Annual Report
2012-2013

Indian Institute of
Space Science and Technology
(Declared as Deemed to be University under section 3 of the UGC Act, 1956)
Valiamala P.O., Thiruvananthapuram 695547, Kerala, India.

CONTENTS

Vision & Mission

Vision

To be a world class educational and research institution contributing significantly to the space endeavours

Mission

Create a unique learning environment enriched by the challenges of the space programme.

Nurture the spirit of innovation and creativity.

Establish Centres of Excellence in niche areas.

Provide ethical and value based education.

Promote activities to address societal needs.

Network with national and international institutions of repute.

Director's Foreword

Indian Institute of Space Science and Technology has moved on to the sixth year of its journey. We have a lot to be proud of in the academic year 2012-2013. It gives me immense pleasure to delineate some of the prominent activities of the institute during this academic year.

The first convocation ceremony of the institute was conducted on 28th June 2012. From the first batch of 138 students, 125 B.Tech. graduates were awarded the degree and 117 were placed over various centers of ISRO/DOS. From the 2008 batch,124 students got placement over various centers.

After the successful completion of the IIST admission test (ISAT-2012), 132 students were admitted in the Aerospace Engineering, Avionics and Physical Sciences streams in the institute. Thirty six M.Tech students, Eight Ph.D students, and Two post doctoral fellows were admitted during this academic period. At present, we have 89 faculty members including the newly joined sixteen. Currently our faculty members are handling more than forty projects, including fast track projects.

This year IIST hosted thirteen conferences/workshops and forty one special lectures. Our students are actively involved in two major institute-projects; Sounding Rocket and Nano-Satellite under the able guidance of IIST faculty and ISRO scientists. The second edition of Research Scholar's Day was conducted from 17-19 December 2012, and it proved to be a grand success. We had participants from all over India, including IITs, NITs, IISERs and major universities. Along with academic activities, our students and staff members are enthusiastic in conducting co-curricular activities including Cultural Fest - Dhanak, Technical Fest - Conscientia and Annual Sports Meet.

Concerning the progress of the infrastructure, I am extremely happy to say that the Library Block has shifted to its own independent building and is working in full swing. The construction work of Administrative Block, Avionics Block and Interdisciplinary building is moving in a fast pace.

Our faculty members and researchers are actively engaged in R&D activities and publish their works in journals of national and international repute. In its onward flight, our Institute aims to achieve excellence in teaching, learning and R&D activities.

K S Dasgupta
Director

Key Functionaries

Dr. A. P. J. Abdul Kalam
Honourable Chancellor

Dr. K. Radhakrishnan
Chairman, ISRO & Board of Management, IIST
Secretary, DOS

Dr. K. S. Dasgupta
Director

Dr. V. Adimurthy
Dean, Research & Development

Dr. Thomas Kurian
Dean, Student Activities

Shri. K. Sasikumar
Registrar

Board of Management

Chairman

Secretary, Department of Space, Government of India.

Members

Secretary, Department of Atomic Energy, Government of India.

Secretary, Department of Higher Education, Government of India.

Chief Secretary, Government of Kerala.

Prof. Roddam Narasimha, Member, Space Commission.

Director, Indian Institute of Technology, Mumbai.

Director, Indian Institute of Technology, Madras.

Director, Indian Institute of Science, Bangalore.

Director, Vikram Sarabhai Space Centre, Thiruvananthapuram.

Director, Space Applications Centre, Ahmedabad.

Additional Secretary, Department of Space, Government of India.

Scientific Secretary, ISRO Head Quarters, Antariksh Bhavan, Bangalore.

Nominee of UGC Chairman.

Director, IIST - Member Secretary.

Indian Institute of Space Science and Technology (IIST) established in 2007 was declared as a Deemed to be University under section 3 of UGC Act, 1956 in 2008. IIST envisaged as a research driven institute offers various academic programs giving emphasis on Space Science and Technology. In addition to the B. Tech. courses in Aerospace Engineering, Avionics and Physical Sciences, IIST also offers M.Tech., doctoral and post doctoral programs in various disciplines.

Research activities at IIST tries to integrate Space Technology and Space Science programmes with basic science and applied research. IIST also provides an opportunity for Scientists/Engineers of ISRO to pursue higher studies through IIST-ISRO sponsorship programme for M. Tech. and Ph.D degrees.

The year 2012-13 saw the Institute reaching its first milestone, as 125 graduates of the first batch of B. Tech. program received their degrees in the first convocation ceremony of the Institute from the Honourable Chancellor Dr. A. P. J. Abdul Kalam on 28th June, 2012.

IIST also realized its primary objective of providing quality manpower to ISRO, when 124 students of the second batch of B. Tech. program were absorbed to various ISRO/DOS establishments as Scientist / Engineer 'SC'.

ACADEMIC PROGRAMMES

IIST offered three undergraduate programs, six postgraduate programs, doctoral and post-doctoral programs during 2012-13. All the academic programs are with special focus to Space Science and Technology. The curriculum is framed and continuously upgraded in tune with the recent developments in the field of science and technology. The academic programs offered during 2012-13 are

B.Tech. (4 Years)

- Aerospace Engineering
- Avionics
- Physical Sciences

Admission to B.Tech. programme is through **ISAT (IIST Admission Test)**. Out of 103711 candidates who appeared for the ISAT-2012 on 21st April 2012, 132 students were admitted for the academic year 2012 - 2013 in the three branches.

Candidates Admitted								
Branch	**Gen**	**OBC**	**SC**	**ST**	**PD-Gen**	**PD-OBC**	**PD-SC**	**Total**
Aerospace Engineering	31	9	9	5	0	0	0	54
Avionics	34	7	9	3	0	0	0	53
Physical Sciences	20	1	3	1	0	0	0	25
Total	**85**	**17**	**21**	**9**	**0**	**0**	**0**	**132**

M.Tech. (2 Years)

- Soft Computing and Machine Learning.
- Optical Engineering.
- Chemical Systems.
- Digital Signal Processing.
- Propulsion.
- RF and Microwave Engineering.

Applications are screened based on GATE score and the admission is through test and interview.

Thirty six students were admitted for the M.Tech. programme.

Ph.D.

Admission is based on test and interview and is restricted to those candidates who qualified JRF-NET/GATE or equivalent exams. During this period, 8 students registered for Ph.D.

Post-Doctoral Program

Two researchers joined during the report period.

CONVOCATION

The first Convocation of IIST was held on 28th June 2012. Dr. Srikumar Banerjee, Former Chairman, Atomic Energy Commission was the Chief Guest of the programme which was presided over by Hon'ble Chancellor Dr. A. P. J. Abdul Kalam. Dr K.Radhakrishnan, Chairman, Board of Management, IIST and Chairman, ISRO/Secretary, DOS addressed the gathering. The function was held in the presence of Members of Board of Management and IIST Council.

From among the 138 students who joined in 2007, degree was awarded to 125 meritorious students in Aerospace Engineering (44), Avionics (56) and Physical Sciences (25) who had successfully completed their B.Tech course in June 2011.

PLACEMENT

124 students of 2008 batch who completed the B.Tech course with the required CGPA were placed at various ISRO centers as Scientist/Engineers C.

ADRIN	01	NE-SAC	02
ISAC	12	NRSC	08
ISTRAC	05	PRL	02
LPSC(V)	11	SAC	13
LPSC(M)	07	SCL	05
MCF	05	SDSC	08
NARL	05	VSSC	40

RESEARCH AND DEVELOPMENT

Research programs in IIST focus on various areas of Science, Engineering and Humanities. The institute currently has 57 full time and 22 part time research scholars. With a view to provide a congenial academic and research atmosphere, the institute funds projects for the faculty members which includes fast track projects also. Apart from the projects in focused areas, we have two prestigious projects in which our B.Tech students take active role. IIST has also set up centre of excellence in various fields to catch up with the most modern developments in science and technology.

Projects

01.	Numerical Simulation of Turbulent reaction flows in Semi-cryogenic and tri-propellant engines (completed)	Deepu M, A Salih.
02.	Rocket Injector spray studies	Aravind V.
03.	To study the effect of real gas on the aerodynamic coefficients and heat transfer coefficients of re-entry module configurations.	Pankaj Priyadarshi.
04.	Multi-objective, Multi-disciplinary Design Optimization of a Semi-ballistic Re-entry Vehicle using High Fidelity Heat Flux Estimation.	Pankaj Priyadarshi.
05.	Development of a versatile parallel 3-D RANS solver for simulating compressible flows	Pankaj Priyadarshi.
06.	Molecular dynamic studies on fracture of bio composites	Anup S.
07.	Investigation of deployment of an Antenna	Roshina Babu.
08.	Composite materials milling	Jayakumar K.
09.	Investigation of micro-patterning of surfaces in aerospace applications (completed)	Sooraj V S.
10.	Active suspension wheeled rovers on uneven terrain	Kurien Issac, Sam Noble.
11.	Whirling beam experiments for Flapping Wing Micro Aerial Vehicles (MAVs)	Kurien Issac, Rajesh G.
12.	Design of Interplanetary Trajectories for Specified Planetary arrival conditions	Ramanan R V.
13.	Centre of excellence in Virtual Reality.	Thomas Kurian, Deepak Mishra, Sheeba Rani J.
14.	Design of autonomous walking humanoid robot.	Sam Zachariah, Thomas Kurian, Kurian Isaac.

15.	Autonomous landing system using GPR	Thomas Kurian, Chris Prema S.
16.	IIST Mesh Net- a hybrid wireless mesh network test bed	Manoj B S.
17.	Design and implementation of Helmet Antenna	Basudeb Ghosh.
18.	Development and feasibility study of polymeric scaffolds for Tissue Culture under Microgravity (Completed)	Nirmala Rachel James, AnilKumar P R.
19.	Polymer-Nano composites for Electronic and Photonic Application	Honey John, Pramod Gopinath.
20.	Development of carbon foams for High Temperature Thermal Protection Application	Prabhakaran K.
21.	Plasma Modification of CNT and Polymer Nanocomposites thereof for Space Applications	Gomathi N, Kuruvilla Joseph, Reghunadhan Nair C P, (VSSC).
22.	Evaluation of the potential of hyperspectral remote sensing for species level classificatin and biophysical characterization of mangroves of Bhitarkania National Park, Orissa	Gnanappazham L.
23.	Petrological and Hyperspectral Characteristics of Probable Martian Analogue Rocks in South India : Implications for Geological Processes on Mars	Rajesh V J, Gnanappazham L.
24.	Impact of assimilating SAPHIR and GPS-ROS data from MEGHA TROPIQUES in high resolution mesoscale model for prediction of servere weather over India	Chandrasekar A.
25.	Star formation in young Galactic clusters associated with massive stars	Sarita Vig, Anandmayee Tej.
26.	Understanting the genesis of Anorthosites in Earth and Moon: A Geological and Remote Sensing Approach	Rajesh V J.
27.	Aerosol-Cloud Interaction under varying meteorological conditions	Ramana M V.
28.	Black carbon, Aerosol, Meteorological and Ozone Profiling Study (BAMPS)	Ramana M V.
29.	Multi-scale object oreinted classification of satellite image	Rama Rao Nidamanuri.
30.	Multi-sensor retreival of tropical biophysical parameters	Rama Rao Nidamanuri.
31.	SAR Data Processing and Applications.	Poompavai V
32.	Perspective study of Telemedicine Mobile Van Utilisation	Shaijumon, Lekshmi V Nair.
33.	Feedback Study on RCI Edusat Network of North, South and West Region	Shaijumon, Lekshmi V Nair.

34.	Developing English Language software for IIST students	Babitha Justin.
35.	A Study on Creative Writers and Artists in DOS	Gigy J Alex.
36.	Study of Select issues of New Product Development in R&D organizations	Ravi V.
37.	Local Links and Impacts :The Influence of Local Institutions on Regional Development.	Shaijumon C S.
38.	Dynamics and rheology of a suspension of periodically forced spherolds in a quiescent fluid at low Reynolds number.	Anilkumar C V.
39.	Controlled synthesis of coherence- polarization of light and its application in optical imaging.	Rakesh Kumar Singh.
40.	Investigation of excited state dynamics of isolated molecular ions.	Umesh Kadhane.

Centre of Excellence

Department of Avionics-Virtual Reality Lab

Department of Avionics is developing center of excellence in Virtual Reality for space and scientific applications. The development of this is divided in to three phases. First phase consists of desktop VR lab which consists of high-end workstation with latest graphics card capabilities, 3D monitors, NVIDIA 3D vision pro glasses and applications software such as Vizard, Google Sketch, Adobe Master Collection, 3dMax and Maya. This facility supports labs for UG and PG students who are undergoing a regular elective course on Virtual Reality. This facility is open to Scientist of ISRO and research scholars for developing applications that have high relevance to ISRO's future mission. Second and third phase of VR center of excellence will consists of a studio having 3-D projection system for Immersive Virtual Environment and 3D visualization along with advanced haptic devices and force feedback system for some real time applications such as navigation and fly through etc.

