



# Annual Report 2019







**Education softens the heart. If the heart is hard,  
one cannot claim to be educated.**

**SRI SATHYA SAI BABA  
Revered Founder Chancellor, SSSIHL**





## Foreword

I am delighted to present this year's Annual Report, which illuminates our Institute's pledge to progressing distinction in education and translation research coupled with character building in a modern Gurukula system. When the Sri Sathya Sai Institute of Higher learning (SSSIHL) was established more than five decades ago, our founder, Bhagawan Sri Sathya Sai Baba sought to foster the academic and spiritual wealth of its students. I am proud to state that, over the decades, SSSIHL savoured the triumph in accomplishing this objective and has scaled greater heights in both academics and self-development. It has been my great privilege to serve this sanctified institute as its Vice-Chancellor for the past five years. During this period, I witnessed a fabulous inclusive growth in all its endeavours from its already resilient locus.

I am pleased to share our academic performance and accomplishments for the academic year 2018/19. During this period, we specifically aimed at embedding excellence in teaching and research capabilities by offering world-class infrastructural facilities to our student community. As a result, we continue to entice bright, committed young minds to our academic programmes from across all the states of our country.

A strong research environment, combined with exceptional academic practices that are in place at SSSIHL, resulted in the growth of national and international collaborations. For instance, the Department of Chemistry has undertaken a series of collaborative projects in emerging areas of research with Labby Inc, USA, SKAN Research Lab Pvt. Ltd., Puducherry, Devic Earth Pvt. Ltd., Bangalore, Twastrix, Pune, Dr. Reddy's Institute of Life Sciences, Hyderabad; and the Department of Mathematics and Computer Science is involved in pursuing joint research with Proventeq India Pvt. Ltd., Pune, Thinkcube Innovations Pvt. Ltd., Bangalore, Grey Scientific Labs, Visakhapatnam, Code Tantra Tech solutions Pvt. Ltd, Hyderabad and United Care Development Services, Hyderabad in contemporary research areas of mutual interest.

We did exceptionally well in obtaining research funding to the tune of ₹3.27 crore to individual faculty members across various science departments from several Government and Non-Government agencies both from within the country and overseas.

The interdisciplinary approach and our investment on state-of-the art research facilities did help to endow our researchers to make significant contributions by publishing more than 160

research articles encompassing three fascinating thrust areas - Health, Energy and Environment - in various peer reviewed journals of high impact.

The establishment of the Central Research Instruments Facility (CRIF) at the Prasanthi Nilayam Campus of the Institute has provided the required impetus to this progress. In fact, these facilities incentivised bright, talented young faculty who pursued their post-doctoral work elsewhere in the world to join our teaching fraternity. I am equally delighted to report the establishment of the Central Research Laboratory at our Anantapur Campus, which is designed and customized to cater to the research needs of our women faculty and students.

It is reassuring to note that within a short duration, giant strides have been made on a number of translational research projects in various frontier areas of science and technology covering Physical, Biological, Chemical, Materials Science, Food Sciences and Computational and Various interdisciplinary areas. Towards this, a prototype low cost Gamma camera associated with high resolution, Optical Coherence Tomography (OCT), mobile-based point of care devices for clinical use, etc. have been designed and fabricated.

The powerful combination of a research-rich ambience and our dedication to the personal and academic development of our students has been well recognized the world over. Much of this is made possible owing to the generous assistance of our alumni. I wish to thank all our faculty and staff who have made immense contributions to the successes of SSSIHL. I am more than convinced that SSSIHL is well placed to meet with any future academic encounters.

My profound gratitude goes out to the Chancellor and the members of the Sri Sathya Sai Central Trust, without whose dedicated love, effort and support, none of this would have been possible. On behalf of the SSSIHL family, I pray to our Revered Founder Chancellor, Bhagawan Sri Sathya Sai Baba to continue to bless us with His Divine guidance so that this modern Gurukula, with its unique identity and offerings, continues to positively shape the landscape of education in our country.

I do hope that you cherish reading this report.

*Prof. K B R Varma*  
**Vice-Chancellor**



# Annual Report 2019

1 June 2018 to 31 May 2019

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# Sri Sathya Sai Values-based Integral Education

Sri Sathya Sai Institute of Higher Learning (Deemed to be University), Prasanthi Nilayam, Andhra Pradesh, India, is a visible manifestation of Bhagawan Sri Sathya Sai Baba's vision of education for human transformation.

Bhagawan Baba has designed the system of Sri Sathya Sai Values-based Integral Education in such a manner that between the time an 18-year old student joins the Institute and when she or he graduates (at the age of 21 or 23), there is a deep inner transformation that takes place. This concept is very unique at the university level.

The Institute hosts over 1300 undergraduate, postgraduate, professional and research students across four campuses:

## For women students:

- Anantapur Campus at Anantapur, Andhra Pradesh

## For men students:

- Prasanthi Nilayam Campus at Puttaparthi, Andhra Pradesh
- Brindavan Campus at Whitefield, Bangalore, Karnataka
- Muddenahalli Campus at Muddenahalli, Karnataka

## Programmes offered include:

- Undergraduate: B.A., B.Com. (Hons.), B.Sc. (Hons.), B.B.A., B.P.A.
- Postgraduate: M.A., M.Sc.
- Professional: B.Ed., M.B.A., M.Tech.
- Research: Ph.D.

## A Modern Gurukula

Sri Sathya Sai Institute of Higher Learning (SSSIHL) was founded to inculcate ethical and moral values in students. These ethics and morals form the undercurrent of every subject taught at the University. This helps students develop a wholesome and balanced personality, one where academic competence is supplemented with good character.

This holistic development of students can only be possible in an environment that encourages the development of the student's mind, body and spirit.

To facilitate this, the University has a compulsory residential policy for all students and doctoral research scholars. It is an essential ingredient for the University's Values-based Integral Education to achieve its objective of transformation. The environment is similar to the ancient Indian Gurukula system of education, in a modern context. Teachers and students live and grow together in an atmosphere of mutual trust and unity. This helps students develop a wholesome and balanced

personality, one where academic competence is supplemented with good character.

## Distinctive Features

### Admissions

- Merit-based open admissions policy for all irrespective of income, religion or region
- Free education for all students

### Residential Character

- Compulsory residential character enabling translation of lessons learnt into practical skills through experiential learning
- Spiritual ambience in an environment of discipline and love
- Teaching faculty, research scholars and students residing in the hostel
- Cultivation of the spirit of self-reliance, brotherhood and sacrifice through mentoring and personal example

### Infrastructure

- Campuses set in spacious and peaceful surroundings
- Well equipped, modern science laboratories and cutting edge Research Instruments Facility
- Libraries across campuses with over 2,00,000 volumes
- Computer and Multimedia learning centres with ultra-high speed broadband internet connectivity
- International Centre for Sports and a cricket stadium

### Academics & Research

- Over 95% examinations pass rate
- Favourable Student-Teacher Ratio
- Integrated five-year programmes combining undergraduate and postgraduate studies for a systematic and graduated learning process
- Interdisciplinary research for societal benefit
- Awareness Programmes and Moral Classes reinforcing human values

### Integral Education

- Life lessons learnt through the message of the Revered Founder Chancellor, Bhagawan Sri Sathya Sai Baba
- Application of what is learned in daily life
- Integrating human values with secular knowledge
- Inculcating the spirit of self-reliance and service to society
- Synthesis of science and spirituality for societal benefit

The concept of integral education that SSSIHL imparts is willingly pursued by all teachers, staff and students.



