



Karnataka Science and Technology Academy

Department of Science and
Technology
Government of Karnataka

Annual Report 2023 -24

Karnataka Science and Technology

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PROGRAMS CONDUCTED DURING FY 2023 - 2024

1. *Vijnana Loka* publications

'*Vijnana Loka*', a bimonthly science magazine is being regularly published in Kannada since August 2007. During FY 2023-24, six issues of the magazines were published. 2000 copies of each issue were distributed to subscribers comprising of pre-university and science degree colleges, science centres, libraries and other organizations across the state. All the issues of *Vijnana Loka* magazine were made available on the KSTA website: www.kstacademy.in



2. *STEM Fair*

KSTA organized a science programme titled "STEM Fair" (Science, Technology, Engineering & Mathematics) from May 16 to 18, 2023. More than 350 high school and pre-university students participated in the programme. As a part of the program, Mobile Planetarium Shows, Space on Wheel, Science Films and 3D Scitech Movies Shows, as well as science model exhibition competitions were organized. The best models were awarded with cash prizes and certificate. The event was inaugurated by Dr. Bikram Pradhan, Scientist, ISTRAC, a subsidiary organisation of ISRO. Shri H. L. Srinivas, URSC, ISRO was

the guest of honour. Dr. A M Ramesh, CEO, KSTA presided over the inaugural function.



3. Workshop On “Cyber Security & Its Importance in Educational Institutions”

KSTA, in association with Karnataka State Higher Education Council, organised a two-day workshop on “Cyber Security and Its Importance in Educational Institutions” on June 15 & 16, 2023. A total of 96 participants from various Universities/Colleges/Educational Institutions across the State participated in this workshop. The workshop had expert talks related to Cyber Security & Supply Chain Risk Management, Cyber Intelligence, Cyber Terrorism and Cyber Forensics, Cyber Security for Mobile devices, Online Research and publications, Cyber Security for Universities and Academic Institutions, Cyber



Security in Drones, Mobility and Aerospace, Career opportunities in Cyber Security.

The workshop was inaugurated by Col. Prof. Y.S. Siddegowda, Hon'ble Vice Chairman, Karnataka State Higher Education Council, while Dr. Rajeev Chetwani, Director, Directorate of Information Systems Program Office, ISRO, Bengaluru graced the occasion as the Chief Guest. Dr. A. M. Ramesh, CEO, KSTA presided over the function. Eminent scientists/technocrats delivered talks related to cyber security in the technical sessions. At the valedictory function, Sri Sreenath Ratnakumar, Scientist, ISTRAC, ISRO graced the occasion as the chief guest.

4. Urban Management and Water Conservation Workshop

KSTA actively participated in the organisation of a state-level conference titled "Urban Management and Water Conservation" on July 08, 2024 to commemorate the Platinum Jubilee of Raman Research Institute (RRI) and the Silver Jubilee of Environment Association Bangalore (EAB) at RRI Campus. As a part of the program, KSTA had organised state-level essay competition on the theme "Green Cities for Sustainable Future" in Kannada and English as well as quiz competition for undergraduate and postgraduate science students. The conference was attended by around 150 participants comprising of research students, faculty and researchers from various educational institutions and universities. The conference was inaugurated by Dr. Prakash Chauhan, Director, National Remote Sensing Centre, ISRO, Hyderabad. Dr. Tarun Souradeep, Director, Raman Research Institute was the guest of honour. Dr. R. G. Nadadur, President EAB, Secretary Sri Bhaskar Murthy and Shri V. S. Naresh, Administrative Officer, RRI were also present on the occasion.



5. Intellectual Property Rights and Entrepreneurship Development

KSTA, in collaboration with Karnataka State Council for Science and Technology (KSCST), organized a five-day faculty development programme on 'Intellectual Property Rights and Entrepreneurship Development' from 11 to 15 July, 2023. The program was restricted to around 40 participants. The program was inaugurated by Dr. U.T. Vijay, Executive Secretary, KSCST, while Dr. A M Ramesh, CEO, KSTA presided over the function.



