



राष्ट्रीय प्रौद्योगिकी संस्थान सिक्किम  
NATIONAL INSTITUTE OF TECHNOLOGY SIKKIM

# *Director's Report*

प्रथम दीक्षांत समारोह  
1<sup>st</sup> Convocation



18 मार्च 2017  
18 March 2017





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प्रथम दीक्षांत समारोह  
मार्च 18, 2017, प्रातः १०:३० बजे  
समारोह स्थल – तथागत स्थल रावंगला



**1<sup>st</sup> Convocation**  
**March 18, 2017, 10:30 a.m.**  
**Venue – Tathagata Tsal, Ravangla**

**Prof. Ajoy Kumar Ray**  
**Director (I/c) - NIT Sikkim**

# DIRECTOR'S REPORT

Hon'ble Chief guest, Distinguished guests and recipients of Honorary degrees, Deans of the institute, Members of the Board of Governors and senate, Respected guests, Members of faculty, Colleagues, Media Representatives, Ladies and Gentleman.

## Note of Welcome

I am highly privileged and deeply honoured to stand before you at this historic moment of the 1st Convocation of National Institute of Technology Sikkim. At the outset, I extend a very gracious and hearty welcome to our Chief Guest Sri B.B. Subba, Hon'ble Minister for Human Resource Development, Govt. of Sikkim on this auspicious occasion. We are also extremely privileged to have amongst us our Guest of Honour of today's Convocation, Prof. S.P. Gonchaudhuri, an internationally acclaimed scientist in the area of Solar Energy and its application. Dr. Gonchaudhuri has contributed very significantly towards indigenous design, development and installation of Solar Power Plants in West Bengal, Tripura and other parts of India. The institute extends a very hearty welcome to Padmasri Sri R.B.Limboo Moringla a noted literature, poet and translator of Sikkim on this historic occasion as Guest of Honour.

It's indeed a happy moment for all of us at NIT Sikkim to extend our hearty congratulations to our dear students who will be receiving their degrees and medals at today's convocation. Indeed this is a day of days for these former students, who deserve commendation for their hard work during their studies here at Ravangla within an extremely harsh climate.

I take this opportunity to extend our gratitude to Prof. Amitabha Ghosh and Mr. Bhaichung Bhutia , who will receive D.Sc and D.Litt (Honoris Causa) in person today.

Prof. Amitabha Ghosh, an outstanding academician, a brilliant researcher, and a visionary academic administrator of India received his Bachelor, Master's and Ph D degrees in Mechanical Engineering from Bengal Engineering College, Shibpur Calcutta University. A former Professor of IIT Kanpur and Humboldt scholar at the Technical University Aachen, he served IIT Kharagpur as the Director from 1997 to 2002. Currently Prof. Ghosh is a Platinum Jubilee Senior Scientist of the National Academy of Sciences, India and an Honorary Distinguished Professor at Indian Institute of Engineering Science and Technology, Shibpur.

He conducted research on diffusion wear of cutting tools and discovered a new tribological effect when magnetic fields are imposed on

ferromagnetic bodies. He also discovered the means of enhancing vibration damping through introduced stress concentration. At IIT Kanpur he guided a large number of Masters' and 18 PhD students. Apart from solving the kineto-electrodynamic problems of high speed mechanisms for the first time, he, along with, his students was the first to discover the phenomenon of chaos in mechanical systems and conducted the first experiments on mechanical chaos in 1978. He proposed a new theory of inertial induction model of Gravitation leading to a number of profound cosmological and astrophysical consequences. Apart from developing some new advanced manufacturing processes utilizing the electrochemical discharge phenomenon and some new stationary and mobile robotic systems for the Department of Atomic Energy, India he also developed an innovative regenerative brake mechanism and stable drive system for cycle rickshaws. He also invented a number of new drive systems and mechanisms and conducted original research in the area of Kinematics and Dynamics of Machines. He has published over 120 research papers and written five books; the text books by him have made a lasting impression on the way the subjects are taught in India and abroad.