## The Process

The diagram on the right forms the basis of the system of Values-based Integral Education at SSSIHL.

The base is the concept of a modern Gurukula that sustains all relationships and activities at SSSIHL. It is responsible for creating and sustaining the congenial environment necessary for the teacher-student interaction to grow and develop.

Adherence to discipline and appropriate behaviour are the two important aspects that encompass all interactions. The five human values of Truth, Right Conduct, Peace, Love and Non-violence form the undercurrent of all the dimensions of integral education.

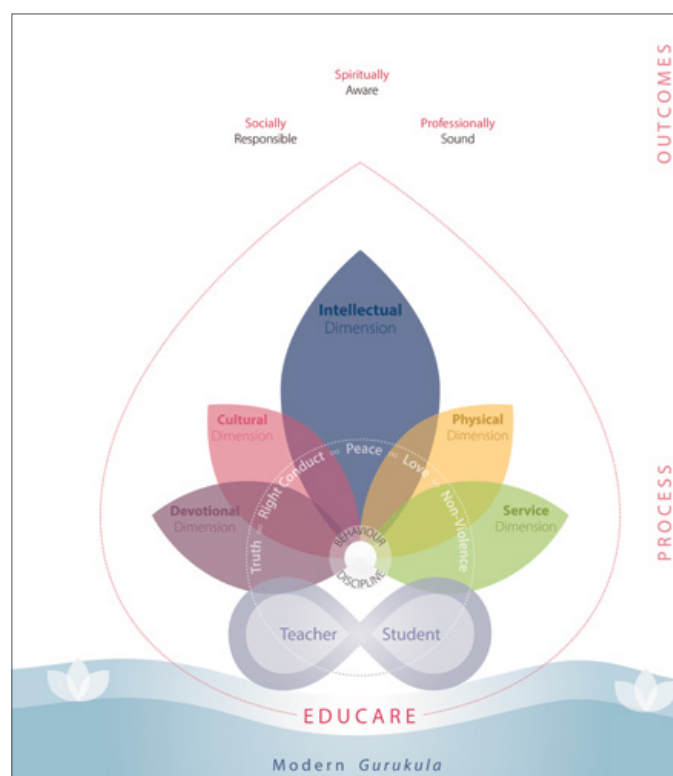
These dimensions are: Intellectual, Physical, Cultural, Devotional and Service. The key activities for each of these dimensions form the basis of most of the time that students spend at SSSIHL.

Bhagawan Baba purposefully designed the system of Integral Education so that while students spend 60% of their time on academics (intellectual capacities), they also spend 40% time on the development of other qualities. (See page 8 for further details.)

## The Daily Routine

This is a crucial component of this process. Each student's day starts at 5:00 a.m., with a couple of hours spent in prayer, exercise and other vocational pursuits (such as practice sessions for music, band, traditional Indian music and the likes).

Classes commence at 9:00 a.m. After college ends at around 4:00 p.m., students move to the Mandir/Prayer hall for participation in congregational chanting (veda), devotional singing (bhajans) and other spiritual activities. These also include talks by eminent speakers on a variety of spiritual topics. Post dinner, students usually spend time on their studies.



**Sri Sathya Sai Values-based Integral Education**

## The Outcome

The outcomes of the system of Values-based Integral Education at SSSIHL are threefold. It prepares all graduates to be:

- Spiritually aware
- Socially responsible and
- Professionally sound

It helps develop a strong character and positive qualities in students and nurtures virtues like adaptability, tolerance and sacrifice; shaping them into noble and responsible citizens.

*I have established these institutions to impart spiritual education as a main component and worldly education as a secondary one. Education should enable one to cultivate good qualities, character and devotion. The teaching of the university curricula is only the means employed for the end, namely, spiritual uplift, self-discovery and social service through love and detachment.*

**Sri Sathya Sai Baba**  
Revered Founder Chancellor, SSSIHL

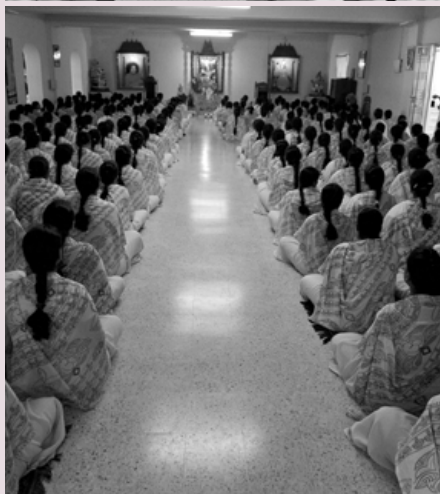
# Integral Education Activities

**All students at SSSIHL spend 60% of their time at university on intellectual activities (primarily on their studies). The rest of the 40% of their time is spent almost equally on activities related to the Integral education dimensions of Devotional, Cultural, Physical and Service, as highlighted below.**

## Devotional Dimension

- Bhajans (Sankirtan)
- Vedic chants and stotrams
- Meditation & Silent sitting
- Suprabhatam (prayer at dawn)
- Assembly (college prayer)
- Brahmarpanam (food prayer)
- Kshama Prarthana (night prayer)

The activities of the devotional dimension enable a student to connect to his/her Divine inner Self. This inner connection opens the heart and brings forth the feeling of love, compassion and empathy for fellow human beings.



## Cultural Dimension

- Celebration of festivals: Eid-al-Fitr, Independence Day, Christmas, Sri Krishna Janamashtami (cow procession), Ganesh Chaturthi, Ganesha Immersion, Christmas, Ugadi, Sri Ramanavami, etc.
- Brass Band
- Nadaswaram & Panchavadyam ensemble
- Annual Sports & Cultural Meet
- Performing Arts: Music programmes
- Drama & Dance
- Fine Arts: Rangoli, Card making, Photography, Altar making, etc.
- Public Speaking
- Debates and Elocution

From the performing arts to public speaking to the fine arts, the cultural dimension is designed to give students wide opportunities to find an avenue to their individual artistic expression.

The university makes every effort to provide the best possible resources—both material and human—so that students excel at their chosen activity. Festivals of major world religions are celebrated, reinforcing the unity among all faiths. Every student is involved in one way or another in the celebration of these festivals.



## Physical Dimension

- Sports
- Games
- Jogging
- Exercises and Yogasanas
- Annual Sports & Cultural Meet

Sports and games are a part of the daily routine of all students. From yoga classes to fitness training, from team sports to individual sports, students are encouraged to overcome their limitations and excel in these activities.

The university has excellent sports facilities.



## Service Dimension

- Self-Reliance departments:  
Electricals, Plumbing (water supply),  
Audiovisual, general store,  
dispensary,  
dietary services, hostel mess, arts &  
crafts, costumes & props, etc.
- Community living
- Social Work
- Voluntary work
- Community Service
- Prasadam Distribution

The philosophy of service at SSSIHL is based on the concept that divinity pervades all of humanity, and hence when you serve others, you are serving the Divine. Students learn to serve without expecting anything in return, other than the deep inner satisfaction of serving others.

