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# Indian Institute of Space Science and Technology (IIST) NEWSLETTER

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## Independence Day Celebrations

IIST community celebrated the 75<sup>th</sup> Independence Day with restricted participation from faculty and students. *Dr. Y V N Krishna Murthy*, Registrar, IIST, hoisted the National Flag at 09 00 AM. This was followed by inspection of the CSIF Jawan's guard of honour in the presence of faculty, students and staff. *Dr. Y V N Krishnamurthy* delivered the Independence Day speech in which he shared the various developments the institute had accomplished in academics, research and extracurricular activities in detail. He congratulated the students and faculty who received various honours and awards. He elaborated on the challenges IIST faced in the second year of the pandemic regarding constraints in conducting online classes, as many IIST students are spread out in the country's remote locations. He thanked all the personnel and staff who have worked in the campus and from their homes to keep the institute functional during the unavoidable days of lockdown. Registrar announced winners of various Hindi competitions conducted in IIST. Student Music Club offered an online musical tribute to the men and women who laid their lives at the altar of freedom and those brave hearts who safeguard our nation from the front lines. A procession was organised in the campus as part of the celebration in which faculty, students and staff participated. Following this, saplings were planted in various parts of the campus. The program concluded with the distribution of sweet packets to everyone.



*Dr. Y.V.N. Krishna Murthy*, Registrar, IIST delivering the Independence Day speech



Shri. S. Somanath, Director, VSSC assumed the charge of the Director, IIST from Dr. V. K. Dadhwal. Dr. V. K. Dadhwal stepped down from the post of Director, IIST, on 24<sup>th</sup> July 2021.

## IIST Convocation

The 9<sup>th</sup> IIST convocation was held in online mode on 4<sup>th</sup> September 2021. *Dr. G. Satheesh Reddy*, Chairman, DRDO and Secretary, DDR&D was the chief guest of the convocation. In this convocation, 223 degrees were awarded in virtual mode. Certificates and medals were awarded to the students through their computer-generated virtual avatars. B. Tech degree was conferred on 106 students (Aerospace Engineering – 56, Electronics & Communication Engineering (Avionics) – 50. Dual Degree program students (16 numbers) received B.Tech in Engineering Physics and M Tech/MS in their specialization (Optical Engineering, Solid State Physics, Earth Systems Science and Astronomy & Astrophysics). M. Tech degree was conferred on 89 students (Department of Aerospace – 22, Department of Avionics- 30, Department of Chemistry -7, Department of Earth and Space Science - 10, Department of Mathematics - 7, Department of Physics – 9). Master of Science degree was conferred to four students from the Department of Earth and Space Science. Ph.D degree was conferred on 12 students from five Departments. The gold medal for the first rank holder in the UG programme was won by *Shri. Shashank Tomar* (Dept. of Aerospace), and the gold medal for the first rank holder in the

PG programme was won by *Shri. Sandeep C. R.* (Machine Learning and Computing). Excellence Certificate and cash prize for the topper in B.Tech in ECE (Avionics) were awarded to *Shri. Parthasarathi Samanta*. *Shri. Raghav Hariharan*, B.Tech in ECE (Avionics) received the excellence certificate and cash award for the best all-rounder in academic, co-curricular and extracurricular activities.

Convocation started with invocation and the Dean, Academic, invited the Chancellor, IIST, to declare the opening of the 9<sup>th</sup> IIST convocation. *Shri. S. Somanath*, Director, IIST, delivered the welcome address and presented the progress report of IIST for 2020-21. Director started his speech by welcoming the Hon. Chancellor, Chairman ISRO and the Chief Guest. Director spoke about the accomplishments of *Dr. Satheesh Reddy*, Chief Guest, in the field of Aerospace Engineering and Defence Technology. He thanked *Dr. V. K. Dadhwal*, former Director, IIST, for putting IIST on the growth path since 2016 for the past five years. The director acknowledged students and faculty for completing the academic year programs during the pandemic. He congratulated the gold medalist and other toppers for their achievements.







*Dr. G. Satheesh Reddy, Chief Guest, delivering the 9<sup>th</sup> IIST Convocation Address*

He impressed upon the audience various ISRO related projects progressing in IIST, the establishment of Advanced Space Research Group (ASRG), extramural research projects from SERB/DST, DB, the MoUs signed with Max Plank Institute, Germany, TIFR, IISc and DRDO etc. He also spoke about research papers by IIST faculty and highlighted the work carried out by *Dr. S. Jayanthi*, Dept. of Physics, with others from Weizman Institute of Technology, Israel, on COVID-19, which was published in the Journal of American Chemical Society (JACS). He spoke further about the webinars, social works organised by IIST and the contributions of IIST alumni. He ended his speech by thanking *Dr. B. N. Suresh*, Hon. Chancellor, IIST and *Dr. K Sivan*, President, Governing Body, IIST, for their continuous support and the Chief Guest *Dr. Satheesh Reddy*, for accepting IIST's invitation to grace the convocation.