6. Digital Content Generation

Digital teaching & learning contents are being developed for the high school students in Physics, Chemistry, Mathematics and Biology as per the Karnataka Secondary Education Examination Board (KSEEB) syllabus and are being distributed in the form of DVD to the selected Government High Schools across the State. DVDs comprising of 70 lecture/experiments were distributed to 400 Government Schools in backward areas of Karnataka.



7. Science Talent Search Program for Pre-University Students

KSTA, in association with KSTePS, is conducting Science Talent Search Program for Pre-University Students. In this program, 10 PU students from each district, totalling to 320 students from the State were selected based on merit. A compendium of 184 pages comprising of selected talks delivered by the resource experts on various topics in field of Physics, Chemistry, Mathematics, Biology, Engineering and Agriculture was prepared and about 400 copies of the same were distributed to all the selected students under talent search program.



8. Biotechnology Laboratory Manual

KSTA organized a Skill Vigyan Program in Life sciences/ Biotechnology, a Faculty Training Program, sponsored by the Department of Biotechnology (DBT), Ministry of Science & Technology, Govt. of India through Karnataka Innovation and Technology Society (KITS), a unit of Dept. of Electronics, Information Science, Biotechnology & Science and Technology, Government of Karnataka for the benefit of Pre-University Lecturers, Researchers and Faculty members from Colleges, Universities and Research Institutions from the State of Karnataka. A laboratory manual comprising various experiments conducted during the training workshop was published for the benefit of participants.



9. Audio – Video Editing Training Workshop

KSTA organized a Five-day certification program on “Audio-Video Editing” for students, research scholars, teaching faculty and general public during August 29 - September 02, 2023 at KSTA premises. The intake was restricted to 40 participants for better interaction and to enable effective practical sessions. The program was inaugurated by Dr. Noor Samad Abbalagere, Agricultural Officer, Commissionerate of Agriculture, Bengaluru/Science Writer/Film Actor/ DD Chandana News Anchor. Sri Vilas K., Young Film Director graced the occasion as the Chief Guest, while Dr. A.M. Ramesh, CEO, KSTA presided over the function.



10. Workshop on Research Methodology, Research & Publication Ethics

A Five-day workshop on “Research Methodology, Research & Publication Ethics” for research scholars and teaching faculty was organised during October 7-11, 2023 at KSTA premises.

The program was inaugurated by Prof. M.K. Honnabyraiah, Dean, College of Horticulture. Dr. Jai Asundi, Executive Director, Centre for Science and Technology Education and Policy (CSTEP), Bengaluru graced the occasion as the Chief Guests. Dr. A. M. Ramesh, CEO, KSTA presided over the function.

Dr. Anand R. Senior Scientific officer welcomed the gathering and introduced the guests and the participants and Mr. V.K. Srinivasu, Scientific Officer/Program Co-ordinator proposed the vote of thanks to the guests and the gathering.



11. Nobel Lecture Series

Webinar talks on the prize-winning research of the Nobel laureates of 2023 was organised. Eminent speakers gave an insightful talk on the scientists and their research for which the Nobel Prize was awarded. Following is the list of speakers and topics:

Date	Resource Expert	Topic
8th November 2023 Time: 3.30 PM – 4.30 PM	Dr. Ranjani Viswanatha Professor, Theoretical Sciences Unit, JNCASR, Bengaluru	Discovery and synthesis of quantum dots
10th November 2023 Time: 2.15 PM – 3.15 PM	Prof. Dr. Indrani Karunasagar Director (Projects & DST-TEC), NITTE (DU), Mangaluru	Development of effective mRNA vaccines against COVID-19
10th November 2023 Time: 3.30 PM – 4.30 PM	Prof. Dr Hema Swaminathan Professor, IIM, Bengaluru	Women's labour market outcomes
13th November 2023 Time: 3.30 PM – 4.30 PM	Dr Reji Philip Professor RRI, Bengaluru	Experimental methods that generate attosecond pulses of light for the study of electron dynamics in matter

12. National Conference on “Climate Resilience and Sustainable Development”

National Conference on “Climate Resilience and Sustainable Development” was organised during November 22-24, 2023 in association with Ministry of Earth Sciences and NABARD.