The compulsory residential system, where students live in dormitory-styled accommodation with other students from totally different backgrounds (for a minimum of two years and up to five years or more), provides an excellent foundation for the service dimension.



## Intellectual Dimension

Apart from academics and research, the activities in this dimension include:

### Awareness Courses

These mandatory courses are designed to cultivate a broad view of the human condition in students. The course content (e.g. the Unity of Religions and Faiths, Study of the Indian Epics, etc.) helps trigger self-reflection and enquiry and sensitises students to the concerns of society, and gets them to think about practical solutions to these problems.

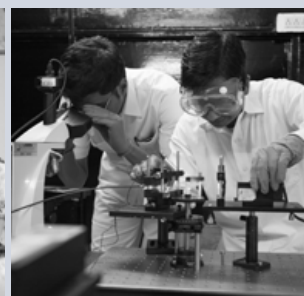
### Thursday Moral Class

At each campus, Thursday mornings begin with an hour of inspiring and ennobling talks by speakers focusing on their personal spiritual experiences, messages from sacred scriptures and other elevated and socially relevant themes. It is also used to highlight students' talents in music, dramatics, elocution, debates, quizzes, etc.

### Prayer Talks

Every morning before classes commence at the college, all students and teachers gather for the morning assembly. Prayers, veda chanting, bhajans and a few minutes of silent sitting are sometimes followed by a talk by students, faculty members or invited guests on topics related to morals and values.

In 2018/19, some of the above topics included: Yoga as a Lifestyle, My Beloved Lord, Power of the Human Mind, Living with God, Virtues, The Boundless Expanse, My Journey Within, Disappointment and Purpose, Hostel Life, not a Hostile Life, The Power of The Present Moment, Fear: An Emotion to Overcome, Theory of Karma, High Seas of Life, Temper Management, Self-Confidence, Faith in One's Self, Experience with Sai, Lessons of Life, Blind faith & Love for God, and The Ideal Dreamer.





# University Governance & Structure

Sri Sathya Sai Institute of Higher Learning (Deemed to be University) is an independent and self-governing institution. It was established by the Sri Sathya Sai Institute of Higher Learning (Public Charitable Trust), which in turn has been established by the Sri Sathya Sai Central Trust. Bhagawan Sri Sathya Sai Baba is the founder of these Trusts.

## The Trust

The Sri Sathya Sai Institute of Higher Learning (Public Charitable Trust) was founded to foster the culture of India and promote in the students and teachers an awareness and understanding of the social needs of the country; with special focus to the needs of the rural population. It is aimed to inculcate in students a world perspective - an international outlook imbuing human values along with a spiritual and secular education. Its members for 2018/19 were:

- **Justice Sri A P Misra**  
Former Judge, Supreme Court of India, Chairman of the Human Right Commission (Uttar Pradesh) and Chairman of Arbitrators by the ICC court in Paris
- **Sri T K K Bhagwat**  
Member, Sri Sathya Sai Central Trust, Former Chairman of Indian Overseas Bank and Former Advisor, International Monetary Fund
- **Sri S S Naganand**  
Member, Sri Sathya Sai Central Trust, Senior Partner, JustLaw Advocates, Senior Advocate, High Court of India and Supreme Court of India and Former President, International Commission of Jurists (Karnataka section)
- **Sri R J Rathnakar**  
Member, Sri Sathya Sai Central Trust, Active Social Worker and Alumnus, Sri Sathya Sai Institute of Higher Learning
- **Prof. S P Thyagarajan**  
Former Vice-Chancellor, University of Madras, Professor of Eminence & Dean (Research), Sri Ramachandra University and Eminent Microbiologist and Inventor

## The Principal Bodies

The administrative and academic functioning of the university is carried out by the following two principal bodies:

- The Board of Management
- The Academic Council

## The Board of Management

The Board of Management is the principal authority of the University, responsible for its general management and administration. Its external members for 2018/19 were:

- Prof. K B R Varma, Vice-Chancellor, SSSIHL (Chairman)
- Sri S S Naganand, Member, Sri Sathya Sai Central Trust, SSSIHL (Public Charitable Trust) (Nominee)
- Dr. (Ms.) Renu Swarup, Secretary, Dept. of Biotechnology, Ministry of Science & Technology, Govt. of India
- Dr. Sandip Chatterjee, Officer on Special Duty/Scientist F,

Ministry of Electronics and Information Technology, Govt. of India

- Prof. Srinivasan Chandrasekaran, Professor (Hon.), Dept. of Organic Chemistry, Indian Institute of Science
- Prof. S Siva Sankara Sai, Dean, Faculty of Sciences, SSSIHL
- Prof. (Miss) Rajeshwari C Patel, Dean, Faculty of Economics & Humanities, SSSIHL
- Prof. G Nageswara Rao, Head, Dept. of Chemistry, SSSIHL
- Prof. R Prabhakara Rao, Head, Dept. of Economics, SSSIHL
- Prof. B Sai Giridhar, Registrar, SSSIHL (Member Secretary)

In 2018/19, The Board of Management met on 1 July 2018 and 22 September 2018

## The Academic Council

The Academic Council is the principal academic body of the University. It has general control over and is responsible for the maintenance of standards of teaching, research and training, approval of syllabus, coordination of research activities, and examinations and tests within the University. Its external members for 2018/19 were:

- Prof. H P Khincha, Dept. of Electrical Engineering, Indian Institute of Science, Bangalore
- Prof. Gopal Naik, Dean, Dept. of Economics & Social Sciences, Indian Institute of Management, Bangalore
- Prof. S B Krupanidhi, Professor, Materials Research Centre, Indian Institute of Science, Bangalore
- Dr. N R Munirathnam, Director General, Centre for Materials for Electronics Technology (C-MET), Ministry of Electronics and Information Technology, Pune
- Prof. Ram Rajasekharan, Director, Central Food Technological Research Institute (CFTRI), Council of Scientific and Industrial Research (CSIR), Mysore
- Dr. V Natarajan, Director, Research & Innovation Centre, IIT Madras Research Park, Chennai

In 2018/19, The Academic Council met on 15 October 2018.