*Dr. K. Sivan*, President, Governing Body, IIST and Secretary, Dept. of Space, addressed the students in online mode. He remembered the efforts put up by the Chancellor to make IIST a world-class space institute. *Dr. Sivan* congratulated graduating students and praised efforts put up by IIST faculty and parents of graduating students to complete their degrees on time, even during pandemic years. *Dr. Sivan* added that in the 75<sup>th</sup> year of independence, India heavily requires space technology for improving infrastructure, agriculture, communications, etc., which will be a golden opportunity for graduating students to contribute. He then wished that INSPIRE-1, a joint venture between IIST and the University of Colorado, USA, would be a grand success. *Dr. Sivan* spoke about the space economy, India's dependence on space technology, and how India plans to self-reliance in agriculture, sustainable energy, biotechnology, national security, aerospace industry and future technology. He elaborated on the new space policy involving government-funded space programs and demand-driven space programs involving private industries, academia and start-ups. He advised the graduates to take risks and challenges by thinking creatively and occupy the centre stage in this new development.

*Dr. B. N. Suresh*, the Honourable Chancellor, IIST, started his speech by congratulating the graduating students and reminding them that it is not the end of learning, but a beginning, as learning should go on as it never ends. He wished that all graduating students must be part of



*Dr. B. N. Suresh, Hon. Chancellor, IIST and Dr. K. Sivan, President, GB, IIST addressing the graduating students during the Convocation*

nation-building. He recalled that this year is special as it is 100 years after *Albert Einstein* got his Nobel Prize for his discovery on *Photoelectric Effect* and wished that some of the graduating students will become Nobel Laureate one day and it will be the first after India's independence. *Dr. Suresh* spoke about India celebrating its 75<sup>th</sup> independence and the year-long 'Azadi Ka Amrit Mahotsav'. He mentioned the development of Indian spacecraft, Tejas and various missile technologies developed by DRDO and acknowledged the leadership provided by *Dr. Satheesh Reddy*. He praised the Indian scientific community for the increase in research output in publications. He wanted the new graduates to take up challenging problems and listed India's unsolved problems like the need for developing clean water resources, health care etc. He reminded them that failure is the first step towards success and quoted the words of IIST's first Chancellor, *Dr. A. P. J. Abdul Kalam*, to believe in them and take responsibility.

*Dr. K. Sivan*, President, GB, IIST and Secretary, Dept. of Space, virtually presented Ph. D degrees. *Dr. B. N. Suresh*, Hon. Chancellor, IIST presented postgraduate and dual degrees and *Shri. Somanath*, Director, IIST, presented B.Tech degrees to graduating students. *Dr. Satheesh Reddy*, the Chief Guest, presented medals to IIST toppers. All graduating students virtually took the oath. *Dr. Satheesh Reddy* started the 9<sup>th</sup> convocation speech by thanking Hon. Chancellor, Chairman ISRO and Director, IIST for inviting him to be the Chief Guest. He recalled the start of IIST in 2007 for providing quality



space technologists to India's space program by the Indian Space Research Organization. He complimented various ISRO's missions like the development of PSLV, GSLV, Chandrayan - 1 mission, Mars Mission and the Chandrayan-II mission, showcasing India's ability in space technology. He further added that it is because of ISRO's scientific achievements that Indian scientists have their name among the masses today in India. He spoke about the IIST/DRDO projects and the need for developing futuristic technology by the graduating students. He emphasized the need for miniaturization of satellites, solving space debris problems, and making small satellites with payloads to develop communication technology, especially between space and underwater submarines. Finally, he congratulated all graduating students and hoped they would make India proud, which would be the ultimate success for IIST. The Hon. Chancellor then declared the closing of the 9<sup>th</sup> convocation, and the convocation ended with the National Anthem.