During the last six years he has been coordinating a major Indo-US Centre, funded by the Indo-US Science & Technology Forum, for collaborative research in the emerging area 'Fabronics' (advanced and futuristic fabrication techniques at micro and nano scales) involving IIT Kanpur, IIT Kharagpur, CMERI Durgapur, BESU Shibpur, University of Illinois at Urbana Champaign, Northwestern University, University of California, Irvine, University of Illinois at Chicago and University of Missouri, Columbia. He is currently the Chairman, Board of Governors, National Institute of Technical teachers Training and Research Bhopal under MHRD and Birbhum Institute of Engineering and Technology, Suri. Prof. Ghosh was the first to receive Distinguished Teacher Award of IIT Kanpur. He also received the National Design and Research Award by the Institution of Engineers (India), Engineering Personality Award by the Institution of Engineers (India), and the Lifetime Achievement Award at the International Manufacturing Design & Technology Research Conference, 2006. He has been conferred with Doctor of Science (HonorisCausa) by Bengal Engineering and Science University, Shibpur. Prof. Ghosh also writes articles in Bengali for magazines like Desh, Anandamela, Hriday etc. His two Bengali novels have been published by Dey's Publishers and Sahityam. After settling in Shibpur, Howrah, Professor Ghosh took the leading role in establishing a registered academic society, South Howrah Citizens' Forum, and is the President of this Forum.

On the recommendation of the Senate of the institute and on approval by the

Board of Governors, the Institute is honoured to confer the honorary Degree on Prof. Amitabha Ghosh.

Mr. Bhaichung Bhutia, one of the greatest footballers of India, was born on the 15th of December 1976 at Tinkitam, Sikkim. He got his basic education at St. Xavier's School, Pakyong, East Sikkim. Since the very beginning he showed his serious interest towards the game of Football, and encouragement from his uncle Karma Bhutia who helped him move forward towards his destiny. Due to his extra-ordinary capabilities in the game of Football, Mr. Bhaichung Bhutia got a scholarship from Tashi Namgyal Academy, a well known school in Gangtok at the age of 9. Bhutia caught the attention of everybody for the first time at the Subroto Cup 1992 held at Delhi, wherein he was bestowed upon the Best Player award. At the age of 16 years, Bhutia joined East Bengal, a reputed Football club from Calcutta (now Kolkata), and further went ahead to join another well-known Football club, JCT Mills, Phagwara in the year 1995. The same year, JCT was able to win the National Football League after Mr. Bhaichung Bhutia joined them, and scored the maximum number of goals in the League for JCT. Mr. Bhaichung Bhutia was bestowed upon the Indian Player of the Year 1996 award. Further, he came back to East Bengal in the year 1997 and led the team in the year 1998-99. In the Semi Final match of the Federation Cup Football 1997 played between East Bengal and Mohun Bagan, Bhaichung scored a hatrick and led East Bengal win the match by 4-1. Bhutia has been the only Football player ever to score a hatrick in a Football match between the most famous arch rivals of the Indian Football East Bengal and Mohun Bagan. The same year, he earned the recognition of being the Highest Scorer ever in any match of the National Football League.

In the year 1999, Mr. Bhaichung Bhutia began playing for an English Football club named Bury F.C., and played over there till the year 2002. Upon his return to India in the year 2002, he played for Mohun Bagan AC for 1 year and then again moved back to his initial club, East Bengal and played for them until he reverted back to Mohun Bagan in the year 2006. In the meantime, he also played for Perak, a Malaysian Football club. Mr. Bhaichung Bhutia has been honoured with Indian Player of the Year award twice in the years 1995 and 2008. In the year 1999 he was bestowed upon the Sikkim State Award, and Arjuna Award. In the year 2008, he has been conferred upon the Padmashree Award.

On the recommendation of the Senate of the institute and on approval by the Board of Governors, the Institute is honoured to confer the honorary Degree upon Mr. Bhaichung Bhutia Glimpses of Academic Pursuits.