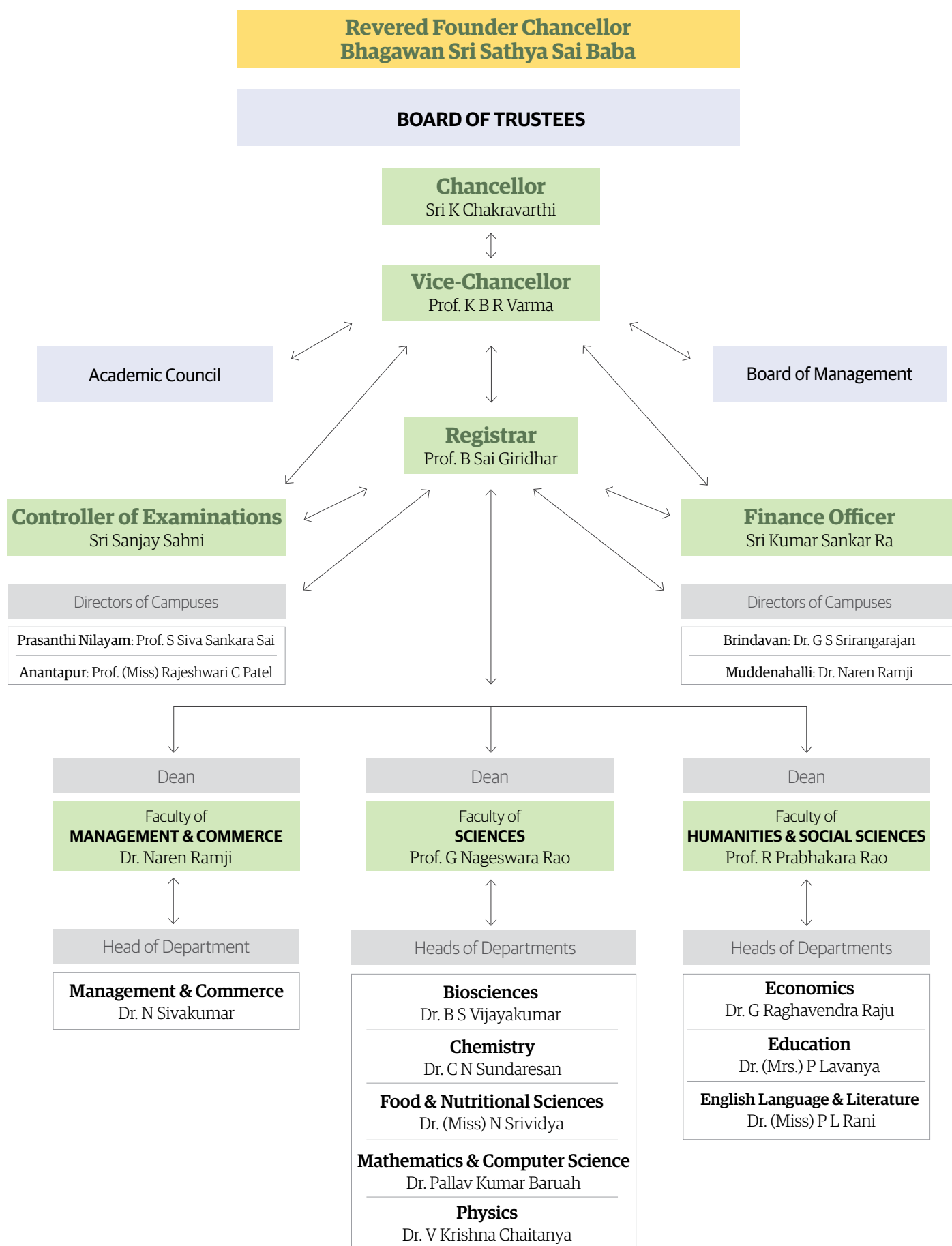
## Committees

These are set up to ensure the high academic, research and administrative standards that SSSIHL has striven to consistently maintain. They include:

**Important:** The Finance Committee, Planning and Monitoring Board, Research Advisory Board, The Boards of Studies, Internal Quality Assurance Cell (IQAC), Institutional Ethics Committee, Institutional Biosafety Committee, Research Conferment Cell, Building and Works Committee, and Campus-Hostel Management Committee

**Mandatory/Essential:** The Anti-Ragging Committee, Anti-Discrimination Cell, Committees for SC/ST/OBC/Minority, Internal Complaints Committee, Intellectual Property Rights Cell and Innovation Cell, Social Media Cell, and Student Counsellor Internal Committee for students with disabilities

Sri Sathya Sai Institute of Higher Learning (Deemed to be University) has been established by Sri Sathya Sai Institute of Higher Learning (Public Charitable Trust), which in turn has been established by Sri Sathya Sai Central Trust. Bhagawan Sri Sathya Sai Baba is the founder of these Trusts.



# Central Research Instruments Facility (CRIF)

**SSSIHL Central Research Instruments Facility (CRIF), Based at the Prasanthi Nilayam Campus, is one of the few such facilities in the country (and the first in a rural location) that houses advanced Characterization/Analytical tools to carry out Translational Research in various areas of Science and Technology such as Physical, Biological, Chemical, Materials Science, Food and also Computational and Interdisciplinary Areas.**

*A Ph.D. is a person who helps others through his research and develops the country.*

**Sri Sathya Sai Baba  
Revered Founder Chancellor, SSSIHL**

The facility, built with a funding of ₹45 crore with the kind support of Sri Sathya Sai Central Trust, hosts a range of cutting-edge instruments and laboratories as listed here. It has significantly strengthen the research facilities at SSSIHL by providing state-of-the-art infrastructural facilities under a single roof.

This has allowed faculty and postgraduate and doctoral students at the Institute to accelerate their research work in all the major research areas of the Faculty of Sciences - Health, Energy and Environment. It enables them to keep pace with the scientific developments taking place globally, and as a result, their research findings are being published in peer reviewed high impact journals. These concerted efforts to carry out research in cutting edge areas of Science and Technology helps contribute to the needs of society at large.

Full-time technical assistants with specific expertise operate and maintain the instruments and laboratories. SSSIHL CRIF facilitates the strengthening of interdisciplinary health related research collaborations between SSSIHL and Sri Sathya Sai Institute of Higher Medical Sciences (SSSIHMS). Some of these include: Regenerative Medicine & Tissue Engineering, Rapid Detection of Endemic Diseases, Diabetic Retinopathy, Development of Cost Effective Multi-Modal Microscopes, SPCE-based Point of Care Devices, etc.

## Core Facilities

The following core facilities at CRIF are shared resources offering a range of services to the research community at SSSIHL:

- Femto Fab Facility
- Electron Microscope Facility
- NMR & Mass Spectrometry Facilities
- Materials Characterization Facility
- Thermal and Optical Characterization Facilities
- Liquid Nitrogen Facility
- Central Utilities Facility
- Optical Imaging and Integration

## Laboratories

In addition, CRIF hosts the following labs:

- Wet Chemistry Laboratories
- Functional Materials Laboratory
- Water Research and Electrochemistry
- Bio-Safety Laboratories: Level 1 and Level 2
- Functional Glasses and Ceramics Laboratory
- Non-linear Optics Laboratory
- Computational Science and Plasmonics



## Collaborators

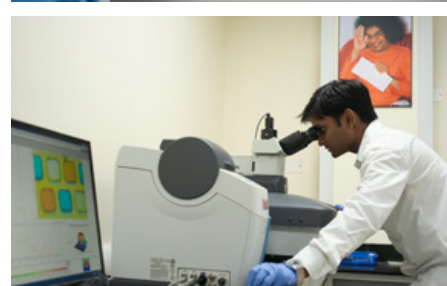
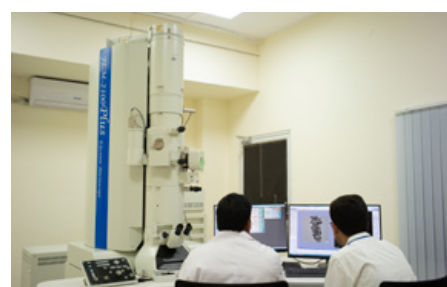
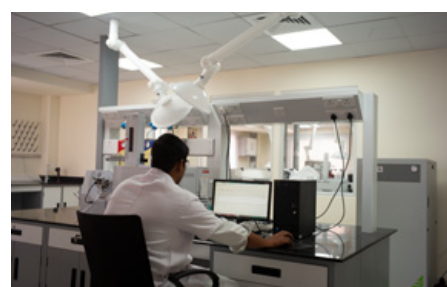
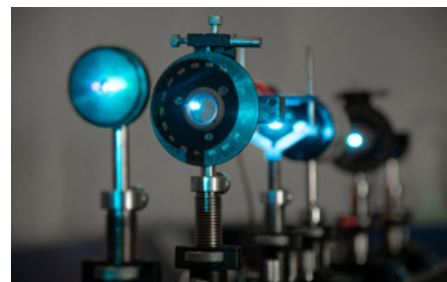
SSSIHL has successfully forged several research collaborations with leading organizations across India and abroad.