## Felicitations to Dr. V K Dadhwal

IIST and ISRS, Thiruvananthapuram Chapter and IEEE Geoscience and Remote Sensing Society, Kerala Chapter jointly organised an online techno-felicitations to *Dr. V. K. Dadhwal*, Director, IIST on July 22, 2021 to bid adieu to him and also to honour his committed service to IIST and ISRO. The technical session was presided over by *Dr. B. N. Suresh*, Hon. Chancellor, IIST. *Dr. Shailesh Nayak*, Director, NIAS and Former Secretary, MoES and *Dr. R. R. Naval Gund*, Former Director, SAC & NRSC, were the guests of the day. The technical session was followed by felicitations by friends and colleagues of *Dr. V. K. Dadhwal* to reminisce about his illustrious journey in IIST and ISRO.



Dr. V. K. Dadhwal



## Dr. A P J Abdul Kalam Lecture and IIST Foundation Day



The 7<sup>th</sup> Dr. A. P. J. Abdul Kalam lecture was delivered online by *Shri. A. S. Kirankumar*, former Chairman ISRO. He started his speech with an episode of *Dr. Abdul Kalam*. *Dr. Kalam* was a young boy of 7 years when one stranger came to his house and gave him a packet to be given to his elder brother, who was a cooperator at that time. On his return home, *Dr. Kalam's* brother found the gift - a silver plate - he got angry and slapped young *Kalam*. Brother has instructed him not to accept any such gift from anyone as he is a cooperator to serve the people and not to accept any gift. This incident had a long impact on young *Kalam's* mind, and even when he became President of India, *Dr. Kalam* led a very simple life. *Shri. Kiran Kumar* narrated another episode about his first solid propellant rocket fitted onto a defence aircraft. When it took off, there was a huge blasting sound, and *Dr. Kalam* and his colleague were scared in the beginning. When they saw the aircraft safely return with the pilot, they got excited to see the success of the solid propellant. *Shri. Kiran Kumar* spoke about *Dr. Kalam's* spirituality and how he ignited young minds. He remembered meeting *Dr. Kalam's* elder brother and family in his native place, Rameswaram. After the sad demise of *Dr. Kalam* people from all walks of life from different parts of the country were mourning the death, which was indeed a tribute to the great soul.

*Shri. Kiran Kumar* congratulated IIST for completing 15 successful years and told that he is looking forward to celebrating its silver jubilee. He appreciated all involved in developing IIST, especially the efforts by founding Director and present Chancellor *Dr. B. N. Suresh*. He cautioned

that IIST should not be complacent and has to achieve much greater heights in the future. *Shri. Kiran Kumar* remembered the evolution of ISRO from the humble beginning in the 60s and the efforts put up by *Dr. Vikram Sarabhai* in the early years against all odds. He spoke about the starting of INSAT series for communications in 90's remote sensing satellites via INDO-USSR collaboration and later development of indigenous remote sensing satellites for high spatial and temporal resolution from 1995 to 2000. Development of a handheld device helped fishermen to identify the location of availability of fish and also to understand the international borders. This helped *Dr. Sarabhai* to convince fishermen in those days at Thumba to vacate their premises to set up TERLS. *Shri. Kiran Kumar* spoke about ISRO's help in shaping India's progress and the enormous potential involved in the space economy. He spoke about how India developed space technology with a meagre budget, and one such example is the conduction of the Mars mission using PSLV. He also explained the need for private enterprises to be involved in the Indian space program. He spoke about launching satellites on demand and re-energizing orbiting satellites in space and the space economy evolving around providing communication and remote sensing satellites, space adventure (reaching zero gravity and coming back), space tourism etc. *Shri. Kiran Kumar* explained the need for India to increase its share of 2% space economy to much more. This can be achieved in future if IIST can take up areas like launch vehicle technology, scientific exploration, quantum technology etc. He stressed the need for academia and industry to work in tandem to achieve the target in the space economy. He hoped that IIST could take the lead by heading in areas like propulsion, quantum technologies, power from space etc. He ended his speech by asking IIST to retrospect and fix midterm and long-term goals to improve not only IIST's goals but also to involve deeply in providing innovations to futuristic space technology. He thanked the Chancellor and the Director for giving the opportunity and wished IIST great success on its 15<sup>th</sup> foundation day.

