

2018 – '19

# Annual Report



## **Karnataka Science and Technology Academy (KSTA)**

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# Karnataka Science and Technology Academy (KSTA)

Department of Science and Technology, Govt. of Karnataka

Karnataka Science and Technology Academy (KSTA), an autonomous organization under the Department of Science and Technology, Government of Karnataka, was established under the Chairmanship of distinguished Space Scientist and former Chairman, ISRO/Secretary, DOS, GOI Padma Vibhushan awardee Late Prof. U. R. Rao. Presently, Dr. S. K. Shivakumar, Former Director, URSC(ISAC)/ISTRAC, ISRO, GOI is the Chairman of KSTA. Dr. H. Honne Gowda, Special Director (Technical), DST, Govt. of Karnataka is the Member Secretary of KSTA. Details of major programs successfully organized by KSTA across the State during 2018 –'19 are as follows:

## 1. Publication of Bimonthly Magazine – Vijnana Loka

'Vijnana Loka', a bimonthly science magazine is being regularly published in Kannada by KSTA since 2007. During FY 2018-'19, six issues of the magazines were published in the months of May, July, September & November of the year 2018 and January & March of 2019. About 2000 copies of each issue of the magazine were printed and distributed free of cost to pre-university and science degree colleges, science centres, libraries and other organizations across the state.



Fig. 1: Vijnana Loka bimonthly magazines published during 2018-'19

## 2. Science and Technology Conference in Kannada

KSTA successfully organised Second Science and Technology Conference in Kannada on the theme “Science, Technology Innovation : Contributions of Karnataka” in association with Karnatak University, Dharwad on November 23 & 24, 2018.

This state level conference was inaugurated on November 23, 2018 by Shri S. Basavaraj Horatti, Hon’ble Speaker, Karnataka Legislative Council. Padmashree Awardee Shri A S Kiran Kumar, Former Chairman, ISRO delivered the keynote address. Shri Prahalad Joshi, Hon’ble Member of Parliament, Dharwad Constituency graced the occasion as the Chief Guest. Dr. S K Shivakumar, Chairman, KSTA and former Director, U R Rao Satellite Centre was the Guest of Honour. The inaugural function was presided over by Prof. Pramod Gayi, Vice Chancellor, Karnataka University. Dr. A. M. Ramesh, CEO, KSTA welcomed the dignitaries. Dr. K. B. Gudasi, Director, Dharwad Regional Science Centre, Dharwad gave an overview of the conference, while Prof. K. M. Hosamani, Registrar, Karnatak University proposed the vote of thanks.



Fig. 2: Inauguration of the conference

About 600 delegates from different parts of the State attended this conference. More than 100 research posters in Physical, Chemical and Life Sciences were presented in Kannada during the Conference. A panel of experts evaluated and selected 4 best posters for cash prizes (I Prize – Rs. 10,000/-, II Prize – Rs. 7,500/-, III Prize – Rs. 5,000/- and consolation prizes of Rs. 3,000/-).



Dr. H. R. Krishnamurthy, a renowned science writer and former Additional Director General, Akashvani was felicitated with 'Lifetime Achievement Award' for his outstanding contribution in the field of science popularisation and

communication. The award included a cash of Rs. 50.00 thousand and a citation.

### **3. Karnataka Science and Technology Academy Annual Conference**

Eleventh Annual Karnataka Science and Technology Academy (KSTA) Conference was successfully organized during 1 - 2 February 2019 on the focal theme titled "New Vista in Science and Technology for Common Good" in association with NMKRV Women's College, Bengaluru.

The conference was inaugurated by Dr. G. Parameshwara, Hon'ble Deputy Chief Minister, Government of Karnataka on 1<sup>st</sup> February 2019. Dr. M. S. Prakash, Trustee, RSST, Bengaluru presided over the function. Prof. B. K. Chandrashekar, Former Minister and senior educationalist graced the occasion as Chief Guest. Dr. A. M. Ramesh, CEO, KSTA gave an overview of the program and welcomed the dignitaries, while Dr. Snehalatha Nadigar, Principal, NMKRV College proposed the vote of thanks.