## Academia & Research

- ICAR-Indian Institute of Horticultural Research, Bangalore
- Indian Institute of Technology, Madras and Kharagpur
- FDA-Center for Biologics Evaluation and Research, USA
- Indian Institute of Science Education and Research, Mohali
- Indira Gandhi Centre for Atomic Research, Kalpakkam
- University of Maryland, USA
- The Institute of Bioinformatics and Applied Biotechnology, Bangalore
- Raman Research Institute, Bangalore
- New Jersey Institute of Technology, USA
- Tata Institute for Fundamental Research, Mumbai
- Madras Diabetes Research Foundation, Chennai
- Clemson University, USA
- Geological Survey of India, Hyderabad
- Indian Institute of Science, Bangalore
- Universidad del Norte, Colombia
- National Institute of Nutrition, Hyderabad
- The Sahlgrenska University Hospital, Sweden
- Baylor College of Medicine, USA
- CSIR-National Chemical Laboratory, Pune
- University of Wollongong, Australia
- University of Colorado, USA
- International Centre for Genetic Engineering and Biotechnology, New Delhi
- National Institute of Pharmaceutical Education & Research, Hyderabad
- Japan Advanced Institute of Science and Technology, Japan
- CSIR-Indian Institute of Chemical Technology, Hyderabad
- Institute for Photonics and Nanotechnologies, Italy
- Dr. Reddy's Institute of Life Sciences, Hyderabad
- Central Leprosy Teaching and Research Institute, Chennai
- Centre for Materials for Electronics Technology, Pune
- CSIR-Central Drug Research Institute, Lucknow
- International Center for Genetic Engineering & Biotechnology, New Delhi
- National Animal Resource Facility for Biomedical Research, Hyderabad
- CSIR-Central Electro Chemical Research Institute, Karaikudi

## Industry

- Grey Scientific Laboratories, Visakapatnam
- Agilent Technologies India Pvt. Ltd.
- Amara Raja Batteries Pvt. Ltd., Tirupati
- Twastrix, Pune
- LightMotif Automation Sensors and Systems Pvt. Ltd., Hyderabad
- Omix Research & Diagnostics Laboratories Pvt. Ltd., Bangalore
- Lab Engineers, Bangalore
- Labby Inc., USA
- Insta Power Ltd., New Delhi
- Symrise Pvt. Ltd., Chennai
- Indras Pvt. Ltd., Hyderabad
- Syngene international Ltd., Bangalore
- Mylan Laboratories, Bangalore





## SSSIHL Statistics 2018/19

**615** Total Admissions

Acceptance Rates

**24%**



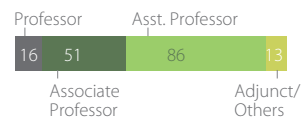
**615/2516**

*accepted eligible applicants*

Admissions

**166**

Teacher Designations



**72%**

**P h D**

*\*21 pursuing*

**55**

*Administrative Staff*

**21**

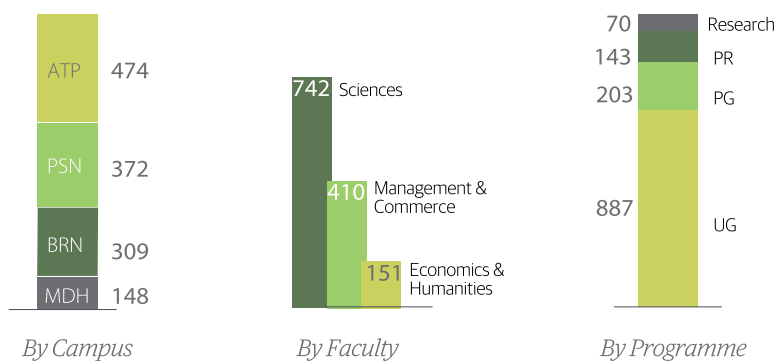
*Technical Staff*

**8**

*Library & Sports*

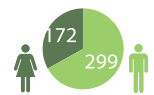
Staff Profile

**1303**



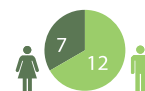
Student Profile

**471**



**19**

*Gold Medallists*



**8**

*Ph.Ds awarded*

Graduates



**2:1**Student  
Computer  
Ratio**8:1**Student  
Teacher  
Ratio**23/29***States of India*  
Student  
Diversity**70**Doctoral  
Research  
Scholars**180**Visiting Faculty &  
Guest Lecturers**166**Research  
Publications

Examinations Pass Rates

**92%***Undergraduate Programmes***98%***Postgraduate Programmes***₹ 15.62**  
**crore**Expenditure on  
Equipment &  
Infrastructure**₹ 3.72**  
**crore**Research &  
Teaching Grants**₹ 2.58**  
**lakh**Expenditure  
per Student /  
per year

## Events

**To facilitate wider exposure to the developments in academia and industry and enable the exchange of ideas, the University conducted several national and international workshops and conferences during the academic year 2018/19.**

### Mathematics and Computer Science

#### DMACS@25: Silver Jubilee Retreat

7-8 Jul 2018

In 1993, with the Divine blessings of Bhagawan Sri Sathya Sai Baba, the Department of Mathematics & Computer Science (DMACS) was born. On 7 and 8 July 2018, DMACS students, doctoral research scholars and teachers were joined by over 180 alumni from all over India and abroad (and many more who live-streamed the sessions) to celebrate 25 years of the department at Prasanthi Nilayam.

The two-day felicitation included talks and discussions that charted the journey of the department, paid tribute to the teachers who dedicatedly served the department over the decades, and communicated the current academic and research agenda at DMACS.

#### The Science of Mathematical Modeling of Disease Transmission

12-15 Aug 2018

The mathematical modeling of disease transmission is a tool used to study the mechanisms by which diseases spread, to predict the future course of an outbreak and to evaluate strategies to control an epidemic. Its cost-effectiveness analyses can play a central role in maximizing the utility of limited resources for neglected tropical diseases.