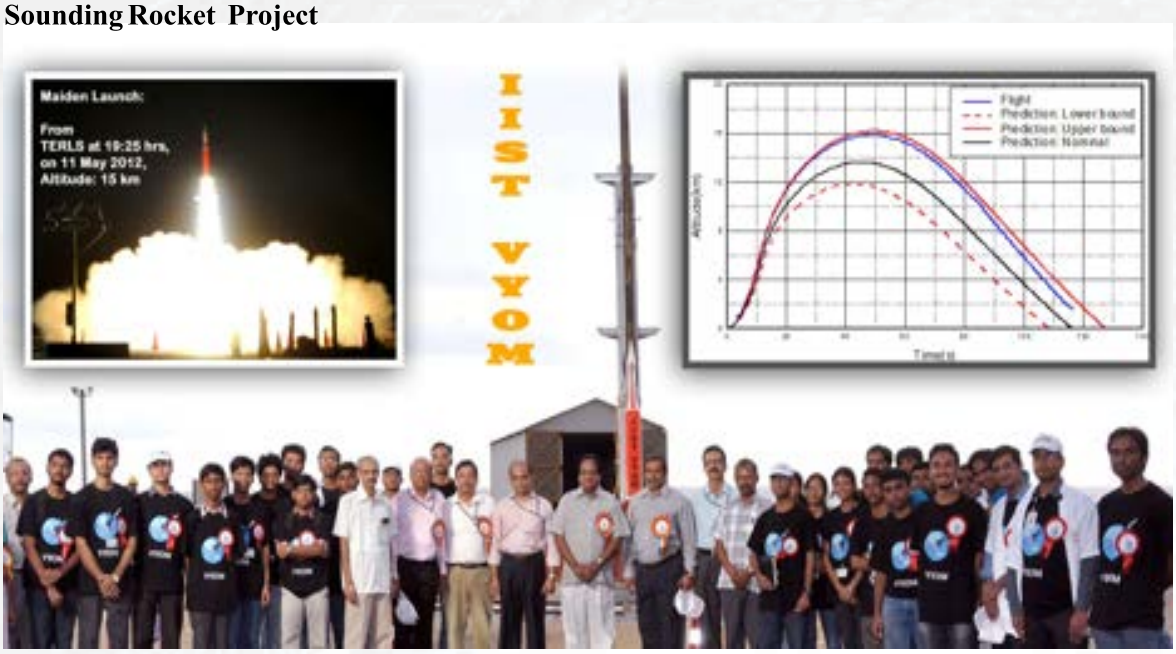
Department of Chemistry-Nanoscience and Technology

The center of excellence in Nanoscience and Technology established in Department of Chemistry completed two projects with tremendous output in the year 2012-2013. **7** of our research scholars are pursuing their PhD work in the area of Nanoscience and Technology using the state of the art facilities created. Apart from these, **5** B.Tech. students and **2** M.Tech. students completed their project work and **8** undergraduate students (from IIST and other institutes like IIT and IISER) completed their internship in nanoscience and technology area. The center will be further expanded by adding facilities like XRD, SEM, TEM etc.

Student Projects

Student projects are carried out in IIST under the guidance of IIST faculty and ISRO scientists. The objective is to provide the students hands-on experience and knowledge to work as a team in the design, development and building of space systems.

Sounding Rocket Project

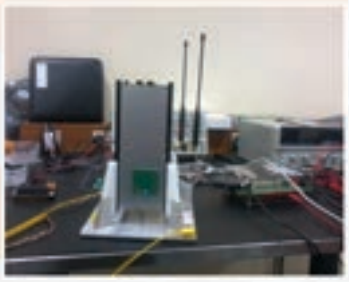


Vyom, a single stage sounding rocket capable of carrying a payload to an altitude of 10 to 15 km was successfully designed. The rocket motors for Vyom were made at the Rocket Propellant Plant of VSSC and successfully tested on ground. A payload was designed to monitor the acceleration, velocity and altitude of the rocket and it is fabricated at VSSC. Computational Fluid Dynamics simulations were carried out to verify the aerodynamic data of the rocket. It was successfully launched on 11th May 2012, from TERLS, VSSC.

Nano-Satellite Project

The students have conceived a 3-axis stabilized nano-satellite of mass less than 2 kilograms. The conceptual design of the satellite has been completed and the payload and components have been identified, based on the functional requirements and availability. The nano-satellite is to be launched in a polar sun synchronous orbit of about 670 km altitude as a piggyback payload in the PSLV rocket.

Power module of Nano Satellite



Ground model Test Setup

Patents Applied

- **Radhakrishnan V**, **Sooraj V S**, **Nirmala James**, Multipurpose resilient elasto-magnetic-abrasive spheres for fine finishing of surfaces - Indian patent.
- **Mukthar Muhammed Ali** and **Sandhya K. Y.** Novel method for synthesis of water soluble fullerenes- Indian patent.
- **Sarah Titus** and **K.G. Sreejalekshmi**. Substituted 4-hydrazinothiazoles and processes for their preparation- Indian patent.

Publications

I) Journal Papers

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- **Sooraj V S**, **Radhakrishnan V**, Feasibility study on fine finishing of internal grooves using elastic abrasives, Accepted for publication in *Materials and Manufacturing Processes.*
- Sheetal Kalyani, **Lakshminarayanan R**, Krishnamurthy Giridhar, Biased estimators with adaptive shrinkage targets for orthogonal frequency division multiple access channel estimation*, IET Communications*, 2013.
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- Chavali Krishna Bharadwaj, **Rajesh J A**, Optimised Automatic Generation Control of a Hydrothermal Power System with Capacitive Energy Storage*, Journal of Electrical Systems,* vol. 8, no. 1, 35-46, March 2012.
- **Sheeba Rani J**, Face recognition Using Hybrid Approach, *International Journal of Image and Graphics,* Vol.12, No.1, 1-27, 2012.
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- **Remyamol Thekkayil**, **Honey John,** PramodGopinath, "Cube like polyaniline: Synthesis by inverse microemulsion polymerization and its non linear optical properties", 25th Kerala Science Congress, 29 January - 1 February, 2013.
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- **Lekshmi V Nair**, "Gender and Science" in the Annual Conference of the Indian Sociological Society at University of Madras, Chennai.
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- **Harsha K V**, **K S S Moosath**, 'Embeddings and Invariance of a Statistical Manifold' Accepted for poster presentation in the International Conference on Differential Geometry and its Applications organized by Department of Mathematics and Statistics, Masaryk University, Brno, Czech Republic, 18 -23 August 2013.
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- **Srinivasa Raju M**, Ajai Kumar, **Pramod Gopinath**, Rajesh K Singh, "Characteristic emissions from laser produced barium plasma in presence of transverse magnetic field", Proceedings of DAE-BRNS National Laser Symposium-21, BARC, Mumbai Volume: ISBN Number 978-81-903321-3-2, 6-9 February, 2013 .
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iii) Books / Book Chapters

01. **V Adimurthy**, **Ramanan R.V**, **Pankaj Priyadarshi**, "Optimization in Aero Space Dynamics", ISBN No. 978-81-908956-5-1, 2013.

02. **V Radhakrishnan**, "Challenges in Meso Micro and Nano Manufacturing", in the book titled ***Micro Manufacturing Process***, CRC Press, Taylor Francis Group, 2013.

03. S. Vinay and **B. S. Manoj**, "A Comparison of Three Cyber-Weapons", accepted for publication in the book titled ***Managing Trust in Cyberspace***, CRC Press, Taylor Francis Group, USA, Edited by B. Bhargava, P. Atrey and S. Thampi, March 2013.

04. **N. Selvaganesan**, 'Fuzzy Based Modeling, Control and Fault Diagnosis of Permanent Magnet Synchronous Generator', Handbook of Research on Computational Intelligence for Engineering, Science and Business, IGI Global, USA, pp 487-520, 2013.

05. **V. Seena**, P. Ray, P. Kovur, M. Kandpal V. R. Rao, Chapter titled "Polymer MEMS Sensors" for "Advanced Materials Book Series" , WILEY-Scrivener, USA, 2013(Accepted for publication).

06. M. S. Vinchurkar, **V. Seena**, D. Agarwal, Nehul Gullaiya, S. Mukherji and V. R Rao, Chapter titled "Development of Micro/Nano Electro Mechanical System based Sensors for Societal Applications", To appear in Special issue on "Nano-science and Technology for Mankind" by The National Academy of Sciences India (NASI) 2013.

07. Sabu Thomas, **Kuruvilla Joseph**, Sant Kumar Malhotra, Koichi Goda, Meyyarappallil and Sadasivan Sreekala (Editors) **Polymer Composites Volume 1: Macro and Microcomposites,** First edition (2012), WILEY-VCH Verlag GmbH&Co.

08. K Jayanarayanan, **Kuruvilla Joseph**, S Thomas **Synthetic Polymer-Polymer Composites,** Microfibrils Reinforced Composites Based on PP and PET : Effect of Draw Ratio on Morphology, Static and Dynamic Mechanical Properties, Crystallisation and Rheology, , Hanser Publications (2012), Munich, pp 525-557.

09. **Nair Lekshmi V,** Socio Economic Problems of Rural Elderly in AB Dey ed Ageing in India. New Delhi: Ramco Press Private Ltd, 2012.

10. **C.S. Shaijumon**, "Emerging India: Strategic Options in the New Century" Book chapter in C. Vinodan (Ed) , South Asia in A Global Context, New Century Publishers , New Delhi, 2013.

11. **E Natarajan**, Lecture Notes in Partial Differential Equations (IIST Lecture Notes Series 2).

12. **N. Sabu**, Lecture notes in Numerical methods for Partial Differential Equations.

CONFERENCES / WORKSHOPS / SPECIAL LECTURES AT IIST

IIST hosts number of conferences/workshops and special lectures to promote the interaction with the research community in India and abroad. Through these activities the academicians were exposed to the latest developments in Science and Technology.

Conferences / Workshops

01. Workshop on innovations in engineering of systems through inter-disciplinary research, 19-21 July, 2012.
02. Short term course in "Control System Design CSD2012" 4-8 December, 2012.
03. National workshop on "Recent Trends in RF and Microwave Techniques and Measurements",18-20 July, 2012.
04. National Workshop on 'Computational Chemistry' 3-7 December, 2012.
05. GIS DAY- Discovering the world through GIS - 7-8, November, 2012.
06. National Workshop on Geospatial Technologies for Coastal Resources Management, 28- 29, May 2012.
07. Workshop on 'Mission to VENUS', 23 - 24, July, 2012.
08. Training on 'Monitoring Agriculture Through Satellite Technology' for the sponsored students of Kumari Arivial Peravai, Young Scientists Programme 2012 -2013, 16 January 2013
09. Winter School in Astronomy & Astrophysics for post-graduate students of physics selected from colleges across the country, 3-12 December, 2012.
10. National Seminar on Science, Technology and Society: Emerging Scenario, 7-9 December, 2012.
11. Workshop on NLP Programme for the first semester students, 25-29 October, 2012.
12. Advanced Workshop on Mathematical Theory of Control and Numerics (MTCN-2012) under National Program on Differential Equations: Theory, Computation & Applications, November 21-30, 2012.
13. Workshop on "How to get published in research journals" in collaboration with Elsevier on 19 July, 2012 .

Special Lectures

During this period, IIST organized 41 special lectures by eminent academicians from India and abroad.

- **G. Narayanan**, Challenges in manufacturing liquid engine, 16 August, 2012.
- **Dr.S M Ahmed**, CHACE to Moon by Moon Impact Probe: Success Story of Chandrayaan 1, 12 September, 2012.
- **Mr. A Abdul Shukoor**, Gr. Dir Navigation software & simulation group, ISRO intertial systems unit, Trivandrum, INTERTIAL NAVIGATION SOFTWARE FOR LAUNCH VEHICLE, 02 November, 2012.
- **Mr. Manoj Augustine Cherian**, IISU, Trivandrum, Basics of Inertial Navigation Systems-A, 03 November, 2012.
- **Dr. Kibe S V**, Consultant, SATCOM & GNSS, Bangalore, (Former programme Director, SATNAV, ISRO HQ) , International global navigation satellite systems (GNSS) scence, Indian GNSS & Research Opportunities, 07 November, 2012.
- **Dr. M R Ajith**, Thermal protection systems, 11 November, 2012.
- **Prof. Graham Cooks**, Henry Bohn Hass Distinguished Professor of Chemistry at Purdue University, USA, Extending the Boundaries of Mass Spectrometry, 5 February,2013.
- **Prof. S. Ijima**, Meijo University, Director, AIST/Nanotube Research Center, JAPAN, Nano Carbon: Science and Applications, 1 March, 2013.