The valedictory function of the conference was presided over by Dr. S K Shivakumar, Chairman, KSTA and former Director, U R Rao Satellite Centre. Shri M K Dattaraj, Trustee, RRST and Chairman, Governing Council, NMKRV Women's College, gave valedictory address. Dr. H. S. Nagaraja, Founder Director, BASE and Member, KSTA graced the occasion as the Chief Guest. Dr. H. Honne Gowda, Special Director (Technical) and Member Secretary, KSTA distributed prize and certificates to the winners.



Fig. 3: Eleventh Annual Science and Technology Conference

Eight special lectures were delivered by distinguished scientists, eminent technocrats and renowned educationists on topics related to theme of the conference. Around 1000 delegates including teaching faculty of universities and colleges, degree and PG science students, science writers, officers of line departments and representatives of government autonomous organizations participated in the conference.



Fig. 4: Exhibition stalls of various organisations during the KSTA conference

More than 200 research posters in Physical and Mathematical Sciences; Chemical & Life Sciences; Interdisciplinary Sciences and Engineering Science disciplines were presented in the Conference. A panel of experts evaluated and selected 4 best posters in each discipline for cash prizes (I Prize – Rs. 10,000/- and II Prize – Rs. 7,500/- and two consolation prizes of Rs. 5,000/-).



Fig. 5 : posters presentation

#### 4. KSTA Lifetime Achievement Award

A distinguished scientist of the State who has made an outstanding contribution in the field of science and technology as well as development in the Country is being bestowed with KSTA Life Time Achievement Award.



Fig. 6: KSTA Lifetime Achievement Award Presented to Padmabushana Dr. B. V. Sreekantan

During 11<sup>th</sup> KSTA Conference Padmabushana awardee Dr. B. V. Sreekantan, Former Director, Tata Institute of Fundamental Research was conferred “KSTA Life Time Achievement Award” in the inaugural function of the 11<sup>th</sup> KSTA Annual Conference for his contributions to the field of Science and Technology. The award included a cash of Rs. 1.00 lakh, a gold medal and a citation.

#### 5. Celebration of National and International Days related to Science and Technology

In order to develop scientific temperament among students and to encourage scientific thinking and creativity as well as to understand the scientific developments and advancements, various national and international days were celebrated. Two lectures related to theme of the program and competitions for students such as essay writing (Kannada & English), model making, quiz, etc. were organised in each program. The winners of the competitions were awarded cash prizes and certificates. During FY 2018-'19 following 7 programs have been organised in KSTA office and in association with degree colleges and a total of 1000 students were benefited from this program :



S.No.	Program	Date	College Name
1	International Biodiversity Day	22.05.2019	KSTA
2	World Oceans Day	08.06.2018	KSTA
3	World Ozone Day	16.09.2018	Bharati College, Bharatinagara, Mandya
4	International Science Day for Peace & Development	13.01.2019	KSTA
5	World Wetland Day	02.02.2019	College of Fisheries, Mangaluru
6	National Science Day	28.02.2019	KSTA
7	World Women's Day	08.03.2019	Govt. First Grade College, Holenarasipura, Hassan



Fig. 7: Celebration of National Science Day



Fig. 8: Celebration of World Oceans Day



Fig. 9: Celebration of Ozone Day in association with Bharati College, Bharatinagara, Mandya.

## 6. Special Lecture Series/Workshop for PG Students

In order to widen the horizon of understanding of PG students about advanced scientific research as well as to encourage them to pursue career in R&D, special lectures were successfully organized in association with the following Universities/institutions:

Sl. No.	University	Subject	Date
1	K. S. Hegde Medical Academy, Deralakatte	Bio-chemical Science	August 24-25, 2018
2	Jain University, Bengaluru	Nanotechnology	August 30-31, 2018
3	MS Ramaiah University, Bengaluru	Engineering	September 24 – 25, 2018
4	Mangalore Institute of Technology & Engineering	Engineering	September 28 – 29, 2018
5	Mangalore University, Mangaluru	Mathematics	October 05 – 06, 2018
6	KLE College of Pharmacy	Pharmacy	October 15 – 16, 2018
7	SBRR Mahajan College, Mysore	Bio-science	October 17 – 18, 2018
8	Gulbarga University, Kalaburgi	Mathematics	October 30 – 31, 2018
9	Government Science College, Bengaluru	Chemistry	October 30 – 31, 2018