The workshop – conducted in collaboration with the Mathematical, Computational and Modeling Sciences Center, Arizona State University, USA – served as an introduction to the formulation, analysis and application of mathematical models that describe the dynamics of infectious diseases. During the course of the four days, the workshop reviewed contributions that mathematical modeling has made to optimizing intervention strategies of infectious diseases and proposed directions forward in the modeling of problems associated with integrating new knowledge of host and pathogen ecology, evolutionary responses to interventions, and expanding the scope of sensitivity analysis in order to achieve robust results. It presented participants with cutting edge and interesting methods of training that will encourage new generations of mathematicians to explore future interventions in this area.

**External experts and guests from:** Arizona State University (USA), George Mason University (USA), University of South Carolina (USA), Instituto Politécnico de Tomar (Portugal), Inter Americana University of Puerto Rico, Indian Institute of Technology, Kanpur, Indian Institute of Science, Bangalore, Public Health Foundation of India, International Institute of Information Technology, Bangalore, Vellore Institute of Technology, Tamil Nadu, C-DAC, Pune, Nelson Mandela African Institution of Science and Technology (NM-AIST), Indian Institute of Engineering Science and Technology, West Bengal, BGSB University, Jammu & Kashmir, Indian Institute of Technology, Patna

### Physics

#### Computational Aspects of Materials Science

22 Jun 2019

Density Functional Theory finds increasingly broad application in the chemical and materials sciences for the interpretation and prediction of complex system behaviour at an atomic scale. The workshop provided students with the theoretical basis of Density Functional Theory (DFT) and quick hands-on exposure to Quantum Espresso software.

**External experts and guests from:** Indian Institute of Science, Bangalore

#### Python for Scientific Computing

28-29 Sep 2019

Python is a programming language that has become increasingly popular by virtue of its simplicity and capability and is extensively by corporations such as Google and Amazon in the areas of data mining and data processing. It is consistently ranked in the top ten most popular programming languages worldwide. The workshop gave a brief review of the fundamental concepts in Python language to students, including the various inputs, uses, strings and constraints. They also had the chance to experiment with code using numpy and scipy packages.

**External experts and guests from:** Capital One, Applied Materials, Bangalore

#### Automation & Interfacing Workshop using Labview

24-25 Oct 2018

The workshop introduced and highlighted the need for automation for various real-time experiments and scenarios. In order to achieve this, the students were exposed to utilizing a popular virtual instrumentation software package called

LabView, from National Instruments. The invited resource persons shared their inventions and case studies that extensively utilized the automation process. They also shared their valuable Industry perspective and demonstrated their products and devices which are designed to work on machine vision, involving a great amount of automation. Postgraduate students got first-hand training on various essential programming features of LabView software.

**External experts and guests from:** NCET, Bangalore, Lydor Software Innovation, Bangalore

## Thin Film Coating Techniques

8 Dec 2018

Optical coatings, Magnetic recording media, electronic semiconductor devices, LEDs, thin-film solar cells and batteries. The advances in thin film deposition techniques in the last hundred years have enabled a wide range of technological breakthroughs which most of us benefit in our day-to-day lives. The workshop provided both theoretical and practical knowledge of the preparing, characterizing and utilizing thin films for varieties of applications.

**External experts and guests from:** Oerlikon Balzers Coatings, Pune and Oerlikon Surface Solutions AG, Switzerland

## Chemistry

### Electrochemistry and Electrochemical Workstation

2 Mar 2019

The workshop introduced the concept of Electrochemical Workstation and its varied applications. This was followed by hands-on demonstration of Electrochemical techniques like cyclic voltammetry and corrosion studies. A practical demonstration helped cleared doubts of students and aroused the curiosity to explore the potentials of the Electrochemical Workstation with confidence and make the Workstation a research hub.

**External experts and guests from:** International Advanced Research Centre for Powder Metallurgy, New Materials, Chennai

### Advances in Sustainable Energies

2 Mar 2019

Sustainability is no longer a fad but an urgent need in all facets of human society and progress. In fact, in India, we can look into our own historical Indian architectural techniques that can be used today for sustainable living. Sustainability hinges on the three pillars of Economic Development, Social Development and Environmental Protection. If done right, we can alleviate poverty, enjoy clean water and fresh air, build stronger economies and above all, mitigate the environmental threat that we now face as a planet.

The symposium addressed the current advances in sustainable energies. It featured several talks and a panel discussion on topics such as Plastic Solar Cells, Organometallic Gold Complexes for Light Emitting Applications and Energy Sustainability using Homogenous Catalysts, Novel Strategies for Enhanced



Photo-conversion Efficiencies in Emerging Photovoltaics' Technologies, Sustainable Energy Options for India: An Overview, and Ways to Valorise Biomass for Sustainable Energy.

**External experts and guests from:** SRM Institute of Science and Technology, Chennai, Indian Institute of Technology, Madras and Indian Institute of Technology, Hyderabad

## Biosciences

### Departmental Symposium

22 Dec 2018

The symposium brought together professionals from the field of Biological Sciences who shared many of their insights on various topics such as Therapeutic Potential of Antisense Oligonucleotide-Mediated Exon Skipping Strategies in Duchenne Muscular Dystrophy, Diabetes and its Relationship with Foot Ulcers, Drug Discovery Methodologies, Systems Analysis and Mechanistic Study on Glaucoma, Autologous Chondrocyte Implantation, Import and Export Norms Involved in the Shipment of Bioproducts across the Globe, and The Repair of Lungs post Injury and Homeostasis.

**External experts and guests from:** Dystrophy Annihilation Research Trust (DART), Bangalore, James Cook University, Australia, GE Healthcare, Bangalore, Sri Sathya Sai Institute of Higher Medical Sciences (SSSIHMS), Bangalore, Ernst & Young, Bangalore, National Centre for Biological Sciences, Bangalore

### Symposium on Novel and Progressive Scientific Endeavours (SYNAPSE)

9-10 Feb 2019

The annual symposium explored the current trends in Science and Technology. Invited experts - many of whom are highly accomplished scientists - shared their knowledge and experiences and students got an opportunity to interact with them.

The talks centred on topics such as Check Point Inhibition Therapy for Cancer and Development of Diabetes, Revolution Directed Evolution of Enzymes, Emergence of New Technologies to fight Bacteria and Viruses, Pathophysiology and the genesis of Heart Disease, Gene Editing in Biotechnology, Current trends in Immunology and Acne, and Cosmetic Care relevant to Indian populations.

Students then received a hands-on training in Immunology and participated in eight experiments.

**External experts and guests from:** Karolinska Institute, Sweden, Indian Institute of Science, Bangalore, Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Syngene International Limited, Bangalore, Sri Sathya Sai Institute of Higher Medical Sciences, Bangalore, Mediaids, Chandigarh, L'Oreal India

### Research Conclave on Rheumatic Diseases

20 Apr 2019

The one-day event witnessed clinicians from the Indian Rheumatology Association present their view on Rheumatic diseases and its related 'needs of the hour' such as biomarkers, diagnostics and newer therapeutic targets. They also discussed the problems associated with the lack of data on the Indian population. Scientists from the Institute of Bioinformatics and Applied Biotechnology (IBAB), Bangalore presented their views on the importance of genomics and bioinformatics, which could help generate important leads for Rheumatic Diseases from the Indian population. Faculty from the Department of Mathematics & Computer Science (DMACS), SSSIHL came up with an idea of generating a Database on Rheumatic Diseases in Indian Population.