- **Dr. Nikhil Kumar Singha**, Rubber Technology Center, IIT Kharagpur, Atom Transfer Radical Polymerisation, 20 December, 2012.
- **Dr. Bhoje Gowd**, Senior Scientist, NIIST Thiruvananthapuram, X-ray Diffraction Methods, 14 November, 2012.
- **Dr. Joseph Paul**, Senior Lecturer, Built Environment Research Institute, Ulster, UK, Polymeric Substrate as Safer Fuel System for Rocket Propulsion, 25 October, 2012.
- **Prof. C.P. Rao**, Professor, Chemistry, IIT Bombay, Supramolecular aspects of the conjugates of calixerenes, carbohydrates and proteins resulting in organic -inorganic hybrid materials, 2 July, 2012.
- **Dr. Hari Hara Nath**, Scientist, SOG, VSSC, High Energy Materials and Space Ordinance System, 9 April, 2012
- **Mr. Ben Mathew Varkey**, Deputy Commissioner, Income Tax, Thiruvananthapuram on 'Why Taxation' on 06 August, 2012.
- **Dr. Kalyani Vallath**, TES Communications, Trivandrum took a practical workshop on Debate and Public Speaking on 13 - 14 August, 2012 and on 16 - 17 August, 2012.
- **Mr. Ajoy Kumar D**, UK Based Freeland Animation Artist and developer engaged a Workshop on Animation on 8 August, 2012.
- **Mr. Dave Eager**, Northern England took a Workshop on Communication and Presentation Skills on 06 - 07 August, 2012.
- **Dr Sonny Jose**, Associate Professor, Loyola College of Social Sciences, gave a talk on the Problems faced by Youth in the present day Society on 12 September, 2012.
- **Prof. R. Krishnan** , University of Kerala delivered a talk on "A Paradigm Shift from Riemann Integral to Lebesgue Integral" on 16th April, 2012.
- **Prof. M. Sethumadhavan,** Amrita University, Coimbatore delivered a talk on "Visual Cryptography" on 16th April, 2012.
- **Prof. N. Sundararajan** (NTU) delivered a talk on "Ethics Plagiarism, Environmental Awareness Literature Survey, Technical Writing and Presentation Skills" on 12th June, 2012.
- **Prof. R V G Menon**, Former Principal, Govt. Engineering College, Kannur, delivered a series of lectures on "History and Philosophy on Science and Technology" on 15th June, 2012.
- **Prof. R V G Menon**, Former Principal, Govt. Engineering College, Kannur, delivered a series of lectures on "History of Science" on 9th July, 2012.
- **Dr. Koushik Saha,** IISc Bangalore delivered a talk on "Circulant type Random Matrices" on 16th July, 2012
- **Dr. A K Shukla ,** CMMACS, Bangalore delivered a series of lectures on "Homotopy method for solving Nonlinear Dynamical Systems" on 27th and 28th August, 2012.
- **Prof. C G Ramachandran Nair**, Former President of Kerala Academy of Science delivered lectures on "Research Methodology" from 3rd September 14th September 2012.
- **Prof. V Krishna Kumar,** NISER, Bhubaneswar delivered a talk on "Distribution Theory" on 24th and 25th September, 2012.
- **Dr. R Krishnan** , Amrita University, Coimbatore delivered lectures on "Intelligent Agents" from 31st October 2nd November, 2012.

- **Prof. N Sundararajan** and **Prof. Sundaram Suresh** (NTU, Singapore) delivered special lectures on "Recent developments in Neural Networks and Applications" from 20 - 22 December, 2012.

- **Prof. R V G Menon**, Former Principal, Govt. Engineering College, Kannur delivered lectures on "History and Philosophy of Science" on 25 - 26 February, 2013.

- **Prof. C G Ramachandran Nair**, Former President of Kerala Academy of Science delivered lectures on "Research methodology" from 4 - 8 March, 2013.

- **Prof. N Sukavanam,** IIT, Roorkee delivered a lecture on "Nonlinear Control Problems" on 13th March, 2013.

- **Pranawa C. Deshmukh**, IIT Madras,"Quantum Mechanics & Symmetry of the Hydrogen Atom", 30 April, 2012.

- **Abey Issac**, University of Beyreuth, Germany, "Single molecule spectroscopy: What can we learn", 15 June, 2012.

- **Deepak Dhar**, Tata Institute of Fundamental Research, Mumbai, "Modelling Proportionate Growth", 3 September, 2012.

- **Mamata Sahoo**, Max Plank Institute of Colloids and Interfaces, Potsdam, Germany, "Transcriptional proofreading in dense RNA polymerase traffic", 19 September, 2012.

- **Prof. S. Lakshmi Bala**, IIT Madras, "The Talbot effect and its quantum analogue", 7 November, 2012.

- **Mitsuo Takeda**, Center for Optical Research and Education, Utsunomia University, Japan, "Coherence Holography", 9 January 2013.G. G. Sivjee, Space Physics Research Laboratory, Embry Riddle Aeronautical University, USA, " Technological Challenges arising from Space Disturbances", 6 March, 2013.

- **N. Bhargava Ram**, RRI, Bangalore, "Probing molecular chirality with femtosecond reaction microscope", 30 January, 2013.

- **A.P. Balachandran**, Syracuse University, USA, "Magnetic Monopoles and Quantum Physics", 20 March, 2013.

- **R. Shankar**, Instutite of Mathematical Sciences, Chennai, "Accelerated Climate Change and the response of Himalayan Glaciers", 27 March, 2013.

FACULTY AND STAFF ACTIVITIES

During 2012 -13, thirteen regular faculty members, two DST inspire faculty members and three visiting faculty members joined and at present, institute is having 94 faculty members. IIST has 37 regular administrative staff and around 400 contract staff to manage the administration, hostel, canteen, library, medical, transport, computer systems, civil & maintenance and other activities.

IIST faculty members made significant contributions in the areas of teaching and research. They won several awards and honours.

Awards / Recognitions

1. **Radhakrishnan V and Sooraj V S**, First prize for the innovative research/project, Academic Pavilion, IMTEX 2013- January, 2013
2. **Sooraj V S and Radhakrishnan V.**, **Best Paper Award**, AIMTDR 2012. December, 2012
3. **Sooraj V S and Radhakrishnan V.**, **Best Paper Award**, Research Scholars Day- 2012, IIST. December, 2012
4. **Seena V** received the **NASI-Young Scientist Platinum Jubliee Award-2012**, from The National Academy of Sciences India, Govt. of India**.**
5. **Chinmoy Saha**, Department of Avionics received **Best Contribution Award for Notable Services and Significant Contributions towards the Advancements of IEEE and the Engineering Profession** from IEEE Kolkata Section in the year 2013.
6. **Deepak Mishra**, Department of Avionics received the **SSI Young Scientist Award-2012** from System Society India, New Delhi, India on 6 December, 2013.
7. **Priyadarshan H** received **Excellences in Thesis Award** for the Ph.D. thesis titled, "Analysis and Feedback Regularization of Switched Systems" at IIT Bombay , 18 August , 2012.
8. **Mahesh S** received **Kerala State Young Scientist Award 2012**
9. **Jobin Cyriac** received **Young Scientist Award**, Indian Society for Mass Spectrometry (ISMAS), 2013
10. Vijendra_Kumar, Santhosh Kumar KS, **Sandhya KY**, Reghunadhan Nair CP; secured Best Poster Award for their poster on Silane and Urethane Chemistry to Access Superhydrophobicity in $CaCO_3$ Nanoparticles at the Conference FAPS-MACRO-2013 held at **Indian Institute of Science,** Bangalore**.**
11. Bismi Basheer, Temina Mary Robert, K.P. Vijayalakshmi, **Honey John**, Dona Mathew secured Best Poster Award for their poster on "Novel push-pull organic dyes with azo moieties as conjugation bridge for dye-sensitized solar cells" OMTAT 2013 2nd International conference on Optoelectronic Materials and Thin films for Advanced Technology, 2-5 January 2013.
12. **Remyamol T**, **Honey John**, **Pramod Gopinath** secured Best Paper Award for their paper on "Cube-like polyaniline thin film in PMMA matrix: Synthesis and nonlinear optical properties", IIST Research Scholars day 2012 held at IIST, Thiruvananthapuram, during 17-19 December 2012.

13. **Remyamol T**, **Honey John**, **Pramod Gopinath** secured Best Paper Award for their paper on "Cube like polyaniline: Synthesis by inverse microemulsion polymerization and its nonlinear optical properties", 25th Kerala Science Congress held at Technopark, Thiruvananthapuram, during 29th January 2013- 1st February 2013.

14. **Haripadmam P C, Honey John and Pramod Gopinath** secured Best Poster Award for their poster on Effect of loading concentration of ZnO in enhancing the two photon absorption coefficient of polystyrene-ZnO nanotop composite films, 37th National Symposium of Optical Society of India at Pondicherry University during 23 - 25 January 2013.

15. **Raju K George**: Selected as member in the steering committee for Indo - French Centre for Applied Mathematics (IFCAM).

Invited Lectures

Faculty Members of IIST gave 121 invited lectures at various conferences / workshops in India and abroad.

- **Salih A**, " Introduction to Level Set Method and Its Applications: Talk delivered in the Three days In-house Training Programme on "CFD in Propulsion" at the Vikram Sarabhai Space Centre, Trivandrum, 6 March, 2013.
- **Salih A**, "Introduction to Computational Fluid Dynamics and Meshing Basic Geometry: Inauguraltalk delivered in the "Three-day Workshop on Computational Fluid Dynamics" at the Department of Mechanical Engineering, Noorul Islam University, Thackalai, 27 September, 2012.
- **Raveendranath P**, "Finite Element Analysis of Structures: Dos and Don'ts". Lecture delivered to young engineers of Vikram Sarabhai Space Centre, under training program conducted by HRDD, VSSC, Thiruvananthapuram.
- **Girish B S**, "Swarm intelligence techniques: ACO and PSO" at Department of Computer science and engineering, T.K.M College of Engineering, Kollam as a part of the FDP on "Soft Computing Techniques in Engineering Applications" on 29 July, 2013.
- **Pankaj Priyadarshi**, "Technical opportunities and Challenges for Indian Scientists and Engineers in next 20 years," ISRO Vision 2030, IISU, Trivandrum, 7 November, 2012.
- **Anup S**, "MD simulation of failure", Invited talk in Lectures on selected Topics in Atomic and Molecular Physics, IIST, Thiruvananthapuram, 3 April, 2012.
- **Anup S**, "Bio - Nano Fracture" Government Engineering college, BartonHill, Thiruvananthapuram; Invited lecture in Short term training programme in recent advances in fatigue and fracture, 5 June, 2012.
- **Anup S,** "Introduction to Matlab", Government Engineering college, BartonHill, Thiruvananthapuram; Invited lecture in Short term course on Numerical Simulation using MATLAB, 21 March, 2013.
- **Ramanan R V**, Interplanetary and Future Missions', STP-2012, LPSC, Thiruvananthapuram, 24 April - 4 May, 2012.

- **Ramanan R V**, 'Interplanetary Mission Challenges and Opportunities', STP-2012, IISU, Thiruvananthapuram, 25 June, 2012.
- **Ramanan R V**, 'Reaching Mars and Beyond' , STP-2012, PRL,Ahmedabad, 19 December, 2012.
- **Selvaganesan N**, 'Surge 2k12' Adhiparaakthi Engineering College, Chennai, 27 July , 2012.
- **Selvaganesan N,** "Fractional Control Design", IEEE-INCOST-12, JJ Engineering College, Trichy during 13-14 December, 2012.
- **N.Selvaganesan,** 'Fault diagnosis for SR motor", DRDO sponsored workshop at Pavai Engineering college, Salem 5 January, 2013.
- **Priyadarshan H**, "Parameterisation of Inputs and States of Linear Dynamical Systems", Workshop on Mathematical theory of control and Numerics, Dept. of Mathematics IIST, Trivandrum, 21-30 November, 2012.
- **Priyadarshan H**, "Computing all the Inputs for State Transfer Linear Dynamical Systems", short term course on control system design, Dept. of Avionics, IIST, Trivandrum, 4-8 December, 2012.
- **Rajeevan P P**, " Multiphase Drivers", Advances in Power Electronics and Drivers, Under TEQUIP, M S Ramaiah Institute of Technology, Banglore, 19 March , 2013.
- **Deepak Mishra**, "Machine Learning :A Roadmap for Future of Computer Science Research" at National Technical symposia,Vins Christian College,Tamil Nadu, 1 Feburary, 2013.
- **Deepak Mishra**, "Basics of Image Processing analysis" for Faculty Development Programme on Image Computing and Applications under AICTE MHRD funding at NIT Calicut 11-15 June, 2013.
- **Deepak Mishra**, " Image processing, Image storage, compression, and retrieval" at TEQIP course on "Image Processing" at College of Engineering, Attingal,Trivandrum 3-9 June, 2013.
- **Deepak Mishra**, "Compressive Sensing and Compressed Sensing Recovery Algorithms" at International Conference on Computing, Communication and Advanced Network (ICCCAN 2013) CIT, 15-17 March, 2013.
- **Rajesh Joseph Abraham**, "Automatic Generation Control",Saintgits College of Engg.,Pathamuttom, 6 October, 2012.
- **Rajesh Joseph Abraham**, Resource person for National Workshop on Matlab and Simulink by College of Engineering, Thalassery from 23 - 24 November, 2012.
- **Rajesh Joseph Abraham**, Resource person for the short term hands on training on Matlab and its Applications by College of Engineering, Perumon from 10 - 12 December, 2012.