# Advances in Aeronautics and Astronautics in India

## Special lecture by Dr. B N Suresh, Honourable Chancellor, IIST

Dr. B. N. Suresh, Hon. Chancellor, IIST delivered a talk on “*Advances in Aeronautics and Astronautics in India since independence*” on 6<sup>th</sup> October 2021. Shri. S. Somanath, Director, IIST, introduced the topic and explained the need for faculty and students to understand the developments and what in future IIST can contribute. Dr. Suresh started his speech with what it was in the late 60s when he joined ISRO, and the stupendous developments during the last five decades. He started the lecture by explaining the difficulties involved in developing light combat aircraft in India. The reasons are extreme weather conditions, the need for high-quality sensors, radar facilities etc. Dr. Suresh remarked that such indigenous technology developed in India for Indian Air Force is remarkable, and HAL got orders for 83 light combat aircraft made in India. He talked about the design of Light Combat Aircraft for the Navy (Navy Mk1) and how challenging it was to design such an aircraft as it had to land and take off on a small naval airstrip on a ship with a very small length. He explained the process of Ski-Jump take-off and arrested landing on a navy ship by light combat aircraft and the difficulties involved. He said that the twin-engine deck-based fighter deployed on a naval ship is under development indigenously. This aircraft will have many additional features compared to Navy MK1 aircraft, like optimised take-off and arrested recovery, capable of fitting with indigenous weapons carrier, advanced sensors and avionics suite integration, air-to-air anti-ship roles, etc. He added that this high technology indigenous combat aircraft will be ready to be inducted into the Indian Navy by 2031. He then spoke about another air combat aircraft LCA Mk2 called a medium weight fighter combat aircraft capable of high payload or weapons carrying capability, net-centric warfare capabilities etc. In this type of aircraft, the pilot has very less struggle and can have more comfort.

He explained about advanced medium combat aircraft capable of high performance with radar signals absorption and reflections, communication networks, carriages for weapon transportation, pilotless design etc. He covered topics like designs in missile technologies - small ranges, medium ranges, intercontinental ballistic missiles, submarine missiles etc. He also talked about Akash, Prithvi, and Agni-1 missiles, capabilities of BarahMos supersonic missiles, air-to-air and air-to-space missile technologies and the missile defence technologies like ballistic missile technology, anti-satellite missiles etc. Recent developments in aerospace industries like design, mechanical, avionics and electronics and India's capabilities for the indigenous design of aircraft were also explained. He elaborated on how ISRO rose from simple sounding rockets to present day GSLV Mark III via missions like ASLV in 1988, where Dr. Kalam was the project Director. ISRO scientists learnt to fix faults and overcome failures from these launch vehicle technologies. He explained satellite launches and their important contributions in developing infrastructure for India in communications like TV channels, telemedicine, tele-education and broadcasting. Indian Navigation Constellation satellites cover entire India for various applications, including guiding trekkers and stranded fishermen. The need for developing Small Satellite Launch Vehicles, space transportation, India's upcoming human space flight programme Gaganayaan and space science programmes were also covered in his speech. He concluded his speech by emphasising the importance of aerospace education in India, the importance of IIST in aerodynamics and avionics research, and the need for close associations with ISRO Centres and other aerospace research institutes worldwide. He summarised the aerospace technological developments, their use in developing India, and the need for integration between industry and academia.



## Sadbhavana Diwas

'Sadbhavana Diwas', was observed in IIST on the birth anniversary of former Prime Minister Late Shri Rajiv Gandhi on 20<sup>th</sup> August 2021, at 11 AM, by following the Covid 19 protocol. Sadbhavana Diwas is observed to promote National Integration and Communal Harmony among people of different religions, languages and regions. *Prof. A. Chandrasekar*, Dean (Academic & Continuing Education), administrated the 'Sadbhavana Diwas Pledge' to the staff assembled. Students and Faculty have taken the pledge in their respective Departments.



## Samvidhan Diwas

As part of observance of 'Samvidhan Diwas (Constitution Day)' on 26<sup>th</sup> November 2021, *Prof. Kuruville Joseph*, Registrar, IIST led reading the preamble in the Council Hall, IIST. HoDs, Deans and Administrative staff attended the programme in the Council Hall, and the rest of the officials and staff read the Preamble from their



## Vigilance Awareness Week

Every year, Vigilance Awareness Week (VAW) is observed during the week in which the birthday of *Shri. Sardar Vallabhbhai Patel* (31<sup>st</sup> October) falls. The spirit behind the observance of VAW is to sensitize the public against the menace of corruption. IIST observed VAW during the period October 26 to November 01, 2021 with the theme "Independent India @ 75: Self-Reliance with Integrity". As advised by the CVC, the VAW in IIST started with the taking of "Integrity Pledge" on October 26, 2021 at 1100 hours by all personnel. Due to COVID-19 pandemic the pledge was taken in a hybrid mode. As part of VAW activity, a banner was launched by Registrar, IIST and a poster was published. Two posters prepared by CVC on "Complaints under PIDPI (Public Interest Disclosure and Protection of Informers)" were also displayed in the campus.