**External experts and guests from:** Nizam's Institute of Medical Sciences, Subodaya Rheumatology Centre, Max Super Speciality Hospital, Shifa Super Speciality Hospital, Institute of Bioinformatics and Applied Biotechnology (IBAB), Yashoda Hospitals, Sakra World Hospitals.

## Food and Nutritional Sciences

### Food Safety, Sanitation and Hygiene

7 Sep 2018

Part of the National Nutrition Week in the first week of September, the event helped create greater awareness on the choices of food we eat, understanding the concepts of food safety, personal hygiene, equipment maintenance, etc. The presentations also touched upon the need for proper licensing from Food Safety and Standards Association of India (FSSAI) for food vendors and companies, and ended with the dictum, 'choose wisely and eat right for a safe life'.

### Healthy Eating > Active Living

23-24 Mar 2019

A part of the practical course in the subject, Nutrition Through Life Cycle, the two-day event was aimed to educate the communities around us on the huge impact the food we eat has on our health. To facilitate a healthy discussion on this, scores of members of staff at the University were surveyed on various parameters such as stress, frequency of meal



consumption, regularity and quality of sleep, presence of any ailments, type of work, working hours and work pressure, frequency of illness, hospitalization, intake of medicines and lifestyle.

The importance of diet and nutrition in combating the health concerns were then addressed through talks, videos, presentations and discussions.

## Management and Commerce

### Six Sigma

28-29 July 2018

Six Sigma is a data driven methodology to reduce defects and variability in a process. The workshop trained the students in all aspects of famous Define Measure Analyse Improve Control (DMAIC) workflow, one of the core techniques behind any process improvement, particularly in Six Sigma.

It equipped them with all the tools and skills to carry out a quality improvement intervention using six sigma methodology, end-to-end. The students subsequently took on up live projects at the University or sister institutions and completed a project using the DMAIC workflow.

**External experts and guests from:** The World Bank

### Design thinking

14 Jul 2018

Inspiration to Ideation to Implementation, the Design Thinking process came to life at SSSIHL when students learnt how to use it to fulfill the human needs for a product of service.

In groups, they brainstormed on how to get to the root cause of problems, ideate, and find solutions using the best technology available.

One of the speakers best summarized the learning process as: Start with the why, make to learn, flare before focus, seek a diverse perspective and master visual sense making.

**External experts and guests from:** Mercedes-Benz, Darden School of Business, University of Virginia

### Healthcare Sector: Trends, Strategies and Practices

11 Aug 2018

The workshop served as a genesis for the study of Healthcare Management by MBA students, as an elective. Speakers touched upon the large view of the Indian healthcare sector and its challenges, such as a serious shortage of necessary skilful administrators, despite the high supply of qualified doctors. Legal aspects of healthcare administration were also touched upon. The workshop ended with a panel discussion on the multiple dimensions of the healthcare ecosystem. Students were left to ponder with many questions, such as the pursuit of healthcare versus a health career.



**External experts and guests from:** Dr. Mohan's Diabetes Specialities Centre, Maulana Azad Medical College, Postgraduate Institute of Medical Education and Research, GE Healthcare, Tata Trusts, SSSIHMS, Mylan, United Care Development Services (UC), HCITExpert Blog

## **Towards Excellence in Teaching and Research**

**12-13 Jan 2019**

The faculty and Doctoral Research Scholars of the department came together for this breakout session that included insights such as Teaching Excellence: What Does It Entail, Designing and Delivering a Course, The Role of Technology in Classroom: Pedagogical tools and techniques, Teaching With Cases: Fostering Participant-Centred Learning, Teaching Without Cases: What Can We Do, and, Evaluating the Teacher and the Taught.

**External experts and guests from:** Strategy & Innovation Consulting

## **Values and the World of Business**

**16 Feb 2018**

The symposium saw a galaxy of dignitaries and eminent personalities from different walks of life come together to discuss the importance of values in the world of business. The discussions centred around three areas: values in a valuation-driven world, values-based leadership and values in a competitive environment.

Deliberations such as the role of the family in shaping values, and how business leaders often lost their moral compass at the 80% mark in the chase for higher and higher dreams, took centre stage.

Participants shared their professional experiences and advised students to reflect on the decisions they make on a day-to-day and ask themselves whether they would sleep in peace with them.

**External experts and guests from:** Ambassador of Japan to India, Aditya Birla, ET Now, Business Today, HDFC, Airworks, Strategy Garage, B-PAC, Ola

## **Know Your Competencies**

**12 Mar 2019**

The workshop helped students of final year MBA programme recognize their innate competencies (including skills, personal strengths and other abilities), which will guide them make the right professional choices in the future.

They undertook the Myers Briggs Type Indicator (MBTI) and the Saville Competency assessment psychometric tests. Following this, the facilitators offered consultation interventions to make students understand their personality type, strengths and weakness. The psychometric portfolio creation and successive discussions during the workshop held the students energized and enthusiastic. In the end, the workshop provided the students with a platform to explore the innate competencies and match their capabilities with business opportunities.

**External experts and guests from:** Anahat

## **Publishing Research**

**31 Mar 2019**

A Faculty Development Program (FDP) that it emphasized on how to convert research into a good manuscript for publishing in leading journals of the field. The programme was structured into two modules. It covered topics such as Warming up on the topic, Setting the stage and expectations, Key metrics for research careers, What makes a good manuscript, Article Types, Publication outlets and standards, Key metrics in choosing a good and relevant journal, Review process and Key challenges in publishing research.

**External experts and guests from:** Indian Institute of Technology, Madras, The World Bank

## **English Language and Literature**

### **Expert-alumni Interaction Series**

**17 Mar 2019**

The session highlighted the necessary skills and communicative competence needed in Teaching English as a Second Language (TESL). The invited experts gave a brief overview of the concepts, techniques and methods in classroom for recognizing and managing the communicative needs of the English Language Teaching (ELT) student.

This included necessary reading skills, various creative techniques for vocabulary building, a new outlook for writing lesson plans, various kinds of tests and principles of testing and Testing and Evaluation.

**External experts and guests from:** Christ University, Bangalore, Regional Institute of Education (RIE) Mysore

## Bespoke

### Value Orientation on Higher Education

7 Mar 2019

The symposium - a part of the Golden Jubilee celebrations at the Brindavan Campus, SSSIHL - witnessed a galaxy of distinguished academicians, administrators and other distinguished personalities sharing their thoughts on the vital issue of values and higher education.

The keynote addresses and round-table discussions focused on the three sub-themes of Eternal values in a changing society, Values and Higher Education - perspectives and challenges, and, Millennials and Higher Education.

Topics debated included: The unchangeable essence of values, Transmitting values, Integrating values into university curricula in a seamless manner, The context for value transmissions in our educational institutions and the academic culture that should foster the right value choices, and, How millennials can use the world's interconnectedness as an opportunity to be more tolerant and open-minded.