- **Manoj B S**, Distributed Wireless Networks, CSI COMNET 2013 held at Department of CSE, Sarabhai Institute of Science and Technology, Trivandrum, 22 March, 2013.
- **Manoj B S**, Recent Trends in Wireless Networks, Department of ECE, Barton Hill Government College of Engineering,Trivandrum, 18 March, 2013.
- **Manoj B S**, "Security Issues in Cyber Physical Systems" Vidya Academy of Science and Technology (VAST),Trichur, 15 March, 2013.
- **Manoj B S**, "Ad hoc Wireless Networks" at Department of IT, Barton Hill College of Engineering, Trivandrum, 21 January, 2013.
- **Manoj B S**, "Towards a Cognitive Network Protocol Stack" at the IEEE ANTS 2012, Bangalore, 16-19 December, 2012.
- **Manoj B S**, "Distributed Wireless Networks" at the Department of Computer Science, Kerala University, Trivandrum, 14 December, 2012.
- **Manoj B S**, "Changing Security Landscape and the Future Internet of Things " at the International Conference on Security in Computer Networks and Distributed Systems 2012 (SNDS 2012), IIITM-K, Trivandrum, 11-12 October, 2012.
- **Manoj B S**, delivered an invited talk at the Department of Computer Science and IT, Mohandas College of Engineering, Trivandrum, 21 December, 2012.
- **Vikraman Nair**, "Future initiative on Software quality", SAC Ahmedabad, ISR0, 20-23 November, 2012.
- **Sheeba Rani J**, "Virtual Reality and its applications" INSYLITO '12, Sivaji College of Engineering and Technology,Tamil Nadu, 28 September, 2012.
- **Sheeba Rani J**, "Orthogonal transforms and its application to image recognition", UGC Sponsored National Seminar on Advances in Computing Techniques, SFR College for Women, Sivakasi, Tamil Nadu, 26 September, 2012.
- **Mahesh S**, Nanoscale Material Characterization using AFM/STM, Hydrogen Energy and Advanced Materials (HEAM Scientist 2012), Department of Chemistry, Kerala University, 13 December, 2012.
- **Mahesh S,** Self-assembly of Phenyleneethynylenes to Diverse Nanostructures,Kerala State Council for Science Technology and Environment (KSCSTE), Sasthra Bhavan, Trivandrum, 4 January, 2013.
- **Mahesh S,** Photochromic Supramolecular Systems, Physics Alumni Association, Government Victoria College, Palakkad, 3 March, 2013.

- **Mahesh S,** Photoresponsive Self-Assembly of Azobenzene-Phenylethynylene Conjugates: Tranformation From Organic Nanodots to Rods, 19 March 2013, International Conference on NANOSCIENCE AND NANOTECHNOLOGY (ICONN2013), SRM University, Chennai, 18-20 March, 2013.

- **Mahesh S,** Stimuli Responsive Materials: Photoswichable Self-assembled Molecules, National Conference on Hybrid materials, Mahatma Gandhi University, Kottayam, 22 March 2013.

- **Jobin Cyriac**, HEAM CAM 2012: A National Level Workshop on Characterization of Advanced Materials, Department of Chemistry, University of Kerala, October 2012

- **Mary Gladis J**, "Inorganic functional materials for energy storage applications" in the "National Seminar on Recent Trends in Chemistry ", organised by Muslim Arts College, Thiruvithankode, TamilNadu on 14 March, 2012.

- **Mary Gladis J**, "Multielemental Analysis using Inductively Coupled Plasma Atomic Emission Spectrometry" in the workshop on "Characterization of Advanced Materials" (HEAM-CAM 2012) at Department of Chemistry, University of Kerala, Trivandrum, on 12 October, 2012.

- **Mary Gladis J**, "Functional metal 9. nanoparticles" in the National Conference on Recent Advances in Application Oriented Chemistry (NCRAAC 2012) organized by Department of Chemistry, Dr. M.G.R. University, Chennai on 27 December, 2012.

- **Prabhakaran K**, "Porous Carbon Materials" at National conference on Research in Chemistry organized by Muslim Arts College, Thiruvithancode, Kannyakumari on 14 March, 2012.

- **Sreejalekshmi K G**, " Nanomedicine as a promise to the future" at Vins Christian Women's College, Tamilnadu, India on 9 March, 2013.

- **Kuruvilla Joseph** was a Resource Person at XXVIIth Refresher Course in "Nanosciences" organized by UGC-Academic Staff College, University of Kerala on 14 January, 2013.

- **Kuruvilla Joseph** was Invited speaker at IIIrd National Conference on Advanced Materials at PSN College of Engineering and Technology, Tirunelveli on 24 January, 2013.

- **Kuruvilla Joseph** was Special Invitee at NANO INDIA 2013 at National Institute for Interdisciplinary Science and Technology during 19 - 20 February, 2013.

- **Kuruvilla Joseph** was a Resource Person at XVth Refresher Course in "Chemistry" organized by UGC-Academic Staff College, University of Kerala on 4 February, 2013.

- **Kuruvilla Joseph** was a Plenary speaker at National Seminar on Green Materials organized by Department of Chemistry, Bishop Moore College, Mavelikara on 28 February, 2013.

- **Kuruvilla Joseph** delivered an invited lecture in the IVth International Conference on "Advanced Nanomaterials (ANM 2012)" at IIT Madras, on 18 October, 2012.

- **Kuruvilla Joseph** was a **Resource person** in DST-INSPIRE Science Camp (Innovation of Science Pursuit for Inspire Research)at IIT Delhi, on 28 December, 2012 .
- **Kuruvilla Joseph** delivered an invited talk at the DST INSPIRE programme, on "Fascination of Science" at Assumption College, Changanachery, on 28 November, 2012.
- **Kuruvilla Joseph** was a **Plenary speaker** at the national seminar on "Frontier Areas of Chemistry" at MES Keveeyam College, Valanchery, Malappuram, on 5- 6 December, 2012.
- **Kuruvilla Joseph** delivered an invited lecture at the National Conference on Composites (INCCOM-11) at Amrita Viswavidya Peetam, Coimbatore, on 3 November, 2012 .
- **Kuruvilla Joseph** attended the "International Rubber Conference and IRRDB Meetings" as an Invitee at Hotel Samudra, KTDC Kovalam, during 29 October - 2 November, 2012.
- **Kuruvilla Joseph** delivered **Plenary speech** at the National Seminar on Advanced Polymers, SCIENTIA-2012, held at the Department of Polymer Engineering, MG University, College of Engineering, Thodupuzha.
- **Kuruvilla Joseph** was a **Plenary speaker** at the seminar at St. Thomas College, Pala on **"Emerging trends in Nanotechnology"** on 3 March, 2012.
- **Kuruvilla Joseph** delivered **Plenary lecture** on **"Fascination of Science"** at Student Police Cadet camp, Allapuzha on 1 May, 2012.
- **Kuruvilla Joseph** delivered a **Plenary lecture** on **"Green materials**" at BCM College, Kottayam on 26 July, 2012.
- **Ramiya A M**, " Satellite image processing" in the summer training programme on geospatial technologies and application under the NRDMS programe in DST held at Madurai Kamaraj University, 21 -22 May, 2012.
- **Ramiya A M**, "Digital Image Processing of Satellite Images" at IIITMK, Thriuvanathapuram on 5 March, 2013
- **Jagadheep D**, Studying the early phases of high-mass star formation, Tata Institute of Fundamental Research, Mumbai on 19 July, 2012.
- **Anand Narayanan** lectured at the Galaxies in Absorption conference held at IUCAA, Pune during 17 - 20 December, 2012.

- **Rama Rao Nidamanuri,** "Methods for pre-processing of hyperspectral measurements", M S University of Baroda, Baroda in the Workshop on Hyperspectral Remote Sensing Applications in Forestry, 21-24 November , 2012.
- **Rama Rao Nidamanuri,** "Hyperspectral image classification by multiple classifier system", Indian Statistical Institute, Bangalore in the Workshop on Spatial Statistical Tools in Data Processing and Analysis, 26-30 November , 2012.
- **Rama Rao Nidamanuri,** "Knowledge transfer in hyperspectral image classification", Indian Statistical Institute, Bangalore in Workshop on Advanced Methods in Spatial Data Processing and Analysis, 6-7 March, 2012.
- **Lekshmi V Nair,** " PRA in Social Research Methods" talk in the Department of Sociology, University of Kerala, March 2013.
- **CS Shaijumon** "Continuation of subsidies and the challenge of bridging the fiscal deficit", Naipunya International Academy, Cochin, 13 February, 2013.
- **CS Shaijumon** "Fiscal Sustainability and Monetary Measures", Invited talk, NACS Academy of Civil Services, Thiruvananthapuram, 16 February , 2013.
- **Sarvesh Kumar**, Finite Volume Approximations for Incompressible Miscible Displacement Problems in Porous Media with Modified Method of Characteristics" in the "Fifthconference on Numerical Analysis and Applications" Lozenetz, Bulgaria, 15-20 June, 2012.
- **Deepak T G**, Chaired a session and delivered an invited talk on "On a retrial queueing model with single/batch service and search of customers from the orbit" in the International Conference on Frontiers of Statistics and its Applications in Conjunction with XXXII Annual Convention of Indian Society for Probability and Statistics organized by Pondicherry Central University, Puducherry during 21-23 December, 2012.
- **Sumitra S Nair**, Introduction to Machine Learning Algorithms, Five-day Course on Spatial Statistical Tools in Data Processing and Analysis, Organized by Systems Science & Informatics Unit, Indian Statistical Institute, Bangalore, 26 - 30 November, 2012.
- **Sumitra S Nair**, RKHS Methods in Machine Learning, National Conference on Applied Linear Algebra and Transform Techniques, Organized by Department of Sciences and Humanities, Mar Baselios College of Engineering and Technology, Thiruvananthapuram, 10 - 11 July, 2012.
- **Sumitra S Nair**, Function Approximation in RKHS, National Conference on Mathematics of Soft Computing, Organized by Department of Mathematics, National Institute of Technology, Calicut, 5- 7 July, 2012.

- **Prosenjit Das**, Series of lectures on Galois Theory and Commutative Algebra at IISER Trivandrum.
- **Sabu N,** Series of four lectures on Finite difference method in the workshop on Computational methods for PDEs at IIST in December 2012.
- **Sabu N**, Series of six lectures on Finite element methods at Tata Institute of Fundamental Research Bangalore in 13 January, 2013.
- **Sakthivel K**, New Models on Sonar Equation and Calculation of Probability of Detection, 10th Security Workshop, Naval Postgraduate School, Monterey, U.S.A., 21-23 May, 2012.
- **Sakthivel K**, "Little Journey to the Land of Mathematics", DST Inspire Camp, Noorul Islam University, Kumaracovil, 18 July, 2013.
- **Sakthivel K**, "Martingale Solutions for Stochastic Navier-Stokes Equations with Levy Noise", Winter School on Stochastic Analysis and Control of Fluid Flow, Indian Institute of Science Education and Research (IISER), Trivandrum, 3-20 December, 2012
- **Sakthivel K**, Lectures on Calculus of Variations and Optimal Control Theory, Advanced workshop on Mathematical Theory of Control and Numerics, Indian Institute of Space Science and Technology (IIST), Trivandrum, 21-30 November, 2012.
- **Sakthivel K**, Some Aspects of Solutions of Partial Differential Equations, Periyar University, Salem, 22 February, 2013.
- **Moosath K S S**, Four lectures on Various Geometries in the Refresher course in Mathematics, Academic Staff College, University of Calicut during 19-20 July, 2012.
- **Moosath K S S**, Linear Algebra in the Enrichment programme in Mathematics at Govt. College, Chittur during 23- 26 August, 2012.
- **Moosath K S S**, Four lectures on Euclidean and Non-Euclidean Geometries in the Refresher course in Mathematics, Academic Staff College, University of Kerala during 7-8 September, 2012.
- **Moosath K S S**, On Mountain Pass Theorem, two day National Seminar on 'Mathematical Analysis and Its Applications in new Perspective' at Govt. College, Chalakudy, during 10-11 January, 2013.
- **Natarajan E**, Seminar on "Higher order finite element methods with applicat- ion to wave propagation" at Anna University, October 2012.
- **Kaushik Mukherjee** "Hybrid numerical scheme for singularly perturbed problems of mixed parabolic-elliptic type", in the Fifth Conference on Numerical Analysis and Applications (NAA'12), held at Lozenetz, Bulgaria, organized by Division of Numerical Analysis and Statistics,University of Rousse, Rousse, Bulgaria, 15-20 June, 2012.

- **Kaushik Mukherjee** "Efficient Numerical Scheme for D Singularly Perturbed Parabolic Convection-Diffusion Problems", in the National Conference on Analysis and Differential Equations (NCFADE-2012), held at Department of Mathematics, Bharathidasan University, Tiruchirappalli, 19-20 December, 2012.
- **Raju K George**, Delivered a talk in the workshop Open source Tools for Academic Activities on "GNU Octave" organized by Rajagiri School of Engineering and Technology, on 23 February, 2013.
- **Raju K George**, Delivered a talk in the National Seminar on "Mathematics in Space Technology" in Little Flower College on 14 February, 2013.
- **Raju K George**, Delivered a talk on "Nonlinear Differential Equations and Linearization Techniques" at Gandhigram Rural University, Gandhigram on 4 January, 2013.
- **Raju K George**, Chaired a Discussion Meeting on Formation of a Forum on Control and Inverse Problems in the "ICTS Winter School on Stochastic Analysis and Control of Fluid Flow", IISER Trivandrum, on 14 December, 2012.
- **Raju K George**, Participated in the "Indo-European Modelling" Week at M.S University of Baroda as a resource person in the DST Sponsored NPDE (National Programme for Differential Equations Theory, Applications and Computation) during 5 - 7 December, 2012.
- **Raju K George**, Delivered a series of lectures on "Controllability of Linear Systems" in the workshop on Mathematical Theory of Control and Numerics (MTCN) during 21-30 November, 2012.
- **Raju K George**, Delivered a series of lectures on "Differential Equations" in the NPDE-TCA (National Programme on Differential Equations: Theory, Computation and Applications) from IMA, Bhubaneshar, 14 - 18 May, 2012.
- **Raju K George**, Delivered a lecture on "Transition Matrix Technique for the Computation of Steering Controls in Artificial Satellite" in National Conference on Applied Mathematics (INCAM-2012) from Parul Institute of Engineering and Technology, Baroda, 4 -5 May, 2012.
- **Raju K George**, Lectures on "Controllability and Observability of Linear Systems",in the Advanced Workshop on Mathematical Theory of Control and Numerics, Indian Institute of Space Science and Technology(IIST), Trivandrum, 21-30 November, 2012.
- **Umesh Kadhane**, Invited speaker at SAMP-DAE-BRNS Biennial National Symposium on Atomic and Molecular Physics organised by the IISER Kolkata, 14-17 December, 2012.
- **Sudheesh C**, "Dynamics of Quantum Systems", National Seminar on New Frontiers in Physics, NFP 2013, Sir Syed College, Taliparamba, 7-8 March, 2013.