The inaugural function of the three-day National Conference on “Climate Resilience & Sustainable Development” was held on 22nd November 2023 at the Karnataka Science and Technology Academy (KSTA) office. The conference was organized with funding support from the Ministry of Earth Sciences (MOES), GOI, the National Bank for Agriculture & Rural Development (NABARD) SBI, KRSAC, Prakash Sponge Iron & Power Pvt. Ltd. from 22-24 November 2023. Dr V.K. Dadhwal, Former Director, IISST, ISRO/ Indira Gandhi Ecology Chair Professor, NIAS inaugurated the conference. Dr. K Ganesh Raj, Former General Manager, Regional Remote Sensing Center, ISRO was the Chief Guest in the function. Dr. Ramakrishna, Former Director, Zoological Survey of India was the other Chief Guest in the function. Smt. Mummi Khaund, Manager, NABARD, Bengaluru was Guest of Honor on the occasion. The inaugural function was preseeded over by Dr. A. M. Ramesh, Chief Executive Officer, KSTA.

There were 10 technical talks by eminent experts on different aspects of climate resilience and sustainable development. In addition, a Panel Discussion was organized in the conference, which was Chaired by Dr C Vasudevappa, Former VC, NIFTEM & UAHS, Shivamogga. In the Valedictory Function, Dr. L S Shashidhara, Director of NCBS, delivered the Valedictory Address; Dr. D K Prabhurai, Director of KRSAC, graced the occasion as the Chief Guest and Dr G S K Swamy, Dean, College of Horticultural Sciences, Bengaluru presided over the function.



13. Basics and Real-world Applications of UAVs and Drones

A three-day National workshop on "Basics and Real-world Applications of UAVs and Drones" was organised jointly by KSTA and Multiplex Drone Private Limited from December 06 – 08, 2023 with the funding support of Science, Engineering Research Board (SERB), DST, Govt. of India. More than 90 delegates participated in the workshop.



14. Workshop on Fresh Water Ornamental Fish Production and Commercialisation

A three-day workshop was conducted with the funding support of the National Fisheries Development Board (NFDB), Hyderabad during December 14-16, 2023.



15. Question Bank on PCMB

A question bank comprising of multiple-choice questions along with answers in Physics, Chemistry, Mathematics & Biology was brought out and distributed to 350 PU students selected under Talent Search Program and uploaded to website. More than 1250 students have downloaded from KSTA website across the state and elsewhere. The question bank is useful for pre-university students in their preparation for competitive exam like CET, NEET, JEE, etc.



16. Workshop on Statistical Data Analysis for Research Work

A Five-day workshop on Statistical Data Analysis for Research Work was organised during January 18 – 22, 2024 to impart data management and data analysis techniques for research work. Eminent statisticians from reputed institutes delivered talk in the workshop. The training was attended by 76 participants representing colleges, universities, corporate, public sector, research institution and NGOs.



17. EPicSS

A flagship initiative, "Engaging Public and Students in Science (EPicSS)," utilizes digital platforms, including a vibrant YouTube channel, to provide webinars, online talks, and digital content. The KSTA website garners over 5,000 monthly visitors, accumulating 572,000 hits. The organization's Facebook page boasts around 5,000 subscribers, creating a robust online community. Simultaneously, the KSTA YouTube channel, with 1,600 subscribers, indicates a growing audience for its educational content, hosting more than 450 expert talks, including about 45 focused on the environment and climate change awareness.



18. Digi PELICAN Online Platform

The Digi PELICAN is an online endeavour launched by KSTA. Its primary focus is to foster a profound understanding of concepts such as ecology, sustainability, eco-restoration, and climate change. With the KSTA YouTube channel as its home, this initiative offers a platform for experts in the field to share their valuable insights and knowledge with students, faculty members, and the general public. It provides a platform for domain experts to share insights and knowledge, motivating active engagement in environmental conservation. Covering a diverse range of topics, Digi-PELICAN enhances climate awareness, delving into crucial aspects of environmental management, ensuring a holistic understanding of issues such as sustainable farming systems, the blue revolution, faunal biodiversity, and contemporary challenges like plastic waste hazards and global warming. It can be viewed by following the link: <https://me-qr.com/N1flyDNk>.