## National Conference on Recent Trends in Materials Science and Technology (NCMST 2021)

Department of Chemistry organised 9<sup>th</sup> edition of the National Conference on Recent Trends in Materials Science and Technology (NCMST-2021) during December 29-31, 2021 to commemorate the "Azadi ka Amrit Mahotsav". The online conference was inaugurated by *Shri. S. Somanath*, Director, IIST / VSSC. *Prof. Kuruville Joseph* and *Prof. Raju K. George* offered felicitations. Director, IIST, released the conference proceedings. Technical sessions attended by over 300 participants from across the country, 17 distinguished scientists shared their experiences on energy materials, polymers, blends and composites, ceramics, metals and alloys, nanomaterials, smart and functional materials etc and sixty posters were presented by young researchers.

## आईआईएसटी में जुलाई से दिसंबर 2021 तक राजभाषा नीति के कार्यान्वयन संबंधी प्रमुख कार्यकलाप

### 1. हिंदी कार्यशालाओं का आयोजन

- i) आईआईएसटी में राजभाषा कार्यान्वयन की गतिविधियों के भाग के रूप में, संस्थान के संकाय सदस्यों के लिए सितंबर 30, 2021 को एक अर्ध दिवसीय ऑनलाइन हिंदी कार्यशाला का आयोजन किया गया। सत्र का संचालन श्री. के. अनिल कुमार, मुख्य प्रबंधक (राजभाषा), स्टेट बैंक ऑफ इंडिया, पूजपुरा ने किया। उन्होंने 'राजभाषा नीति के प्रभावी कार्यान्वयन के लिए ई – टूल्स' विषय पर प्रस्तुतीकरण दिया।
- ii) सहायकों, वरिष्ठ परियोजना सहायकों, वैयक्तिक सहायकों, तथा लिपिक वर्गीय कर्मचारियों के लिए दिसंबर 29, 2021 को एक अर्ध दिवसीय हिंदी कार्यशाला का आयोजन किया गया। श्रीमती नीतु पी. टी. कनिष्ठ अनुवाद अधिकारी, एपीईपी/वीएसएससी/इसरो, आलुवा ने 'राजभाषा कार्यान्वयन – लक्ष्य प्राप्त करने के लिए व्यावहारिक उपाय' पर सत्र का संचालन किया तथा श्रीमती सिमी असफ़, सहायक निदेशक (रा.भा.), आईआईएसटी ने हिंदी की प्रशासनिक शब्दावली एवं उसका प्रयोग विषय पर अभ्यास कराया। सभी प्रतिभागियों ने इस कार्यशाला के अंत में हुए विचार – विमर्श में भी बड़े उत्साह के साथ भाग लिया।
- iii)



श्रीमती नीतु तथा श्रीमती सिमी सत्र का संचालन करते हुए

### 2. राजभाषा कार्यान्वयन समिति की बैठकें

आईआईएसटी, वलियमला में राजभाषा नीति के कार्यान्वयन में हुई प्रगति की समीक्षा करने के लिए इस अवधि के दौरान राजभाषा कार्यान्वयन समिति की दो तिमाही बैठकें 25.09.2021 एवं 27.12.2021 को ऑनलाइन रूप से आयोजित कीं। इन बैठकों में राजभाषा हिंदी में आधिकाधिक कार्य करने पर जोर दी गई और इसके लिए आवश्यक कदम उठाने के निर्णय लिए गए।

### 3. संस्थान परिसर के वृक्षों का नाम त्रिभाषी रूप में प्रदर्शन

संस्थान परिसर के बड़े वृक्षों के वानस्पतिक नाम, स्थानीय नाम, हिंदी तथा अंग्रेजी नाम प्रदर्शित करते हुए 30 नाम पट्ट लगाए गए।

### 4. संस्थान को राजभाषा अधिनियम 1976 के नियम 10 (4) के अधीन हिंदी का कार्यसाधक ज्ञान प्राप्त कार्यालय के रूप में अधिसूचित करना

संस्थान में हिंदी का कार्यसाधक ज्ञान रखने वाले कर्मचारियों की प्रतिशतता 80 के ऊपर है। अतः संस्थान को अब राजभाषा अधिनियम 1976 के नियम 10 (4) के अधीन हिंदी का कार्यसाधक ज्ञान प्राप्त कार्यालय के रूप में अधिसूचित किया गया है। हिंदी में प्रवीणता प्राप्त चार अधिकारियों को निदेशक के हस्ताक्षर से व्यक्तिगत आदेश भेजे गए हैं कि वे अपने आधिकारिक कार्यों में हिंदी का प्रयोग करें।