Other Academic Activites

01. **Deepu M** is on a Post Doctoral research work at Energetics Research institute, Nanyang Technological University, Singapore. His research topic was Modeling and Simulation of Thermal Threats for Energetic Materials.

02. **Honey John** guided an internship project on "Synthesis and Characterization of Polystyrene and Polyaniline" by Anjali Mahadevan and Akhilrag K, BS-MS students, IISER Mohali

03. **Sreejalekshmi K G** guided an internship project on 'Microwave assisted Biginelli Dihydropyrimidone synthesis' by Abhilashamole B, IISER, Bhopal.

04. **Sreejalekshmi K G** guided an internship project on 'Solid supported reagent for chemoselective brominations' by Jopaul Mathew, IISER Mohali.

05. **Kuruvila Joseph** guided Ph.D. program of Saritha.A, Polymer nanocomposites based on chlorobutyl rubber, Mahatma Gandhi University, Kottayam, Kerala .

06. **Kuruvila Joseph** guided Ph.D. program of M. Kannan: Studies on thermoplastic polyurethane based blends, Mahatma Gandhi University, Kottayam, Kerala.

07. **Kuruvila Joseph** guided an internship project on Synthesis of gold nanoparticles of different morphologies by Ms. Teslin Johnson, IIT Madras.

08. **Kuruvila Joseph** guided an internship project on Synthesis of gold nanoparticles and their congugational properties Soujanya S, IIT Madras.

09. **Kuruvila Joseph** guided an internship project on Study of gas barrier and thermo mechanical properties of epoxy clay nanocomposite Divyasree P K, IIT Madras.

10. **CS Shaijumon** Chief Analyst of Central Budget 2013-14, Asianet News, 28 February, 2013.

11. **Sarvesh Kumar** guided the M.Sc student Aiswaria Lakshmi K.G for summer project: Finite Difference Schemes for Laplace and Wave Equations.

12. **Sarvesh Kumar** guided the M.Sc student Darsana J.S for summer project: Finite Difference Schemes for Heat Conduction/Diffusion Problems in One Dimensional and Two Dimensional Domains.

13. **Deepak T G** guided the M.Sc project on "Queueing Network Models for Throughput and Delay Analysis in unsaturated IEEE 802.11Random Access MAC based Wireless Ad hoc Networks", by a student from IITMK, Thiruvananthapuram.

14. **Moosath K S S**, Visiting faculty at IISER Trivandrum during August -December 2013.

15. **Raju K George** guided MSc student Riji Raj Y for summer project "Extreme Learning Machine".

STUDENT ACTIVITIES

Clubs @ IIST

The major clubs functioning at IIST are

Music club	Dance club	Quiz club
Photography club	Performance and digital arts club	Robotic club
Eco club	Vox Materia (The materials club)	

Freshers' Day @IIST

Second year students organized a Freshers' Day on 8th August 2012 to welcome the first year students to the campus. A welcome party and an ice-breaking session were held. It was to motivate the fresh batch of students and to showcase the talents of the incoming batch to an audience consisting of students, faculty and staff.

Eco Club Inauguration

Eco Club an initiative by the students was inaugurated on 19 September, 2012. It incorporates activities to maintain the cleanliness of the campus, by helping students to adopt healthy life style practices and make them cautious about our environment and its sustainability.

Dhanak 2012

The Annual Cultural Festival of IIST, Dhanak-2012 was organized from from 21-24 September, 2012. The festival was inaugurated by the renowned film director and actor Shri.Balachandra Menon. Inter-collegiate competitions were held in literature, arts, music and dance. Students from a number of institutions across the country participated in the festival.

Model United Nations

MUN is an academic endeavour initiated by the United Nations, and it aims to educate students about current events, topics in international relations, diplomacy and the agenda of United Nations. Participants assume the role of diplomats representing a nation or an NGO in a simulated session of the United Nations, such as the Security Council or the General Assembly. Participants are expected to study current international issues and hold debates and deliberations to come up with solutions.

IIST organized the Model United Nations along with Dhanak 2012 on the following two agenda:

1. Space Militarization: Control and Management
2. Non-Proliferation Treaty: Future Prospects and Implementation

The event was judged by Prof. G. Gopakumar (Dean, Social Service, University of Kerala) and Dr. C. A Josekutty (Assistant Professor, Department of Political Science, University of Kerala)

Research Scholars' Day

The second IIST Research Scholars' Day was held during 17-19 December, 2012. The formal inauguration of the programme was held at Dr. Srinivasan Auditorium, VSSC. Dr. K. Radhakrishnan, Dr. S. C Gupta, Dr. K S Dasgupta, Dr. P. S Veeraraghavan, and Dr. B. N Suresh were the chief guests for the inaugural ceremony. The paper presentations were held under three categories, Engineering, Sciences and Humanities. Dr. R Balasubramaniam, Editor, Journal of Aerospace Science and Technology & Director, Grade Scientist and Advisor (Retd.), NAL, Bangalore was the lead speaker for the Engineering session. Dr. P. P. Nageswara Rao, Program Director, IGBP, ISRO-HQ, Bangalore delivered the lead talk for Science session and Dr. Meena T Pillai, Assoc. Prof, Institute of English, & Director, Centre for Comparative Literature, University of Kerala, Trivandrum, gave the lead lecture for Humanities session. This year's research scholars' day was received with great response by the students.

IIST@Schools

IIST organized IIST@Schools - 2013, a three day program for school children. The program aims at introducing young minds to space activities and their societal implications. The program was inaugurated by Dr. A. P. J. Abdul Kalam and presided over by Dr. K. Radhakrishnan, Chairman, ISRO. IIST@Schools-2013 focussed on the theme, 'Science and Technology for Sustainable Development'. The theme of the three day camp enabled the students to understand the basic science and engineering behind the technological achievements and how it can be preserved for the future. It was attended by children from all over the state. Around 20 tribal students also participated in the program.

Annual Sports Meet

The Sports Council looks at the sportive spirit of the students and gives support and encouragement to participate in various national and state level competitions. Annual Sports Meet was held on 2nd March 2013 where students got ample opportunities to exhibit their prowess in athletics, sports and games.

Conscientia 2013

The annual technical festival of IIST, Conscientia 2013 was a convergence of talents in both science and technology. Prof Ajayaghosh, Senior Scientist at National Institute for Interdisciplinary Science and Technology (NIIST), Thiruvananthapuram inaugurated the function on 22 March 2013. From glider-making to Robo-wars and ethical hacking workshops to breathtaking air shows, the three day program contained a variety of events. Conscientia saw enthusiastic participants from all over the country, making this fest a grand success.

National and Cultural Festivals

The Republic Day and Independence Day were celebrated on the campus. The Director hoisted the national flag and addressed the audience. There was a parade by the CISF personnel and director received guard of honour.

Onam, Holi, Dusshera, RakshaBandan, Christmas, Id and Diwali were celebrated in IIST.

Onam was celebrated in all pomp and splendour in August 2012. Dr. Alexander Jacob I.P.S, ADGP (Prisons) was the chief guest for the Onam celebrations. Competitions and cultural programs showcasing the cultural heritage of the State were the highlights of the Onam celebrations.

INFRASTRUCTURE

Laboratory Facilities

Department of Aerospace Engineering

The following well equipped laboratories have been established which accommodates various student projects, internships, inter disciplinary projects etc.

- Advanced Propulsion, Laser Diagnostics & High Speed Flow Lab
- Aerodynamics Lab
- Aerospace Structures lab
- Computer Aided Design and Analysis Lab
- Engineering Drawing Lab
- Engineering Workshop
- Flight Mechanics Lab
- Fluid Mechanics lab
- Heat transfer Lab
- Manufacturing Processes lab
- Metrology and Computer Aided Inspection lab
- Physical Metallurgy Lab
- Propulsion lab
- Strength of Materials lab
- Thermal Engineering lab

During the report period, the labs were augumented with state-of-the-art facilities

An automated diesel engine test rig with 1248 CC turbo-charged 4 cylinder Maruti-Swift engine with eddy current dynamometer in the Thermal Engineering Lab. The rig has computerized data acquisition features and permits performance tests and heat balance tests apart from other tests.

An automated Petrol engine test rig 998 CC Maruti Alto K10, MPFI engine with hydraulic dynamometer in the Thermal Engineering Lab. The rig has computerized data acquisition features and permits performance tests and heat balance tests apart from other test.

Arbitrary function generator, 2 channel 30 Mhz and 4 Ch & 70 MZ oscilloscope have been added to the strength of materials lab. This shall be used primarily for conducting wave propagation experiments.

Department of Avionics

The department has excellent lab facilities and state-of-the-art software tools for VLSI design for front end and back end design, CAD software for design of analog circuits, Microwave Circuits and Components with the tie up for fabrication of devices at various foundries which provide good opportunity to the students and researchers to learn, design and innovate.

- Analog Electronics Lab
- Basic Electrical Lab
- Basic Electronics Lab
- Computer Networks Lab
- Control System Lab
- Digital Communication Lab
- Digital Electronics Lab
- Digital Signal Processing Lab
- ECAD Lab
- Instrumentation and Measurement Lab
- Micro Processor Lab
- Navigation Systems and Sensor Lab
- Power Electronics Lab
- RF and Microwave Lab
- VLSI Lab

The Labs were further appended with many new equipments:

Image processing and Computer Vision lab was developed with ten entry level workstation, thermal imaging camera, stereo vision camera, and 4 GigE vision high speed camera for various image processing related activities. This lab uses both open source platform as well as licensed application software such as MATLAB, visual studio profession 2012 for various lab related activities. Students use this facility to do their labs for courses like Digital image processing, Video processing, Pattern recognition, and computer vision. UG and PG students use this facility to do their final year projects in various areas like, image retrieval, speech processing, computer vision, image and video processing , soft computing and machine learning etc.

RF and Microwave Lab has been upgraded with Full-fledged antenna measurement facility upto 40 GHz, covering most of the microwave frequency bands, anechoic chamber, signal generator, spectrum analyzer and 3D electromagnetic simulators (Ansoft HFSS, Agilent ADS, CST Microwave Studio, FEKO).

Department of Chemistry

Laboratory facilities in the Chemistry department include:

- General Chemistry Lab
- Organic and Inorganic Chemistry Lab
- Physical Chemistry Lab
- Material Characterisation Lab
- Polymer Processing Lab
- Chemical Engineering Lab
- Nano Science Lab

These were elaborated further by the augmentation of some major equipments like Dynamic mechanical analyser, Impact testing machine, Microcompounder, Solar simulator, nanovoltmeter etc. In addition to these, optical microscope, hydraulic press, ultrasonicators and circulating baths were procured.

Department of Earth and Space Sciences

Currently the department has the following labs with state-of the-art facilities.

- Astronomy Lab
- Atmospheric Science Lab
- Geology Lab
- Remote Sensing Lab

In the Remote Sensing Lab, Terrasolid, an Image processing software to analyse the LiDAR data was procured.

Department of Humanities

Lab facilities of thedepartment include

- Audio Visual Lab is intended to
  - ☞ Enhance Communication Skills
  - ☞ Creating Content for various ISRO centres
  - ☞ Content Development and Materials Development for lectures
  - ☞ Recording of Interviews, talks of Dignitaries, etc
- Language lab: Developed an English language Software 'Huani' for IIST students

Department of Mathematics

The department has the following lab facilities:

- Programming lab
- High Performance Computing Lab - 10 high-end work stations, Quad Core processor with 72 GB RAM, 4 GB NVIDIA Graphic Card Memory and 30 inch LCD Monitor

Department of Physics

The following labs are part of the department

- Adaptive Optics Lab
- Atomic and Molecular Physics lab
- Computational Physics Lab
- General Physics Lab
- Lasers and Photonics Lab
- Modern Physics Lab
- Optics Lab
- Solid State Physics Lab

During this period, the following lab facilities were added :

The Computational Physics lab acquired a HP Proliant server with Intel Xeon processor. Atomic and Molecular Physics lab set up X-ray Diffraction and X-ray Fluorescence facilities and also added a Solar Photo Voltaic unit for training in solar energy. The following equipments were added to the Optics lab: Boxcar Averager (SRS), Dual Phase Lock-in Amplifier (SRS), Dual Channel Laser Energy Meter, Optical Table and Femtosecond Lase.

Class Rooms

All class rooms are well equipped with multimedia facilities.

Library

IIST library has a collection of 19667 books which includes 5940 unique titles. It has registered a growth of 20.8% from the previous year. In addition to this, the Institute continued to deploy 16 e-resources, viz. ACM Digital Library, AIAA, AIP, American Meteorological Society, APS, Annual Reviews, ASME, Cambridge Online, IEEEXplore Digital Library, IOP, JSTOR, MathSciNet, Optic Infobase, Oxford Journals, Royal Society of Chemistry, and Science Direct across the campus network.