19. Rural Youths for Entrepreneurship Development in Fish Farming and Fish Value Addition

A three-day workshop was conducted with the funding support of the National Fisheries Development Board (NFDB), Hyderabad and with the support of Fisheries Research and Information Center, Bengaluru during February 20-22, 2024. About 50 participants attended the workshop.

20. Celebrations of National Science Day 2024

The National Science Day (NSD) was organized on 28th February 2024 at the KSTA Office under the focal theme “Indigenous Technology for Societal Development”. One technical session and a drawing competition were organised for undergraduate and postgraduate students.

21. Innovation Prize for UG, PG and Teaching faculty & General Public

Exemplary innovations/ solutions emanating from Science & Technology or any segment of economy that have helped transform the lives of people, particularly in rural areas or have enabled enterprises and employment are being recognised every year. Four innovative projects from postgraduate students were selected for Prof. U. R. Rao Prize; Six innovative projects from UG students were selected for Dr S. K. Shivakumar Prize; and Six innovative

projects from Teaching Faculty and General Public were selected for KSTA Prize. Each award carries a cash prize of Rs 10,000 and a Certificate. The prizes were distributed during the inaugural function of National Science Day on February 28, 2024.

22. Workshop on Integrated Fish Farming Practices

Organised one day workshop on March 6, 2024 in association with Fisheries Research and Information Center (FRIC), Ankola, Karwar District with the funding support from National Fisheries Development Board (NFDB), Hyderabad to create awareness and the opportunities available to the fish farmers/unemployed youths and encourage them to take up aquaculture and fisheries related entrepreneurship activities. Around 100 participants attended the workshop.

23. FDP on Project Proposal Writing in Science

A National Level Faculty Development Programme on Project Writing in Science was organised during March 18-19, 2024 in collaboration with Surana College, Peenya Campus, Bengaluru. Twelve technical sessions were conducted by eminent scientists and subject matter experts. 41 teaching Faculties/ Research Scholars/ Students participated in this workshop.

24. National Seminar on AI Fusion

The seminar was organised in collaboration with Saint Aloysius College (Deemed to be University), Department of Computer Science, Application and Animation and Department of Electronics, Mangaluru on March 20, 2024. Two technical sessions were conducted. More than 100 students and teaching faculty participated in this workshop.

25. Vigyan Prasar Program

The following programs were conducted under Kutuhali SCoPE Kannada project, an initiative of Bhasha Program of Vigyan Prasar, Dept. of Science and Technology, Govt. of India:

- 25.1 **Publication of Monthly Kutuhali Magazine:** An online Science Magazine of 32 pages comprising of articles on science and technology was published.
- 25.2 **Workshop on Science Communication for Community Radio Stations:** A workshop for Community Radios in Karnataka was held during June

- 19-20, 2023 at KSTA Bangalore. Representatives of 21 community radios participated in the workshop.
- 25.3 **Science Theatre Festival in Mysore:** A Science Theatre Festival in association with Mysore Science Theatre Festival Trust, Mysore was organized during July 6-9, 2023 at Kirurangamandira, Mysore.
- 25.4 **Science Workshop for Library Personnel in Mysore District:** Demonstrations of simple experiments was held on 26th June 2023 at the CEO, Zilla Panchayat's Office in Mysore and it was attended by 256 rural librarians from Mysore district. Live demonstration of the experiments was conducted by the resource experts.
- 25.5 **Indian Space Program:** A Science talk on Adithya L1 was organized at Mysore on 14.9.2023. Dr. R. Seetha, former Scientist at ISRO gave a lecture in Kannada.
- 25.6 **Science Sanje Programs:** On every Second Saturday evening of the month an eminent scientist gave a public talk and interacted with general public. The talks on various topics were conducted in both English and Kannada. The programme is videographed and hosted on YouTube for wider dissemination.
- 25.7 **Workshop on Science, Communication, Popularization and Extension:** A brainstorming conference was conducted for practising science communicators and journalists in Karnataka on 18 & 19 July, 2023 at KSTA. Expert science communicators discussed effective way of communicating science in Kannada.