### 5. नगर राजभाषा कार्यान्वयन समिति द्वारा आयोजित संयुक्त राजभाषा उत्सव में भागीदारी

आईआईएसटी, वलियमला, नगर राजभाषा कार्यान्वयन समिति (कार्यालय – 2), तिरुवनंतपुरम के सदस्य कार्यालय है और इनके क्रियाकलाप में सक्रिय रूप से भाग लेता है। इसके तत्वावधान में आयोजित संयुक्त राजभाषा उत्सव 2020-21 में संस्थान के कर्मचारियों ने ऑनलाइन रूप से भाग लिया। श्रीमती मिनी कुमारी आर. जी, वरिष्ठ परियोजना सहायक ने 'अनुवाद' प्रतियोगिता में प्रथम पुरस्कार तथा 'तस्वीर क्या बोलती है' प्रतियोगिता में श्रीमती बिंदिया के. आर, उप कुलसचिव ग्रेड – I, प्रशासन ने प्रोत्साहन पुरस्कार जीते। वर्ष 2021-22 की पहली बैठक ऑनलाइन माध्यम से हुई जिसमें डॉ. वाई. वी. एन. कृष्ण मूर्ति, कुलसचिव, आईआईएसटी तथा सहायक निदेशक (रा. भा.) ने भाग लिए और कुलसचिव महोदय ने आईआईएसटी तथा राजभाषा नीति के कार्यान्वयन संबंधी प्रमुख कार्यकलापों के बारे में पवर पॉइंट प्रस्तुती दी।



## 6. हिंदी पखवाड़ा – 2021

संस्थान में इस वर्ष सितंबर 08 से 21, 2021 तक हिंदी पखवाड़ा मनाया गया। सितंबर 14, 2021 हिंदी दिवस के उपलक्ष्य में कर्मचारियों द्वारा राजभाषा प्रतिज्ञा ली गई और उस दिन हिंदी में प्रकाशित पुस्तकों, तकनीकी शब्दावलियों और पत्रिकाओं की प्रदर्शनी भी आयोजित की गई। प्रतिदिन हिंदी भाषा के संबंध में प्रमुख हस्तियों की सूक्तियों में से एक वेब मेल से प्रदर्शित की गई। हिंदी पखवाड़ा समारोह – 2021 के उपलक्ष्य में संस्थान के छात्रों के लिए सितंबर 08 व 09 को तथा कर्मचारियों के लिए सितंबर 08, 09 व 13, 2021 को विविध हिंदी प्रतियोगिताओं का आयोजन किया गया। राजभाषा हिंदी के प्रचार प्रसार के लिए हिंदी गांधी और गुलामी नामक हिंदी वृत्त चित्र माइक्रोसॉफ्ट टीम्स में दो भागों में प्रदर्शित किया गया।



कुलसचिव कर्मचारियों को राजभाषा प्रतिज्ञा दिलाते हुए



पुस्तक प्रदर्शनी

## 7. राष्ट्रीय एकता दिवस

संस्थान में राष्ट्रीय एकता दिवस (अक्टूबर 31, 2021) के कार्यक्रम को आजादी का अमृत महोत्सव की गतिविधियों के साथ जोड़ने के लिए आई एस टी के छात्रों और कर्मचारियों (नियमित एवं संविदागत) के लिए ऑनलाइन माध्यम से विविध प्रतियोगिताएं आयोजित की गईं। विजेताओं को पुस्तकों के रूप में पुरस्कार वितरित किए गए।

## 8. हिंदी भाषा प्रशिक्षण

संस्थान में हिंदी शिक्षण योजना, राजभाषा विभाग, गृह मंत्रालय के अधीन जुलाई – नवंबर 2022 सत्र के लिए नवंबर 15 व 17 को हिंदी प्रवीण एवं प्रबोध परीक्षाएं आयोजित कीं। जुलाई – नवंबर 2021 में हुई प्रवीण परीक्षा में एक परीक्षार्थी और प्रबोध में तीन परीक्षार्थी उत्तीर्ण हुए हैं।

## Faculty Laurels



### Patents Awarded

Patent application titled "Novel Bio-Sensor for Detection of Creatinine" filed by *Prof. Kuruvilla Joseph*, Outstanding Professor and Dean (SA, SW & Outreach) and *Dr. Meegle S. Mathew*, former Ph. D scholar, IIST has been granted. Patent No. 372438



**Dr. Chinmoy Saha**, Associate Professor, Department of Avionics has been bestowed with the National Award "AICTE Visvesvaraya Best Teacher Award 2021" on 5<sup>th</sup> September 2021 at AICTE Headquarters, New Delhi. The award carries a cash prize of Rs 25,000 along with a medal and certificate of excellence.



