC on Optoelectronics and Optical Communication

A QIP short-term course on Optoelectronics and Optical Communication was organised during 16-20 September 2013. Teachers from various technical institutes across the country took part in the programme. It was coordinated by Dr. Ramesh Kumar Sonkar, EEE and Dr. T. Venkatesh, CSE.



## New Joinings



S. P. Biswas  
Asst. Professor  
Chemistry



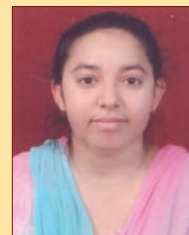
A. B. Shelke  
Asst. Professor  
Civil Engineering



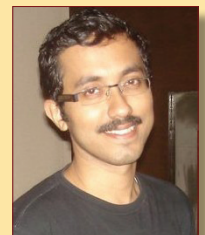
S. Banerjee  
Asst. Professor  
Design



S. Sundaram  
Asst. Professor  
Electron. and Elec. Eng.



P. Kumari  
Asst. Professor  
Mechanical Eng.



S. K. Chakrabarti  
Asst. Professor  
Physics

## PhDs Completed During July–September 2013

Department/Centre	No. of Students
Biotechnology	2
Chemistry	4
Civil Engineering	2
Electronics and Electrical Engineering	2
Humanities and Social Sciences	2
Mathematics	1
Mechanical Engineering	3
Centre for Nanotechnology	1
<b>Total</b>	<b>17</b>

## Total Number of Students on Campus as on September 2013

Programme	Number of students
Preparatory	4
BTech/BDes	2503
MSc	243
MA	48
MTech/MDes	771
PhD	1224
Dual (MTech + PhD)	10
<b>Total</b>	<b>4803</b>

## Students Admitted for the Academic Session 2013-1014 in July 2013

The new academic session (2013-2014) commenced from July 2013. A total number of **1425** students were admitted in various programmes across all the Departments/Centres as given in the table below –

Department/Centre	BTech/BDes	MSc/MA	MTech/MDes	PhD	Dual Degree
Biotechnology	50	–	31	23	–
Chemical Engineering	67	–	43	31	–
Chemistry	45	42	–	38	–
Civil Engineering	80	–	85	30	–
Computer Science and Engineering	81	–	45	6	4
Design	41	–	27	11	–
Electronics and Communication Engineering	74	–	–	–	–
Electronics and Electrical Engineering	42	–	56	17	–
Humanities and Social Sciences	–	26	–	11	–
Mathematics	43	43	–	10	–
Mechanical Engineering	80	–	90	24	–
Physics	44	41	–	23	–
Centre for Energy	–	–	–	6	–
Centre for the Environment	–	–	–	4	–
Centre for Nanotechnology	–	–	–	7	–
<b>Total</b>	<b>647</b>	<b>152</b>	<b>377</b>	<b>241</b>	<b>4</b>

**Note:** In addition, **4** students in the **Preparatory Programme** were also admitted.

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