26. Other Programs Organised

- 26.1 **Observance of World Science Day for Peace and Development** in association with M S Ramaiah College of Arts, science and Commerce, MSRIT, Bengaluru- A special talk and the "Tree Plantation Drive" on 10 November 2023 was organised.
- 26.2 **One-day orientation workshop on "Nursery Rearing of Indian Major Carps"** was organised on 09 November 2023 in association with National Fisheries Development Corporation, Department of Fisheries, Animal Husbandry & Dairy, Govt. of India
- 26.3 **A talk on "Hereditary Diseases-Causes & Preventive Measures"** was delivered on 27th October 2023 by Dr. Akash Navilebasappa, Managing Director, Acquity Lab, Bengaluru
- 26.4 **Systematic Review, based on Database Search in Material Sciences** on November 9, 2023 was conducted in association with Surana College, Bengaluru

- 26.5 **Workshop on Writing and Publication of Scientific Research Papers in Pharmacology: A Global Perspective** was organised on October 30 2023 in association with Surana College, Bengaluru
- 26.6 **National Conference on Computational Methods in Applied Science and Engineering** was conducted on 11 & 12 December 2023 in association with Dayananda College of Engineering.
- 26.7 **Five-Day Mental Health Week Online Webinar:** Special Talks on Addictive Disorders; Technology Addiction; Stress Management; Life Skills for Adolescents; Exam Preparedness and Suicide Prevention was delivered by NIMHANS Experts during 16-21 October 2023.
- 26.8 **"Overview of Chandrayaan-3"** on 21st of October 2023 was organised at KSTA by Shri M Srikanth, Mission Director, Chandrayaan – III, URSC, ISRO, Bengaluru
- 26.9 **"Space Science"** Annual Science Camp for PUC Students was organised from 27-29 October 2023 in association with Sagar Science Forum, Sagar, Shivamogga

27. MOU and Collaborations

KSTA has been collaborating with various institutions, universities and colleges to conduct various activities and programmes of mutual interest with each other with the following objectives:

- Inculcating scientific temper across civil society through science communication
- Facilitating technology dissemination through Academia-Farm-Industry interface, with a focus on rural areas
- Fostering innovations and entrepreneurship for societal benefits
- Organising conferences & outreach programmes
- Capacity building in frontier areas of Science & Technology

During FY 2023-24, 05 MOUs were signed. Till now a total 60 MOUs have been signed with organisations/institutions

28. Institutional Membership

In total 11 institutions have obtained Institutional Membership as on March 31, 2024. Institutions who are desirous of obtaining Institutional Membership of KSTA have to submit a letter of intent and pay a membership fee of Rs. 1,00,000/- (Rupees One lakh only). This membership is valid for a tenure of 10 years.

29. Associates

Academics/Researchers/Teachers/Practitioners in any branch of Science, Technology, Engineering, Agriculture and Medicine, working or retired from Educational/Research and related organisations including Corporate, are being admitted as associates. Individuals who are desirous of becoming Associates of KSTA may do so by paying a fee of Rs. 1,000/- (Rupees One thousand only), and submitting a duly filled application form available on the KSTA website throughout the year. During FY 2023-24, 21 applicants were admitted as associates out of the total 124 applicants admitted as associates of KSTA.

30. Study Visits to KSTA

KSTA has a science park, a studio and a state-of-the-art auditorium at its premises. An opportunity is being provided to school and college students to visit KSTA and its facilities. During these visits, science films and 3D shows on science subject are being screened. Also, various out door models help students to understand scientific concepts through hands-on minds on way of learning.

- 30.1 Live streaming of Chandrayan 3 Vikram lander landing: Live streaming of Chandraya 3 soft landing on moon was organised on August 23, 2023. Around 115 pre-university students witnessed the soft landing of Vikram Lander on moon.



30.2 Visit of Sri Swamy Vivekananda Higher Primary School, Bengaluru

About 140 High School students from Sri Swamy Vivekananda Higher Primary School visited KSTA on September 06, 2023. Students were guided to understand the various concepts of science and technology using different outdoor models through hands-on, minds-on way of learning.



30.3 Visit of Sri Basaveswara School, Sompura, Tumakur District



30.4 Visit of Orchid School, Bengaluru