NIT Sikkim was established in 2010, as one of the ten new Institutes established by the Ministry of Human Resource Development, Govt. of India to impart high quality Technical Education in India and to make each of these Institutes at par with IITs and International Universities. In pursuant of this stated objective, the Institute has been accorded the status of “Institute of National Importance” by an Act of Parliament. To fulfil the target framed by the Govt. of India and the National aspiration within the purview of State and Regional requirement, the Institute has taken a leap forward role in running judiciously chosen six four years **B.Tech degree** course namely:

1. B.Tech in Biotechnology.
2. B.Tech in Civil Engineering.
3. B.Tech in Computer Science & Engineering.
4. B.Tech in Electronics & Communication Engineering.
5. B.Tech in Electrical & Electronics Engineering.
6. B.Tech in Mechanical Engineering.

**And two Master degree programmes namely:**

1. M.Tech in Computer Science & Engineering.
2. M.Tech in Microelectronics & VLSI design.

The **Institute offers PhD programmes** in the following fields:

1. Computer Science and Engineering
2. Electronics and Communication Engineering
3. Electrical and Electronics Engineering
4. Mechanical Engineering
5. Physics
6. Chemistry
7. Mathematics
8. Humanities & Social Sciences.

As of now the Institute has 430 students (UG & PG) and 45 Members of Faculties and 60 Research Scholars.

### **Research at NIT Sikkim**

The institute has witnessed an excellent growth in the number of sponsored research projects in recent past. It is a pleasure for me that since the beginning of this

institute, a number of new sponsored research projects and consultancy projects have been initiated in different departments.

The **Department of Computer Science and Engineering** is engaged in research in the following broad research areas

1. Information security and cryptography
2. Security in Internet of Things and Cloud computing
3. Cloud computing
4. Wireless Sensor Networks
5. Bio-inspired and evolutionary algorithms
6. Computational intelligence and machine learning for big data
7. Distributed and grid computing
8. High performance computing

The **Department of Electronics and Communication Engineering** is engaged in research in the following broad research areas

1. Growth, characterisation and Fabrication of III-V based high electron mobility transistor (HEMT) and LED on Si substrate.
2. Signal and speech processing, speaker verification
3. Ultra-wide band (UWB) communication and optimised UWB antenna development
4. Electromagnetic field theory, seismic event in relation to geo-spot and it's application

The **Department of Electrical and Electronics Engineering** is engaged in research in the following broad research areas

1. Economic load dispatch
2. Nonconventional sources of energy
3. Power systems stability and control

4. Synchronisation of complex network
5. Stability of smart grids
6. Intelligent networked robotic systems
7. Navigation and path planning in unstructured environment by robots
8. Control of sloshing
9. Electrical modelings of cell for artificial drug delivery
10. Design and control of electric devices

The **Department of Mechanical Engineering** is engaged in research in the following broad research areas

1. CFD in Open Source, River Flow Analysis in CFD, Multiphase Flow and Heat Transfer
2. Microfluidics, Micro Scale Heat Transfer, Micro Heat Spreaders, Micro-fabrications, Grinding, Non-Traditional machining processes
3. Atmospheric Boundary layer Analysis, Wind Tunnel
4. Material Testing (Tribology, Corrosion analysis etc.)
5. Self-Excited Vibration, Vibration Control, Non-Linear Dynamics
6. Computational Fluid Dynamics, Laminar and Turbulent Fluid Flow, Heat Transfer

The **Department of Biotechnology** is engaged in research in the following broad research areas

1. Early prediction of Cancer
2. Development of Cancer and diabetics therapeutics
3. Applied microbiology
4. Stem cell research

The **Department of Physics** is engaged in research in the following broad research areas

1. Ultra-cold gases
2. Quantum information and its interface with many-body physics
3. Identification of Pre-seismic Anomaly of Radon Gas for Earthquake prediction
4. Effect of Noise on Non-linear System

The **Department of Mathematics** is engaged in research in the following broad research areas