Sl. No.	University	Subject	Date
10	Acharya Institute of Graduate Studies, Bengaluru	Mathematics	November 16 – 17, 2018
11	Christ University, Bengaluru	Chemistry	November 27 – 28, 2018
12	Karnatak University, Dharwad	Microbiology	November 28 – 29, 2018
13	Government Ayurveda College, Bengaluru	Ayurveda Science	November 29 – 30, 2018
14	Tumkur University, Tumakuru	Chemistry	December 3 – 4, 2018
15	College of Fisheries, Mangaluru	Fisheries Science	January 28 – 29, 2019
16	SB Arts & KCP Science College, Vijayapura	Physics	February 21-22, 2019
17	Bapuji Engineering College, Davanagere	Bio-technology	March 06-07, 2019
18	VSK University, Ballary	Chemistry	March 15-16, 2019
19	Center for Nano and Soft Mater Science, Bengaluru	Nano science & Technology	March 25-27, 2019
20	Karnataka Science and Technology Academy	Life Science	March 29-30, 2019

Each PG Special Lecture Series was organised for 2-3 days. A quiz having multiple choice questions based on the lectures delivered was conducted at the end of the programme. Based on marks obtained in the quiz, top 3 students were selected and awarded cash prizes of Rs. 10,000/-, Rs. 6000/- and Rs. 4000/-, respectively. In total, from 20 programs, about 2800 students were benefited from this program.



Fig. 10: Special Lecture Workshop program in association with Jain University on Nanotechnology



Fig. 11: Special Lecture Workshop program in association with Ramaiah University



Fig. 12: Special Lecture Workshop program in association with SBRR Mahajan College, Mysore



Fig. 13: Special Lecture Workshop program in association with Bapuji Engineering College, Davanagere



Fig. 14: Special Lecture Series program in association with Center for Nano and Soft Matter Science, Bengaluru on Nano Science & Technology



Fig. 15: Special Lecture Workshop on Life Science at KSTA

## 7. Programs for High School Students

**Sting 2018-19:** In order to recognise and foster curiosity in children, KSTA in association with Egg Heads Pvt. Ltd., organised science model exhibition on February 24, 2019



Fig. 16: Science Model Exhibition Program

**Science Cascade:** In order to bring awareness about scientific concepts among high school students, Science Cascade competition was organised on January 20, 2019 in association with Prayoga, Bengaluru.

## 8. Certificate Courses in Science and Engineering

This program is being organised with the aim of providing an opportunity for Lecturers/research scholars to broaden the horizon of their knowledge in cutting edge technologies and frontier science. During 2018-19, about 830 participants were benefited from the following 10 programs:

Sl. No.	Program	Date	Place	Beneficiaries	No. of Participants
1	Project Management	April 25-26, 2018	KSTA	Representatives of institutions who got the grants from VGST & DST	45
2	The importance of Statistical Tools in Research Work	June 20-22, 2018	KSTA	Science Degree & Research Students	60
3	Research Methodology	July 10-12, 2018	KSTA	Science Degree & Engineering Faculty and Research Students	70
4	Science Communication	August 01-03, 2018	KSTA	Journalism Students and young reporters	75
5	GIS & Remote Sensing	August 07-09, 2018	KSTA	Science Degree & Engineering Faculty and Research Students	115
6	Science Communication	September 27-28, 2018	KSTA	Journalism Students and young reporters	80
7	Research Methodology and Data Analysis Using Statistical Tools	January 02-04, 2019	KSTA	Science Degree & Engineering Faculty and Research Students	110
8	Fermentation process and Liquid Chromatography	March 13-14, 2019	JSS Women's College, Mysore	Science Degree & Research Students	80
9	Environmental Impact Assessment	February 07-09, 2019	KSTA	Engineering Students Science Degree & Engineering Students and Research Scholars	55
10	Problem Solving in Python	March 16, 2019	KSTA	Engineering Students & working professionals	60
11	Total Station and its Applications in Civil Engineering	March 27-28, 2019	ATME College, Mysore	Engineering Students	80