A Book Bank system for B Tech students indented to provide at least one text book per course per student throughout the semester was in operation during the report year. This system ensures essential materials to students apart from the other materials available in the Library. The collection was refreshed with new titles in the report period.

The library continued to be managed with the Open Source Library Management Software (KOHA). Online Public Access Catalogue (OPAC) and a number of user-operated services were made available in the campus net work through OPAC of library portal on 24 hours a day and 7 days a week.

BOOKS		Increase in 2012-13	Total
BOOKS	General Collection	2218	11958
	Book Bank	1175	7709
	Total	**3393**	**19667**
Print Journals		5	66
E-Resources	Full Text Databases	0	15
	Book Bibliographic Databases	0	1
	Total	**0**	**16**
No. of Library Users		24	849

During the report period, average number of visitors per month to the library rose to 1645 which is 5% more than the previous year.

The Resource Awareness Programmes (REAP) continued in the report year also.

A digital colour printer was added to the Reprographic Facility, with a view to print in house documents. A book binding facility was also operational during the period.

The Reprographic Facility and the Binding Facility together had been catering to the publishing needs of the Institute.

Computer Systems Group (CSG)

- Computer Systems Group maintains the computing and networking infrastructure and IT services in IIST

- A 3 TFLOPS Parallel Computing Cluster and high-end Graphic Computing Work Stations are maintained by CSG as part of IIST's High Performance Computing (HPC) infrastructure.

- An array of advanced multi-processor servers has been configured to host various academic and administrative information systems. Virtualization of servers and consolidation of data storage is in progress. Cloud-based computing infrastructure has been setup to host virtual multi-platform servers for various academic and scientific software applications.

- Campus Wide Area Network inter-connecting all academic and hostel blocks through optical-fiber-cables s also maintained by CSG. Round-the-clock access to e-resources and various web and messaging services is facilitated through several local-area networks and wireless-networks maintained as part of the Campus WAN. 1 Gbps Internet bandwidth provisioned by National Knowledge Network (NKN) of the Government of India and an additional 10 Mbps Internet bandwidth from BSNL facilitates high-speed internet access.

- A 240-node local-area-network distributed over optical-fiber in the new 6-floor Library and remote-wireless network in Flight Hardware Building have been setup and uplinked to the Campus Network.

- Network cameras have been installed at strategic points to improve security surveillance. Biometric Access Control Systems have been implemented to facilitate round-the-clock key-less entry into Labs for research purposes.

- Wireless network in IIST now have more than 1200 clients, and are being segregated into different user-zones to improve round-the-clock mobility, security and availability. A 5-proxy server-farm has also been set-up to log access to the Internet, apart from implementing perimeter firewalls.

CAMPUS DEVELOPMENT & OTHER FACILITIES

Campus Development

The institute has been functional in its new campus from August 2010. The campus is planned in nearly 100 acres of land, which at the final stage of its completion will have four academic blocks, administrative block, library, hostels, student activity centre and dining areas.

Work Progress

- Aerospace building, Physical Sciences block, 10 hostels fully functional.
- Library building handed over during the report period.
- Administrative block, Avionics block and Inter Disciplinary block nearing completion.

Other Facilities

The campus is functional with all necessary amenities required for a residential institute.

- Two canteens with modern equipments and carefully finalized menu help to provide healthy food in the most hygienic environment. Separate canteen caters to Faculty members. In addition, a private run cafeteria also exists in the campus.
- A Medical Centre with doctors and paramedical staff on round the clock duty exists in the campus. Necessary medicines are always available in stock. A tie up also exists with one of the leading hospitals in the city to provide medical services to the students. Accident Insurance coverage is also available to all the students through the hospital. A fully equipped ambulance is always available in the campus.
- Indoor and out door badminton courts, volley ball and basket ball courts, cricket practice nets are available in the campus. Physical Education Instructors support the students with timely training and advise for representing the institute in outside sports meet also.
- A full fledged gymnasium with most modern equipments with the services of trained instructors are available.
- A campus book store caters the needs of student and faculty members. The utilization of book grant of B. Tech. Students is arranged through this book store.
- A bank counter and ATM facility is also available in the campus.
- A stationery shop with essential commodities for students also functions as part of the cafeteria.
- A Civil and Maintenance division with qualified staff also is functional for the attending to the day to day maintenance work in handed over buildings.
- A transport section caters to the transport arrangements in the Institute.
- Institute is vigilantly guarded by round -the- clock security.

Audit Report
2012-2013

INDEPENDENT AUDITOR'S REPORT

We have audited the accompaning financial statements of M/S **INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY** (**Society**), **Valiamala PO, Trivandrum-695547** which comprise the Balance Sheet as at 31 March 2013, & the Income and Expenditure Statement for the year then ended, and a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation of these financial statements that give a true and fair view of the financial position & financial performance of the Institute in accordance with the Accounting Standards issued by The ICAI. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation and presentation of the financial statements that give a true and fair view and are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with the Standards on Auditing issued by the Institute of Chartered Accountants of India. Those Standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Institute's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of the accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Basis of Qualified Opinion:

1. *The balances in personal accounts are subject to confirmation by respective parties.*

2. *No provision for gratuity, pension and leave encashment has been provided in the accounts as specified in 6.d of Notes forming part of accounts.*

Qualified Opinion

In our opinion and to the best of our information and according to the explanations given to us, *subject to the above mentioned opinion*, the financial statements give the information required by the Act in the manner so required and give a true and fair view in conformity with the accounting principles generally accepted in India:

i. in the case of the balance sheet, of the state of affairs of the Institute as at 31 March 2013;
ii. in the case of the Income and Expenditure statement, of the deficit for the year ended on that date;

for ARSB & Associates
Chartered Accountants
(FRN: 009803S)

CA. P. Ananthakrishnan
Partner
Membership No: 201711

Date: October 25, 2013
Place: Trivandrum

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

BALANCE SHEET AS AT 31ST MARCH, 2013

(Amount in Rs.)

	Schedule	As at 31.03.2013	As at 31.03.2012
CORPUS/CAPITAL FUND AND LIABILITIES			
Corpus / Capital Fund	1	2,161,668,507	2,330,737,351
Earmarked Funds / Endowment Funds	2	6,957,274	10,033,826
Current Liabilities and Provisions	3	107,750,882	107,924,648
TOTAL		**2,276,376,663**	**2,448,695,825**
ASSETS			
Fixed Assets	4	1,960,018,528	1,529,295,695
Current Assets, Loans, Advances etc	5	316,358,135	919,400,130
TOTAL		**2,276,376,663**	**2,448,695,825**

Significant Accounting Policies & Notes on Accounts 15

As per our report of even date attached.

For ARSB & Associates
Chartered Accountants
FRN : 009803S

For and on behalf of
Indian Institute of Space Science and Technology (IIST)

CA. P.Ananthakrishnan
(Partner, Mem No. 201711)

Dr. K. S. Dasgupta
Director

R. Hari Prasad
Finance Officer

Place : Thiruvananthapuram
Date : 25th October, 2013

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2013

(Amount in Rs.)

	Schedule	2012-13	2011-12
INCOME			
Grants / Subsidies	6	190,081,560	0
Fees / Subscriptions	7	65,461,313	50,790,293
Interest Earned	8	526,809	86,480,470
Other Income	9	712,874	514,790
TOTAL (A)		**256,782,556**	**137,785,553**
EXPENDITURE			
Establishment Expenses - Regular	10	97,211,687	78,795,372
Establishment Expenses - Support Services	11	83,509,907	55,094,612
Academic & Other Student Expenses	12	85,360,817	78,440,768
Other Administrative Expenses	13	90,482,272	80,700,160
Depreciation	4	178,954,970	124,998,897
Deficit of Canteen Accounting Committee	14	1,150,336	0
TOTAL (B)		**536,669,989**	**418,029,809**
Excess of Income over Expenditure (A-B)		(279,887,432)	(280,244,255)
Less : Prior period items		347,399,851	31,077,255
Balance being Surplus/(Deficit) carried over to Corpus/Capital Fund		**(627,287,284)**	**(311,321,511)**
Significant Accounting Policies & Notes on Accounts	15		

As per our report of even date attached.

For ARSB & Associates
Chartered Accountants
FRN : 009803S

CA. P.Ananthakrishnan
(Partner, Mem No. 201711)

Place : Thiruvananthapuram
Date : 25th October, 2013

For and on behalf of
Indian Institute of Space Science and Technology (IIST)

Dr. K. S. Dasgupta
Director

R. Hari Prasad
Finance Officer

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2013

(Amount in Rs.)

	As at 31.03.2013	As at 31.03.2012
Schedule 1 :: CORPUS / CAPITAL FUND		
Total Grant Received - Capital and Revenue (A)		
Opening Balance of Total Grant Received	2,949,424,987	2,949,424,987
Add : Grant received during the year	648,300,000	0
	3,597,724,987	2,949,424,987
Total transfer to Revenue Grant (B)		
Opening Balance of amount transferred to Revenue Grant	394,590,882	394,590,882
Add : Transfer to Revenue Grant during the year	190,081,560	0
	584,672,442	394,590,882
Surplus / Deficit transferred from Income & Expenditure Account (C)		
Opening Balance of net income / (expenditure)	(224,096,754)	87,224,756
Add/Deduct : - Current Year Surplus / (Deficit)	(627,287,284)	(311,321,511)
	(851,384,038)	(224,096,754)
Balance at the year end (A - B + C)	**2,161,668,507**	**2,330,737,351**

Schedule 3 :: CURRENT LIABILITIES AND PROVISIONS		
a) CURRENT LIABILITIES		
1. Sundry Creditors		
For Goods		
Capital Goods	9,132,733	23,209,558
Revenue Expenditure	48,206	455,819
Others	6,191,600	7,036,929
2. Statutory Liabilities		
Overdue	0	0
Others	20,174,039	15,333,231
3. Other Current Liabilities	72,204,304	61,889,111
Sub Total (a)	**107,750,882**	**107,924,648**
TOTAL	**107,750,882**	**107,924,648**

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2013

Schedule 2 :: EARMARKED/ENDOWMENT FUNDS	FUND-WISE BREAK UP						TOTAL	
	Space Application Centre, Ahmedabad	Astrosat	Ministry of Earth & Space Science	ISRO-GBP - ABLN & C Project	DST Inspire - Dr. Sakthivel	DST Inspire - Dr. Mahesh	2012-13	2011-12
a) Opening balance of the funds	91,419	151,981	5,290,426	4,500,000	0	0	10,033,826	178,836
b) Additions to the Fund								
i) Donation/Grants	0	0	0	0	1,900,000	1,900,000	3,800,000	10,135,000
ii) Income from Investment made on account of Funds	0	0	0	0	0	0	0	0
iii) Other additions (Specify Nature)	0	0	0	0	0	0	0	0
Total (a + b)	91,419	151,981	5,290,426	4,500,000	1,900,000	1,900,000	13,833,826	10,313,836
c) Utilisation/Expenditure towards objective of funds								
i) Capital Expenditure								
- Fixed Assets	0	0	5,655,977	0	135,768	0	5,791,745	78,074
- Others	0	0		0		0	0	0
Sub Total	0	0	5,655,977	0	135,768	0	5,791,745	78,074
ii) Revenue Expenditure								
- Salaries, Wages & Allowance	0	0	0	0	619,355	560,000	1,179,355	0
- Rent/Consumables	0	0	0	0	0	0	0	0
- Other Administrative Expenses	0	0	49,674	0	0	27,603	77,277	114,519
Sub Total	0	0	49,674	0	619,355	587,603	1,256,632	114,519
iii) Fund Returned to the Principal Investigator	91,419	151,981	0	0	0	0	243,400	87,417
Total (c)	91,419	151,981	5,705,651	0	755,123	587,603	7,291,777	280,010
Net Balance payable as at the year-end (a+b-c)	**0**	**0**	**0**	**4,500,000**	**1,144,877**	**1,312,397**	**6,957,274**	**10,033,826**
Net Balance receivable as at the year-end (c-a-b)	**0**	**0**	**415,225**	**0**	**0**	**0**	**415,225**	**0**
Note :Classified under Current Assets under Sch 5								

Schedule 4 :: FIXED ASSETS (Amount in Rs.)