*Dr. Chinmoy Saha receiving the National Award "AICTE Visvesvaraya Best Teacher Award 2021" from Honorable Education Minister Shri Dharmendra Pradhan, Dr. Ranjan Singh (honorable education minister for State) in presence of Prof. Anil Sahasrabudhe, Chairman of AICTE on September 05, 2021 at AICTE Headquarters, New Delhi.*

**Dr. Chinmoy Saha** has been conferred with the "IETE-Prof. SN Mitra Memorial Award-2021" in recognition of his outstanding contributions to research, innovation, and leadership roles in radio science and applied electromagnetics during the last decade. The award carries cash prize along with a medal, citation and certificate of excellence. *Dr. Saha* received this award during 64<sup>th</sup> Annual General Meeting of IETE held on September 25, 2021.

**Dr. Jayanthi:** An article on RNA of CoVid 19 virus was published by *Dr. Jayanthi*, Assoc. Professor, Dept. of Physics and a group of Scientists in the prestigious journal JACS Communication. Details of the article is given below:

"3D Heteronuclear Magnetization Transfers for the Establishment of Secondary Structures in SARS-CoV-2-Derived RNAs" J. Am. Chem. Soc. 2021, Vol. 143, pp. 4942-4948.

<https://doi.org/10.1021/jacs.1c01914>

### Abstract:

Multidimensional NOESY experiments targeting correlations between exchangeable imino and amino protons provide valuable information about base pairing in nucleic acids. It has been recently shown that the sensitivity of homonuclear correlations involving RNA's labile imino protons can be significantly enhanced, by exploiting the repolarization brought about by solvent exchanges. Homonuclear correlations, however, are of limited spectral resolution, and usually incapable of tackling relatively large homopolymers with repeating structures like RNAs. This study presents a heteronuclear-resolved



version of those NOESY experiments, in which magnetization transfers between the aqueous solvent and the nucleic acid protons are controlled by selecting specific chemical shift combinations of a coupled  $^1\text{H}$ - $^{15}\text{N}$  spin pair. This selective control effectively leads to a pseudo-3D version of HSQC-NOESY, but with cross-peaks enhanced by  $\sim 2\text{--}5\times$  as compared with conventional 2D NOESY counterparts. The enhanced signal sensitivity as well as access to both  $^{15}\text{N}$ - $^1\text{H}$  and  $^1\text{H}$ - $^1\text{H}$  NOESY dimensions can greatly facilitate RNA assignments and secondary structure determinations, as demonstrated here with the analysis of genome fragments derived from the SARS-CoV-2 virus.

## Photo Exhibition @ IIST

IIST has organised an exhibition of selected 75 images captured from various ISRO missions, showcasing the significant achievements of ISRO's interplanetary missions, on October 22, 2021. The exhibition was arranged as part of "Azadi Ka Amrit Mahotsav". Exhibition was inaugurated by *Dr Y.V.N. Krishna Murthy*, Registrar, IIST. *Prof. Kuruvilla Josep*, Chairman, Organising Committee also addressed the gathering.

## Invited Lectures

**Dr. Shaijumon C S**

- "Economic and Business Climate of Kerala", Online Discussion with US Consul General Judith Ravin on July 13, 2021

**Dr. Babitha Justin**

- 'The Singing Jewish Women of Kerala,' Journal of Modern Jewish Literature (Taylor and Francis). 2021
- Invited Poet for Kritya International poetry Festival, 13<sup>th</sup> July.

## Students Corner

Team Exploding Stars from the Indian Institute of Space Science and Technology (IIST) (Shantanu Shakya, Soumyadip Bhunia, Moksh Bhateja and Jyoti Bhramar Manjul) got the first prize in the college division for designing a space habitat on Mars. Their habitat was 'located' in the the Martian valley Reull Vallis.

## Nirmaan

The social outreach club – Nirmaan – conducted programmes for the 8<sup>th</sup> and 9<sup>th</sup> class students of Kumari Aruvial Perumai, NGO, Kanyakumari. The sessions included explaining the science behind everyday activities, astronomy, optics, rocket science, value education and career guidance. The teachers claimed that such classes was found to improve the student's performance in learning, boost confidence and helped to build their vision for future.