Fig. 17: Project Management Course



Fig. 18: Research Methodology Course





Fig. 19: Science Communication Workshop



Fig. 20: Python Training

### 9. Science Program for Specially Abled Students

In order to provide a platform for specially abled students to showcase their talent as well as to build self-confidence in them, KSTA organised following two science programs during 2018-'19:

Sl. No.	Program	Date	Association
1	Science & Technology Exhibition	29-10-2018	JSS Polytechnic for Specially Abled, Mysore
2	Science quiz program	15-12-2018	Samarthanam Trust, Bengaluru



Fig. 21: Science Program for Specially Abled Students

## 10. State Level Scientific Model Exhibition for Engineering Students

A state level technical project exhibition was successfully conducted during March 12 -13, 2019 in association with Shri Venkateshwara College of Engineering College, Yelahanka, Bengaluru. More than 300 students from different engineering colleges across the State had submitted abstracts of their working models on the following topics:

- Automation & Robotics Applications
- Renewable Energy Sources
- Modern Trends in Manufacturing and Sustainable Engineering Materials
- Network, Security and IoT Applications
- Environmental Sustainability & Climate Change
- Basic Science and Biomedical

Among the above, 103 best models were selected to participate in the competition.

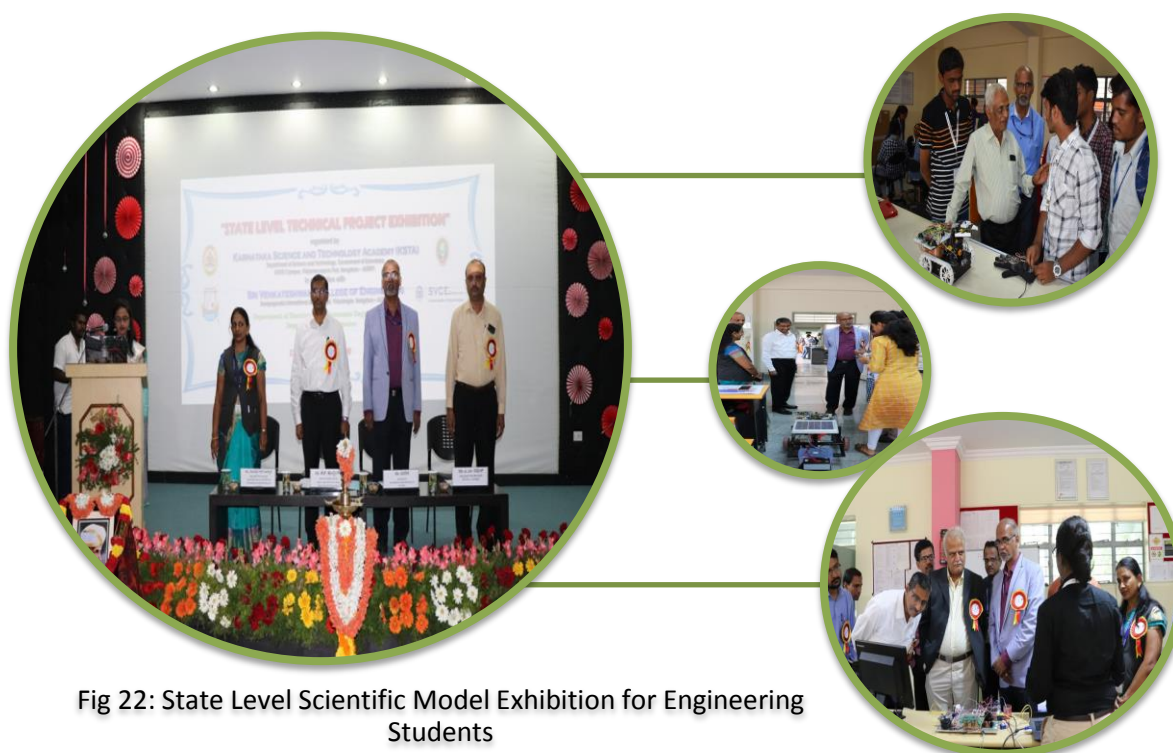


Fig 22: State Level Scientific Model Exhibition for Engineering Students

## 11. Open Lecture Series

In order to create interest among degree students to pursue higher education and research in frontier areas of S&T as well as to develop excitement about scientific advancements, eminent scientists and renowned experts were invited from reputed R&D institutes of the State to deliver lectures. During the FY 2018-'19 following five programs were organised:

Sl. No.	Program	Date	Association
1	Workshop on Computer Interphase Physics Experiments	July 9-11, 2018	R V Engineering College, Bengaluru
2	Recent Trends and Exploration in Mathematics	October 4, 2018	National Degree College, Jayanagara, Bengaluru
3	Science Camp	October 20 – 23, 2018	Sagar Science Forum, Sagar, Shimoga
4	Biodiversity: Management Issues and Conservation Strategies	December 21- 22, 2018	Gokhale Centenary College, Ankola
5	Mathematics Workshop	December 27, 2018	Poorna Prajna College, Udupi



Fig. 23: Workshop on Computer Interphase Physics Experiments



Fig. 24: Science Camp in Sagar

## 12. English-Kannada Dictionary for Pre University Students

KSTA has brought out English-Kannada dictionary with equivalent words in Kannada for scientific words in English to support students who have completed their high school education in Kannada medium and joined for pre-university education in English medium. In this dictionary, equivalent meaning for more than 6000 English words in Kannada related to Physics, Mathematics, Chemistry and Biology are given.

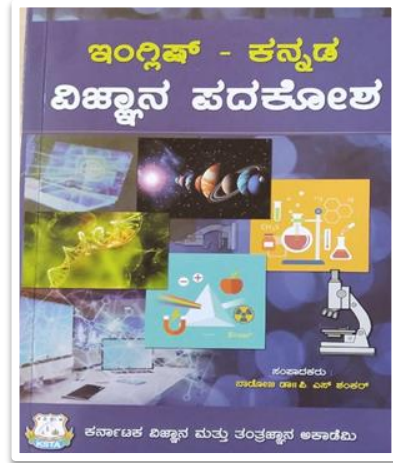


Fig. 25: Release of English-Kannada Dictionary

### 13. Mobile Science Exhibition (Science on Wheels)

Mobile Science Exhibition program was organised in association with Supraja Foundation to provide an opportunity for high school students to carry out some experiments as per the syllabus by themselves. Mobile van visited selected schools in rural areas of Sirsi and surrounding taluks.



Fig. 26: Science on Wheels

### 14. Inauguration of KSTA new building

A new building named "Prof. U R Rao Vijnanabhavana" which has been constructed in the premises of GKVK Campus, Yelahanka (near College of Horticultural Sciences College) was inaugurated on October 10, 2019 by Shri K J George, Hon'ble Minister for IT, BT & ST and Medium Industries, Government of Karnataka. Smt. Gangambike Mallikarjun, Workshipful Mayor, BBMP graced the occasion as the Chief Guest. The program was presided over by Shri S R Vishwanath, Hon'ble Member of Legislative Assembly(Yelahanka). Dr. S K Shivakumar, Chairman, KSTA, Hon'ble Members of Legislative Council Shri S V Sankanur and Shri T A Sharavana, Members of BBMP Smt. M Netra Pallavi and Smt. H Kusuma, Dr. H Honne Gowda, Special Director (Technical)/Member Secretary, KSTA, Dr. K M Indresh, Vice Chancellor, University of Horticulture Sciences, Bagalakote and Dr. A M Ramesh, CEO, KSTA were present in the inaugural function.



Fig. 27: Inauguration of KSTA building

On the day of Inaugural function following competitions were organised for science degree and engineering students:

- Science Model Exhibition
- Art work (Painting and Drawing separately)
- Science Quiz (separately for science degree and engineering students)

## **15. Best Writer Award in Science, Agriculture, Technology & Medicine**

In order to encourage publication of Kannada books in the field of agriculture, science, technology and medicine, KSTA has been providing best book award for the selected books. During 2018-'19, a total of 55 books were received in different fields from the authors for the award and all the books were evaluated by the subject experts. Based on the number of books submitted in each field, it has been decided to give one award each in science and agriculture fields, while two awards in medical fields. In the field of technology, two books got almost same marks and hence it was decided to share the prize between the authors of these two books. The selected authors will be felicitated with a cash prize of Rs. 25.00 thousand each along with a certificate during a function to be organised in June 2019.

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