Particulars	Gross Block (at cost) as at 01.4.2012	Additions		Gross Block (at cost) as at 31.03.2013	Rate of Depreciation	Depreciation				Net Block as at 31.3.2013	Net Block as at 01.04.2012
		Installed	Under Installation			As at 01.04.2012	Prior period depreciation	For the year	As at 31.3.2013		
Land	33,252,000	0	0	33,252,000	0.00%	0	0	0	0	33,252,000	33,252,000
Building	556,122,135	381,963,018	0	938,085,153	10.00%	95,302,200	0	84,278,296	179,580,496	758,504,657	460,819,935
Plant & Machinery	242,882,688	169,100,675	24,847,553	436,830,916	15.00%	68,166,464	0	51,572,536	119,739,000	317,091,916	174,716,224
Furniture & Fittings	115,663,976	13,890,856	1,549,329	131,104,161	10.00%	25,013,076	0	10,454,175	35,467,251	95,636,910	90,650,900
Ambulance	0	880,644	0	880,644	15.00%	0	0	132,097	132,097	748,547	0
Motor Cars & Bikes	11,184,771	77,659	0	11,262,430	15.00%	3,901,006	0	1,104,214	5,005,220	6,257,210	7,283,765
Motor Buses & Truck	3,598,526	2,531,380	0	6,129,906	15.00%	1,811,762	0	647,722	2,459,484	3,670,422	1,786,764
Computers	65,779,590	12,099,199	0	77,878,789	60.00%	59,014,709	0	11,318,448	70,333,157	7,545,632	6,764,881
Software	26,596,834	3,492,567	0	30,089,401	60.00%	22,224,011	0	4,719,234	26,943,245	3,146,156	4,372,823
Library Books	22,637,143	10,621,263	0	33,258,406	60.00%	18,350,607	0	8,944,679	27,295,286	5,963,120	4,286,536
Campus networking	20,648,091	2,562,450	0	23,210,541	60.00%	16,357,804	0	4,111,642	20,469,446	2,741,095	4,290,287
Canteen Equipments	13,827,209	1,401,724	0	15,228,933	15.00%	4,082,754	0	1,671,927	5,754,681	9,474,252	9,744,455
Soft Furnishing	1,043,023	0	0	1,043,023	100.00%	1,043,023	0	0	1,043,023	0	0
TOTAL	**1,113,235,986**	**598,621,435**	**26,396,882**	**1,738,254,303**		**315,267,416**	**0**	**178,954,970**	**494,222,386**	**1,244,031,917**	**797,968,570**
Previous Year	**847,129,651**	**266,106,335**	**0**	**1,113,235,986**		**164,056,401**	**26,212,118**	**124,998,897**	**315,267,416**	**797,968,570**	**683,073,250**
Capital Work in progress	**731,327,125**	**(15,340,514)**	**0**	**715,986,611**		**0**	**0**	**0**	**0**	**715,986,611**	**731,327,125**
TOTAL										**1,960,018,528**	**1,529,295,695**

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES TO BALANCE SHEET AS AT 31ST MARCH, 2013

(Amount in Rs.)

	As at 31.03.2013	As at 31.03.2012
Schedule 5 :: CURRENT ASSETS, LOANS, ADVANCES ETC		
a) CURRENT ASSETS		
1. Inventories		
- Canteen inventories	574,288	0
2. Sundry Debtors		
- Debtors outstanding for a period exceeding six months	0	0
- Others	36,000	83,083
3. Cash Balances in hand	6,871	6,625
(including cheques/drafts and imprest)		
4. Bank Balances		
a) With Scheduled Banks		
- On Current Accounts	(23,041,931)	54,406,747
- On Deposit Accounts	308,116,060	782,904,075
- On Savings Accounts	137,925	13,776,232
Total (a)	**285,829,213**	**851,176,762**
b) Loans, Advances and Other Assets		
1. Loans		
- Staff	1,779,146	1,033,867
2. Advances and other amounts recoverable in cash or in kind or for value to be received		
- On Capital Account	2,919,278	19,837,019
- Prepayments	12,668,984	17,903,137
- Others	4,416,266	4,393,274
3. Income Accrued		
- On Bank Deposits	7,485,128	23,796,951
4. Security Deposits	1,260,120	1,259,120
Total (b)	30,528,922	68,223,368
TOTAL (a+b)	**316,358,135**	**919,400,130**

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES FORMING PART OF INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2013

(Amount in Rs.)

	2012-13	2011-12
Schedule 6 :: GRANTS / SUBSIDIES (irrevocable Grants & Subsidies Recovered)		
1. Central Government	190,081,560	0
TOTAL	**190,081,560**	**0**
Schedule 7 :: FEES / SUBSCRIPTIONS		
1. Entrance Fees	59,298,186	45,588,386
2. Annual Fees/Subscriptions	6,163,127	5,201,907
TOTAL	**65,461,313**	**50,790,293**
Schedule 8 :: INTEREST EARNED		
1. On Term Deposit		
a) With Scheduled Banks	526,809	86,476,100
2. On Loans / Advances		
a) Employee/Staff	0	4,370
TOTAL	**526,809**	**86,480,470**
Schedule 9 :: OTHER INCOME		
1. Rent Receipts	488,167	306,237
2. Sale of Tender Forms	104,902	157,215
3. Miscellaneous Income	119,805	51,338
TOTAL	**712,874**	**514,790**
Schedule 10 :: ESTABLISHMENT EXPENSES - REGULAR		
1. Salaries & Allowances	89,237,715	72,999,667
2. Contribution to NPS	4,364,809	3,252,520
3. Contribution to CPF	167,658	163,813
4. Medical Expense- Staff	1,679,368	1,315,009
5. Expense on Employees Retirement & Terminal Benefits	628,000	560,000
6. Interest on PF Contribution	1,027,067	504,363
7. Staff Welfare Expense	3,659	0
8. Staff Training Expense	103,411	0
TOTAL	**97,211,687**	**78,795,372**

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES FORMING PART OF INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2013

(Amount in Rs.)

	2012-13	2011-12
Schedule 11 :: ESTABLISHMENT EXPENSES - SUPPORT SERVICES		
1. Consultancy & Manpower Charges	63,147,728	37,343,622
2. Remuneration to Contract Employees	20,362,179	17,750,990
TOTAL	**83,509,907**	**55,094,612**
Schedule 12 :: ACADEMIC & OTHER STUDENT EXPENSES		
1. Admission Expense	22,328,293	23,585,662
2. Assistanceship to Students	15,963,919	19,760,952
3. Library Services	23,236,407	18,045,450
4. Academic Expense	22,936,726	14,183,877
5. Student Activities Expense	895,472	2,864,827
TOTAL	**85,360,817**	**78,440,768**
Schedule 13 :: OTHER ADMINISTRATIVE EXPENSES		
1. Maintenance & Upkeep		
Repairs & Maintenance	10,593,634	6,006,488
Temporary Construction	0	2,952,947
House Keeping Expense	1,285,489	641,961
Campus Landscaping	604,283	211,252
Sub Total (a)	**12,483,406**	**9,812,648**
2. Professional Charges		
Audit Fees	44,943	50,562
Legal Expense	240,636	23,901
Sub Total (b)	285,579	**74,463**
3. Administrative Expenses - Others		
Vehicle Operating Expense	25,258,042	18,297,643
Electricity & Water Charges	15,925,290	14,012,009
Travelling Expense	6,357,470	10,177,090
Research & Development Expense	1,796,055	2,051,347
Printing & Stationery	4,669,539	6,350,628
Supplies & Materials	6,688,542	5,662,894
Advertisement & Publicity	1,407,754	5,322,512
Hospitality Expense	4,082,770	3,312,406
Telephone & Internet Expense	3,165,585	3,037,334
Office Expense	1,960,779	1,552,330
Recruitment Expense	6,229,807	837,544
Security Expense - Others	53,505	179,479
Bank Charges	18,149	19,833
Compensation Paid	100,000	0
Sub Total (c)	**77,713,287**	**70,813,049**
TOTAL	**90,482,272**	**80,700,160**

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

SCHEDULES FORMING PART OF INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST MARCH, 2013

(Amount in Rs.)

	2012-13
Schedule 14 :: Income and Expenditure Account of the Canteen Accounting Committee	
INCOME	
Students Assistanceship (BTech)	12,111,520
Canteen Mess Collection (Contract)	1,377,875
Canteen Mess Collection (Misc)	2,521,166
Canteen Mess Collection (MTech Students)	465,600
Canteen Mess collection (Staff)	350,042
Canteen Mess Collection (Students)	834,860
Interest on Deposit	34,171
Increase in Closing Stock	29,502
TOTAL (A)	**17,724,736**
EXPENDITURE	
Canteen Expenses-Material	18,875,072
TOTAL (B)	**18,875,072**
Excess of Income over Expenditure (A-B)	(1,150,336)
Less : Prior period items	0
Balance being Surplus/(Deficit) carried over to Income and Expenditure Account	**-1,150,336**

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

RECEIPTS AND PAYMENTS FOR THE YEAR ENDED 31ST MARCH, 2013

(Amount in Rs.)

Receipt	2012-13	2011-12
I. Opening Balance		
a.Cash and DD's in hand	6,625	6,667
b.Bank Balances		
In current accounts	54,406,747	155,760,630
In deposit accounts	782,904,075	1,150,707,369
In savings accounts	13,776,232	12,839,151
II.Grants Received		
a.From Government of India	648,300,000	100,000,000
III. Interest Received		
a.On Bank Deposits	526,809	106,753,053
b.Loans, Advances etc.	0	4,370
IV. Other Income		
a.Entrance Fees	127,250	59,369,286
b.Annual Fees/Subscriptions	6,456,252	5,201,907
c.Other Income	898,876	529,747
d.Reimbursement of Retirement Benefits from VSSC	0	0
V. Any other receipts		
a.Scholarship Received	12,000	72,600
b.Security Deposits received	1,789,650	0
c.Earnest Money Deposits received	1,269,120	1,051,225
d.Performance Guarantee	1,203,364	545,692
e.Advance for Research & Seminars	3,800,000	10,135,000
f.Caution Deposit from Students	390,000	414,000
g.Security Deposit (Asset)	0	57,200
h.Stale cheques	1,080	37,344
i. Refunds - Branches	48,463	0
j.Canteen Accounting Committee	17,853,634	0
k.Vaccine Recovery	4,980	0
l. Statutory Liabilities - Retirement Benefits	4,495,479	0

Payments	2012-13	2011-12
I. Expenses		
a.Establishment Expenses - Regular		
Salaries & Allowances (admin & faculty)	87,290,455	75,243,377
Contribution to NPS	4,364,809	3,252,520
Contribution to CPF	167,658	163,813
Medical Expense- Staff	1,699,123	1,212,822
Employees Retirement Benefits	628,000	560,000
Interest on PF Contribution	0	206,682
Staff Welfare Expense	3,659	0
Staff Training Expenses	113,311	0
b.Establishment Expenses - Support Services		
Consultancy & Manpower Charges	61,860,783	33,916,499
Remuneration to Contract Employees	20,358,672	17,750,990
c. Academic & Other Student Expenses		
Admission Expense	22,997,254	23,130,617
Assistanceship to Students	15,823,526	19,731,972
Library Services	17,092,893	33,055,463
Academic Expense	24,565,205	14,460,239
Student Activities Expense	933,306	2,756,597
d. Other Administrative Expenses		
Repairs & Maintenance	11,198,178	5,728,260
Temporary Construction	0	2,569,556
House Keeping Expense	1,341,817	553,615
Campus Landscaping	614,130	211,252
Audit Fees	95,505	49,635
Legal Expense	230,636	23,901
Vehicle Operating Expense	25,722,383	20,125,118
Electricity & Water Charges	16,020,726	12,781,134
Travelling Expense	6,203,684	9,646,776
Research & Development Expense	2,288,375	1,222,162
Printing & Stationery	4,942,223	5,361,696
Supplies & Materials	6,896,494	5,430,408
Advertisement & Publicity	2,304,005	4,276,643
Hospitality Expense	4,576,414	2,772,918
Telephone & Internet Expense	3,013,923	4,413,223
Office Expense	2,220,020	1,325,834
Recruitment Expense	6,220,198	833,844
Security Expense - Others	66,825	166,159
Bank Charges	18,149	19,833
Compensation Paid	100,000	0
II. Payments made against funds for various projects		
Astrosat		
Ministry of Earth & Space Science (CTCZ)	0	113,019
DST Inspire - Dr. Sakthivel	5,704,776	79,574
DST Inspire - Dr. Mahesh	755,123	0
	586,693	0
III. Expenditure on Fixed Assets & Capital Work-in-Progress		
a.Purchase of Fixed Assets	226,579,520	147,711,545
b.Expenditure on Capital Work-in-progress	380,124,787	298,133,595

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

RECEIPTS AND PAYMENTS FOR THE YEAR ENDED 31ST MARCH, 2013

(Amount in Rs.)

Receipt	2012-13	2011-12
Total	**1,538,270,636**	**1,603,485,241**

Payments	2012-13	2011-12
IV. Other Payments		
Research fund refunded	243,400	87,417
Scholarship paid to students	34,000	59,600
Security Deposits (Asset) paid	1,000	0
Security Deposits repaid to Contractors	391,356	1,209
Earnest Money Deposits repaid	1,141,097	831,670
Performance Guarantee	1,358,138	0
Decrease in TDS & VAT Payable	676,768	926,549
Contingency Advance to Staff	109,731	52,369
Advances - Branches	0	51,742
Loans to staff	745,279	55,252
Canteen Accounting Committee	17,961,494	0
Sundry debtors	52,773	0
Interest repayment to DOS	264,613,437	0
Statutory Liabilities - Retirement Benefits	0	1,334,463
V. Closing Balances		
a.Cash in hand	6,871	6,625
b.Bank Balances		
In current accounts	(23,041,931)	54,406,747
In deposit accounts	308,116,060	782,904,075
In savings accounts	137,925	13,776,232
Total	**1,538,270,636**	**1,603,485,241**

Significant Accounting Policies & Notes on Accounts 15

As per our report of even date attached.