## Alumni News

### Felicitation to Dr. V.K. Dadhwal, Director, IIST

IIST Alumni Association (IISTAA) organized a Felicitation session for *Dr. V. K. Dadhwal*, Director, IIST on 17<sup>th</sup> July 2021. This session gave an opportunity to the alumni to express their gratitude for his enormous support and motivation. The felicitation was followed by an open interaction with *Dr. V. K. Dadhwal*, *Dr. B. N. Suresh*, Chancellor, IIST, and *Dr. Y.V.N. Krishna Murthy*, Registrar, IIST.

## Laptop Funds

IISTAA took an initiative to help needful IIST students in purchasing laptops. On 7<sup>th</sup> August, IISTAA launched the fund-raising campaign to provide Laptops for 8 first year pass outs who could not manage to buy laptop to attend online classes.

## IISTAA Office Bearers for 2021-2023

As the 2-year term of the inaugural body was coming to an end in September, 2021, an election process was started to elect the new office bearers for 2021-2023 term. Chapter level elections took place in June, 2021 followed by national level elections in Aug, 2021. A team was formed to look after various functions.

An investiture ceremony was conducted to announce the new office bearers for the IISTAA for 2021-2023. The programme started with the Welcome address by the President of the IISTAA followed by the announcement of election results. After the conclusion of the investiture ceremony, *Dr. Y. V. N. Krishna Murthy*, Registrar, IIST gave a special address highlighting the role of the alumni as the brand ambassadors of the institute. This was followed by the address by the newly elected President of IISTAA, *Ms. Surbhi Baghotia*. She acknowledged the contribution of the previous term and congratulated the members elected for the new term. *Prof. Kuruwilla Joseph*, Dean, Student Affairs, IIST addressed the gathering and congratulating the new team of office bearers. *Dr. Shaijumon*, Faculty Coordinator for the Alumni also shared his experience with the previous term and extended his best wishes to the members of the new term.

## Alumni Day & 15th IIST Foundation Day

Keynote Talk (online) on “Guidance and Control for a Rewarding Professional Career” Speaker: *Prof. V. Radhakrishnan*, Former Professor IIT Madras & IIST Trivandrum.

**Alumni Talks :** Moderated Webinar on “Challenges in Leadership”

Three alumni from the first batch of IIST were invited as panellists for the Alumni Talks. The professional paths of all the panellists were different. The webinar gave an insight to the participants about the challenges that all of them faced on the way.

**Ankesh Mishra Memorial Quiz:** Second Ankesh Mishra Memorial Quiz was conducted by Mr Abhishek Panchal as Quiz Master. Twenty one teams comprising of IIST students and Alumni participated in the prelims online. Six Teams qualified for the Finale which was held in the afternoon of the same day. After 3 rounds of competition Rishin Aggarwal and Aman Naveen were winners with Sneha Gem Mathew and Bhavana Dinesh as 1<sup>st</sup> runner ups. Prabodh Katti and Siddharth Srivastav & Shishir Chandra and Siddharth Jha & Siddhartha K Jha shared a close 3<sup>rd</sup> place. The finale was live streamed on facebook. Parents of Shri. Ankesh Mishra were also present for both the rounds to encourage the participants and felicitate the winners.

**IIST's Impact Contest: Concluding Session:** Webinar on “75<sup>th</sup> Years of Free India: IIST's Role in Making India a Space Powerhouse”. In the context of completion of 75 years of independent India and 15 years of IIST, the IISTAA invited alumni and students of IIST to share their perspective and experience regarding IIST's impact over the past 15 years and their vision of IIST in building the future of Indian Space ecosystem. The top four entries, judged by a panel of jury, got an opportunity to present their submission in presence of Shri. S Somanath, Director and Dr Y. V. N. Krishna Murthy, Registrar. Based on the presentation, two teams were awarded the first and second prize and the other two received consolation prizes.

## Recruitment & Expansion of Chapter Executive Bodies

For each chapter Secretary, Treasurer and Executive members have been appointed separately. Chapter Secretaries in their capacity will be taking initiatives, organizing sessions etc. also bring forward new ideas to the National Body.

## Induction day' on 4th December 2021, Alumni Interaction with new students

IISTAA interaction with new students was conducted online on 4<sup>th</sup> December 2021 titled as “Meet the Alumni”.