1. Spectral graph theory
2. Numerical Linear Algebra
3. Production Planning and Inventory Control
4. Fuzzy Relational Inference Mechanisms
5. Fuzzy Relational Equations
6. Bandler-Kohout Sub-product Inference Mechanisms
7. Similarity Based Reasoning
8. TSK Fuzzy Systems
9. Adaptive Fuzzy Systems
10. Experiential Learning Theory

The **Department of Civil Engineering** is engaged in research in the following broad research areas

1. Fracture mechanics of sandwich composite
2. Delamination fracture in sandwich composite panels-detection and mitigation
3. Ground improvement and slope stability
4. Ground water treatment and solid waste management
5. Rainfall-runoff and flood modeling in a river system
6. Capacity and level of service of National highways in India under heterogeneous traffic condition

The **Department of Chemistry** is engaged in research in the following broad research areas

1. Synthesis of Natural Products
2. Development of New Synthetic Methodologies
3. Drug discovery
4. Natural product isolation and development of therapeutics from Himalayan bioresources
5. Bioinspired catalysis
6. Synthetic Coordination chemistry
7. Organometallic chemistry
8. Artificial photosynthesis
9. X-ray crystallography

## Medal Winners

I am extremely happy to announce that we are going to present Director's Gold Medal for best overall performance in the batch, Institute Gold Medal for securing highest marks in the batch and Gold Medal for securing highest marks in the department. The following students will receive their medals in this convocation.

## List of Awardees

### List of Gold Medal Awardees

1. **Director Gold Medal ( For best overall performance in the batch)**
  - A. AJAY KUMAR (CSE 2010-14 BATCH).
  - B. ATUL YADAV (EEE 2011-15 BATCH).
  - C. RAJAT KUMAR SINHA (ECE 2012-16 BATCH).
  
2. **Institute Gold Medal (For highest marks in the batch)**
  - A. ANKUR SHARMA (CSE 2010-14 BATCH)
  - B. ATUL YADAV (EEE 2011-15 BATCH)
  - C. PUJA GUPTA (EEE 2012-16 BATCH)
  
3. **Gold Medal (For highest marks in the department)**

| BATCH   | Name               | Roll      | CGPA |
|---------|--------------------|-----------|------|
| 2010-14 | AVLEEN KUMAR YADAV | B10063EE  | 8.89 |
|         | VIPIN KUMAR SINGH  | B10049EC  | 9.13 |
|         | ANKUR SHARMA       | B10052CS  | 9.15 |
| 2011-15 | ANSHU ANURAG       | B110051CS | 8.66 |
|         | SAJIDA TABASUM     | B110005EC | 8.86 |
|         | ATUL YADAV         | B110058EE | 9.44 |
| 2012-16 | PRIYANKA KUMARI    | B120056CS | 8.61 |
|         | RAJAT KUMAR SINHA  | B120070EC | 8.93 |
|         | PUJA GUPTA         | B120026EE | 9.37 |

## **Blessing and good wishes to the student**

For you, my dear degree recipients, this day marks a new beginning in your life's journey. Today, you commence a new phase in your professional lives: when your wings will take you to new destinations without the comfort, shelter and caring of the homes you were born in, or of the institutions and campuses that nurtured you. I wish all the recipients of degrees as well as distinction- happiness and success in life.

Bring passion to your endeavours; bring the fire in you and the sparkle in your eyes to every task you set yourself to. We have been able to make you capable of dealing with the real world challenges faced by humanity, in every aspect. I am confident so will you. The opportunities in India and the world afford today are limitless. Grab them and shape your lives and shape the world. With these, I once again welcome all of you.

Thank you for your emphatic presence over here.

Finally always try to assimilate what Gurudev Rabindranath Tagore has said a century back:

“Where the mind is without fear and the head is held high  
Where knowledge is free  
Where the world has not been broken up into fragments  
By narrow domestic walls  
Where words come out from the depth of truth  
Where tireless striving stretches its arms towards perfection  
Where the clear stream of reason has not lost its way  
Into the dreary desert sand of dead habit  
Where the mind is led forward by thee  
Into ever-widening thought and action  
Into that heaven of freedom, my Father, let my country awake.”

**Jai Hind.**





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