For ARSB & Associates
Chartered Accountants
FRN : 009803S

CA. P.Ananthakrishnan
(Partner, Mem No. 201711)

Place : Thiruvananthapuram
Date : 25th October, 2013

For and on behalf of
Indian Institute of Space Science and Technology (IIST)

Dr. K. S. Dasgupta
Director

R. Hari Prasad
Finance Officer

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

Schedule 15 :: SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31ST MARCH, 2013

A. Significant Accounting Policies

1. Basis of Accounting

The financial statements have been prepared in accordance with the Generally Accepted Accounting Principles in India (Indian GAAP) and are prepared on accrual basis under the historical cost convention except those referred to in point no. 6c of accounting policies. The accounting policies adopted in the preparation of the financial statements are consistent with those followed in the previous year.

2. Use of estimates

The preparation of the financial statements in conformity with Indian GAAP requires the Management to make estimates and assumptions considered in the reported amounts of assets and liabilities (including contingent liabilities) and the reported income and expenses during the year. The Management believes that the estimates used in preparation of the financial statements are prudent and reasonable. Future results could differ due to these estimates and the differences between the actual results and the estimates are recognized in the periods in which the results are known / materialize.

3. Inventories

The institute has started recognizing canteen inventories from 2012-13. The stock is valued at lower of cost or net realizable value.

4. Depreciation

a. Depreciation has been provided on the written down value method as per the rates prescribed in the Income Tax Act, 1961.
b. Depreciation on assets acquired in a particular year is provided for the whole year irrespective of date of addition.
c. Depreciation has not been charged on capital work in progress and on those assets under installation as on 31.03.2013.

5. Revenue Recognition

a. Grant in aid received from the Department of Space, is accounted on accrual basis. Out of the total grant received, the amount provided in the budget towards revenue is treated as Revenue Grant / income over the period necessary to match them with the costs for which they are intended to compensate, on a systematic basis. The remaining grant forms part of the Corpus Fund along with other grant received.
b. Tuition fees, fines and other recoveries from underperforming students (as per the policy of the institute) are accounted on cash basis.
c. Interest income is accounted on accrual basis. Interest on deposits created out of grant received is not recognized as income and is shown as a liability payable to Department to Space.

Schedule 15 :: SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31ST MARCH, 2013

6. Fixed Assets

a. Land - Land at Ponmudi has been valued at cost of acquisition. The present activity of the Institute is in the Valiamala campus which has been handed over by LPSC vide letter no. VSSC/CMG/2010 dated 05.08.2010, and has been measured at 53.43 acres. No value has been provided in the books.

b. Building Construction of buildings is still in progress. Buildings, the construction of which are more than 90% complete, certified by the Construction and Maintenance Division and which have been put into use have been transferred from Capital Work-in-Progress to Buildings based on actual payments made.

c. Plant and Machinery It mainly constitutes Laboratory equipment, Office Equipment, Electricals & Electronics and other Machinery.

d. Buildings and other Fixed Assets are carried at cost less accumulated depreciation. Cost comprises the purchase price or acquisition cost, installation charges and any attributable cost of bringing the assets to working condition for its intended use. Exchange differences arising on restatement / settlement of foreign currency payables relating to acquisition of depreciable fixed assets are adjusted to the cost of the respective assets and depreciated over the remaining useful life of such assets.

e. Capital Work-in-Progress pertains to construction in progress at Valiamala.

f. Assets that have been delivered to IIST up to 31.03.2013 have been recognized as assets but depreciation has not been charged on Assets under installation.

7. Foreign currency transactions

Foreign currency monetary items outstanding at the Balance Sheet date are restated at the year-end rates. Non-monetary items are carried at historical cost. The exchange differences arising on restatement / settlement of long-term foreign currency monetary items are capitalised as part of the depreciable fixed assets to which the monetary item relates and depreciated over the remaining useful life of such assets.

8. Earmarked / Endowment Funds

Earmarked / Endowment Funds mainly include external agency funding received for research & development purpose and conduct of seminars & workshops. Value of assets procured out of such funds for the purpose specified have gone to reduce the value of Fund in hand and have not been treated as an asset of the Institute as the ownership of the same vests with the funding agency.

9. Employee Benefits

Employee benefits include General Provident Fund (GPF), Contributory Provident Fund (CPF), New Pension Scheme (NPS), and Group Insurance Scheme (GIS). The Institute's contribution to CPF and NPS are considered as defined contribution plans and are charged as an expense as they fall due based on the amount of contribution required to be made.

GPF and CPF funds are maintained separately by the Institute in Savings Bank Account and Flexi deposits. Retirement Benefits consisting of pension fund, gratuity and leave encashment received from previous employers of employees joining from other Government organizations have been maintained separately in a Savings Bank Account and Flexi Deposits.

Schedule 15 :: SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31ST MARCH, 2013

10. Taxes on income

Being a non-profit institution existing solely for education purposes and being wholly financed by the Government of India, the income of the Institute is exempt under section 10[(23C)][iiiab] of the Income Tax Act, 1961.

11. Research and Development Expenses

Revenue expenditure pertaining to research is charged to the Income and Expenditure Account. Fixed assets utilized for research and development are capitalized and depreciated in accordance with the policies stated for Fixed Assets.

12. Provisions and Contingencies

A provision is recognised when the Institute has a present obligation as a result of past events and it is probable that an outflow of resources will be required to settle the obligation in respect of which a reliable estimate can be made. Provisions (excluding retirement benefits) are not discounted to their present value and are determined based on the best estimate required to settle the obligation at the Balance Sheet date. These are reviewed at each Balance Sheet date and adjusted to reflect the current best estimates.

13. Impairment of Assets

The carrying values of assets / cash generating units at each Balance Sheet date are reviewed for impairment. If any indication of impairment exists, the recoverable amount of such assets is estimated and impairment is recognised, if the carrying amount of these assets exceeds their recoverable amount. The recoverable amount is the greater of the net selling price and their value in use. Value in use is arrived at by discounting the future cash flows to their present value based on an appropriate discount factor. When there is indication that an impairment loss recognised for an asset in earlier accounting periods no longer exists or may have decreased, such reversal of impairment loss is recognised in the Statement of Income and Expenditure, except in case of revalued assets.

B. <u>Notes to the Accounts</u>

1. Depreciation

Assets are depreciated at written down value method as per rates prescribed in the Income Tax Act, 1961 as recommended by the Office of the Principal Director of Audit, Scientific Departments, Bangalore.

2. Inventories

Inventories of the Canteen Accounting Committee have been recognised in the Income and Expenditure Account as Surplus / (Deficit) of Canteen Accounting Committee. Since closing stock of canteen inventories was not recognised during 2011-12, the same has been recognised in 2012-13 as prior period item.

Schedule 15 :: SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31ST MARCH, 2013

3. Revenue

a. Out of Grant of Rs. 64,83,00,000/- received during 2012-13, Rs. 19,00,81,560/- has been transferred to Revenue Grant on the basis of the budget for 2012-13.

b. Exam fees amounting to Rs. 5,91,70,936.02 received for ISAT 2012 in 2011-12 has been recognised as income in 2012-13.

c. Interest earned (actually received) on funds from grant-in-aid maintained in fixed deposits is refundable to DOS. The total interest earned till 31.03.2012 on Fixed Deposits (excluding the interest liability for the Provident Fund Accounts) comes to Rs. 32,43,85,992.80 which has been recognised as income in 2011-12 and the same has been charged to prior period item during the current year. Interest of Rs. 5,97,72,556/- has been actually received during 2012-13 and the same has been shown as refundable to DOS.

4. Fixed Assets

a. Land There is a stay by the Honorable High Court of Kerala on carrying out construction activities on a part of land (approximately 80 acres) purchased at Ponmudi in Trivandrum District for setting up the Institute.

b. Capital Work-in-Progress includes a sum of Rs. 2,21,08,600/- towards project management and consultancy charges and service tax of Rs. 4,32,74,649/-, both pending for appropriation to fixed assets on final completion of all buildings.

c. An amount of Rs. 2,63,96,882/- pertaining to assets that have been delivered to IIST before 31.03.2013 but under installation as on 31.03.2013 have been accounted as fixed assets & depreciation has not been charged on the same.

5. Foreign Currency Translations

Foreign currency advances for procurement of fixed assets has not been restated as on the closing balance sheet date.

6. Employee Benefits

a. Employer and Employee contribution to New Pension Scheme is being transferred to NSDL. Interest earned till date of transfer has also been deposited to the respective employee NPS accounts.

b. The Institute has entered into a Group Insurance Scheme (GIS) agreement with Life Insurance Corporation of India from 2011-12 onwards.

c. Provision for interest on PF Contribution at the rates prescribed have been made. Interest earned on GPF and CPF funds parked in Savings Accounts have been accounted as income. An amount of Rs. 5,52,185/- towards interest liability on GPF accounts and Rs. 65,231/- towards interest liability on CPF accounts is to be transferred to the respective savings accounts maintained for respective PF accounts. The same is being done in 2013-14.

d. Provision for liability in respect of gratuity, pension and leave encashment has not been made. Permission for creation & maintenance of a separate pension fund has been received during 2013-14. From 2013-14, provision for liabilities on account of retirement benefits will be provided.

Schedule 15 :: SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31ST MARCH, 2013

7. Prior Period Item

Details of prior period items are as given below :-

Details	Prior period expenses
Repairs & Maintenance	1.00
Newspaper subscription	50,970.00
Interest refunded to DOS	32,43,85,993.00
Interest refundable to DOS (accrued)	2,37,96,950.26
Travelling expenses	13,570.00
Earnest Money Deposit	22,320.00
Total (A)	**34,82,69,804.26**

Details	Prior period income
Refund of transfer TA	2,625.00
Reimbursement of foreign travel expense	88,966.00
Income from snacks bar	2,33,576.00
Opening stock of canteen inventories	5,44,786.00
Total (B)	**8,69,953.00**

Net prior period item (A-B) = Rs. 34,73,99,851.26

8. Academic Expenses

Academic Expenses mainly include expenses towards Lectures for students, Project & Internship expenses, stipend paid to Ph.D students and expenses incurred on Seminars, Symposiums and Conferences.

9. Admission Expenses

Admission expenses include expenses incurred towards conduct of ISAT exam and subsequent admission expenses. The same have been accounted on accrual basis and date of conduct of exam has not been considered for accounting of the same as has been adopted for accounting of ISAT revenue.

10. Assistanceship to Students

As per the approval of The Chairman, Board of Management-IIST / Secretary, DOS vide Letter No. PP & PM : IIST : 09-10 dated July 17th, 2009, the B. Tech students of the Institute are entitled for an assistanceship of Rs. 49,000/- for each semester towards Statutory Semester Fee, Student Amenity Fee, Hostel & Dining, Establishment charges and Medical cover. Though this amount is not directly disbursed to the students, expenditure is incurred on their behalf under these heads by the Institute.

11. IIST Students Activities Account

The Institute maintains a separate account exclusively for students' activities which is operated by the Dean (Students Activities) and the Registrar. This account does not form part of the Institutes accounts and amounts transferred to this account are treated as revenue expenditure of the Institute.

12. Supplies and Materials

Supplies and Materials mostly consist of lab consumables.

13. Bank balances

The negative balance in the SBI Current Account represents the cheques issued on the closing date of the financial year which are not presented for payment. The Institute has sufficient balance to cover these cheques issued in the linked deposit accounts maintained with SBI. Hence, the negative balance does not represent any Overdraft

INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY
THIRUVANANTHAPURAM

Schedule 15 :: SIGNIFICANT ACCOUNTING POLICIES AND NOTES TO THE ACCOUNTS FOR THE YEAR ENDED 31ST MARCH, 2013

14. Format of accounts

The accounts of the Institute are prepared as per proforma suggested by the Office of the Principal Director of Audit, Scientific Departments, Bangalore.

15. Insurance

The Institute being an autonomous body under the Department of Space (DOS), it is governed by the rules and regulations as applicable to DOS. As per the "Book of Financial Powers" prescribed by DOS "No Government property whether movable or immovable shall be insured. No liability shall be incurred in connection with the insurance of such property without the prior approval of the Department of Space in consultation with the Member for Finance." The matter was taken up for consultation with the Department of Space during 2012-13 and it was decided in the Seventh Finance Committee meeting of IIST dated 3rd June, 2013 not to insure the assets of the institute.

16. Balances in personal accounts

Balances in personal accounts are subject to confirmation from respective parties.

17. Contingent Liabilities

The unexecuted portion of the contracts entered into by the Institute will form part of the current liability of the Institute. However, the same could not be quantified.

18. Building Construction:

The institute entered into a contract with SPCL, Mumbai on 27.08.2008 for Rs. 278.60 crores with a completion period of 18 months for setting up building and infrastructure at its campus in Valiamala on turnkey basis. As per the note provided by the CMD office the project was delayed due to various unforeseen reasons and the extension of the contract was given up to 07.11.2013 without prejudice to the right of the institute to impose the levy of compensation for the delay. As per clause 2 of the agreement the institute can levy penalty on the works which will have an impact on the accounts. The same could not be quantified due to want of details.

19. Figures for the previous year

Figures for the previous year have been regrouped and/or reclassified wherever considered necessary.

As per our report of even date attached.

For ARSB & Associates
Chartered Accountants
FRN : 009803S

CA. P.Ananthakrishnan
(Partner, Mem No. 201711)

Place : Thiruvananthapuram
Date : 25th October, 2013

For and on behalf of
Indian Institute of Space Science and Technology (IIST)

Dr. K. S. Dasgupta
Director

R. Hari Prasad
Finance Officer