**External experts and guests from:** Jain University, Central University of Himachal Pradesh, Centre for Education, Innovation and Action research, Tata Institute of Social Sciences, University of Mumbai, Karnataka Knowledge Commission, Karnataka State Innovation Council



### Anantapur Campus @ 50 Golden Jubilee Celebrations

7 Mar 2019

To mark the completion of 50 years of the educational mission of Bhagawan Sri Sathya Sai Baba, which commenced with the opening of a Women's College at Anantapur on 22 July 1968, the Anantapur Campus of the Institute - the erstwhile Sri Sathya Sai Arts and Science College (for Women) Anantapur - organised a cultural programme (a couple of dances, and a play based on the life and teachings of Shirdi Sai Baba, entitled, Our Beloved Sadguru Sai) at the Campus on 8 July 2019.

The extended commemorative celebrations were subsequently held at Prasanthi Nilayam on 21 July. The programme, which was attended by 3000 alumni, commenced with a procession led by representatives of fifty batches of students, from India and abroad, who have passed out from the portals of this sacred institution. Prof. (Miss) Rajeshwari C Patel, Director of the Campus (and an alumnus) while welcoming the audience, pledged (on behalf of the students) to live up to the highest ideals laid down by Bhagawan Baba. The programme comprised vocal music offerings, talks by the Chancellor of the University and two former students. This was followed by a felicitation ceremony in which former Vice Chancellors, Principals, Directors, Controller of Examinations and Wardens were honoured.

Several dignitaries associated with the Sri Sathya Sai Seva Organizations and other Sai education institutions were present on the occasion.



# Contributions & Participation

## Faculty

### Mathematics and Computer Science

#### Dr. K S Sridharan

Invited Talk on Introduction to Artificial Intelligence and Machine Learning, Faculty Development Programme on Artificial Intelligence, Machine Learning and Deep Learning: Research and Applications perspectives, PSG College Technology, 22-28 Oct 2018.

#### Sri Darshan Gera

Resource Person, conducted a Hands-on session on Pytorch and delivered a talk on Introduction to Deep learning (DL): What, Why and How and practical aspect of Deep Learning, Faculty Development Programme on Artificial Intelligence, Machine Learning and Deep Learning: Research and Applications perspectives, PSG College Technology, 22-28 Oct 2018.

Resource person, Workshop on Python programming with Hands-on, National Arts & Science College, Chennai National Arts and Science College, Avadi, Tamil Nadu, 13 Aug 2018.

#### Dr. Ajith Padyana

Recognition and honoured by National Institution for Transforming India (NITI) Aayog, Government of India as a Mentor for Change to promote Research and Innovation in young Indian minds. Delivered several talks on Innovative Thinking to high school teachers and students, Academic Year 2018/19.

#### Dr. Pallav Kumar Baruah

Resource Person, Faculty Development Programme on Artificial Intelligence, Machine Learning and Deep Learning: Research and Applications perspectives, PSG College Technology, 22-28 Oct 2018.

#### Dr. S Balasubramanian

Resource person, Workshop on Python programming with Hands-on, National Arts & Science College, Chennai National Arts and Science College, Avadi, Tamil Nadu, 13 Aug 2018.

Invited Talk on Recent Trends in Machine Learning and Importance of Python Programming, faculty of Chennai National Arts and Science College, 14 Aug 2018.

Received the Best Paper Award for the paper, Layer Out: Freezing Layers in Deep Neural Networks, presented at 1<sup>st</sup> International Conference on Machine Learning, Image Processing, Network Security and Data Sciences (MIND 2019), NIT Kurukshetra, 3-4 Mar 2019.

#### Dr. Srinath M S

Visiting Researcher, Dept. of Combinatorics and Optimization, Faculty of Mathematics, University of Waterloo, Canada for a collaboration with Prof. David Jao, Professor, Faculty of Mathematics, University of Waterloo, Canada, Mar - May 2019.

#### Sri V Bhaskaran

Attended the Second Workshop on Software Challenges to Exascale Computing (SCEC 2018), 13-14 Dec 2018, New Delhi

#### Sri B Venkatramana

Attended a Faculty Development Programme on Blockchain Application Development Using Hyperledger, Dept. of Computer Science (in association with IBM India), Ramaiah Institute of Technology, Bangalore, 28 Jan - 2 Feb 2019.

### Physics

#### Dr. Krishna Chaitanya V

Technical Program Committee member, International Conference on Fiber Optics and Photonics 2018, Indian Institute of Technology, New Delhi, 12-15 Dec 2018.

#### Dr. Gowrishankar R

Invited Examiner for Physics and Electronics Practical Exams, S K University, Anantapur, Andhra Pradesh, 3-4 May 2018, 12-13 Dec 2018.

Invited Examiner for Ph.D., Jawaharlal Nehru Technological University (JNTU), Anantapur, Andhra Pradesh, 7 Aug 2018.

#### Prof. S Siva Sankara Sai

Attended the Twelfth IEEE International Conference on Advanced Networks and Telecommunication Systems (IEEE-ANTS), Indore, 16-19 Dec 2019.

Attended the Fourth WHO Global Forum on Medical Devices (Increasing Access to Medical Devices), Visakhapatnam, 13-15 Dec 2019.

#### Sri Muralikrishna Molli

Attended the 63<sup>rd</sup> DAE Solid State Physics Symposium (DAE-SSPS 2018), Guru Jambheshwar University of Science and Technology (GJUS&T), Hisar, Haryana, 18-22 Dec 2018.

#### Sri Abishek H

Attended The International Conference on Fiber Optics and Photonics, Indian Institute of Technology, Delhi, 12-15 Dec 2018.



## Chemistry

### **Dr. G Nageswara Rao, Dr. Nanduri Srinivas, Sri Swayamsiddha Kar**

International Patent: Swayamsiddha Kar, Nageswara Rao G., Srinivas Nanduri; Spirobibenzopyrans and Analogues as Multitherapeutic Agents; Publication number: WO/2018/229665; Publication date: 20 December 2018. URL: <https://patentscope.wipo.int/search/en/search.jsf>

### **Dr. (Mrs.) V Prathyusha**

Attended a Teachers Training Programme (refresher course) in Chemistry, Talent Development Centre, Indian Institution of Science, Challakere, Karnataka, 22 Nov to 12 Dec 2018.

## Biosciences

### **Mrs. B Anusha**

Presented a poster at the National seminar on Current Status and Future Prospects in Life Science Research (CSFPLR-2019), Kuppam University, Andhra Pradesh, 28 Mar 2019.

### **Dr. B E Pradeep**

Resource Person, Infectious diseases and anti-microbial resistance (AMR) for the Scientific validation of lifestyle and environment, during Kumbha bath & Kalpwas, Prayagraj Allahabad, Vachaspati Sabhagar, Shri Lal Bahadur Shastri Rashtriya Sanskrit Vidyapeetha, New Delhi, 21 Dec 2018.

Invited Lecture on Insight into the Antibiotic Resistance Mechanisms employed by Gram Negative Bacteria (*Escherichia coli* and *Acinetobacter baumannii*) and development of an antibiotic resistance prediction model for patients with urinary tract infection, National Conference Drug Resistance - Challenges in Drug discovery, Raghavendra Institute of Pharmaceutical Education & Research (RIPER), Anantapur, Andhra Pradesh, 27 Oct 2018.

### **Sri A S Vishwanathan**

Attended ScienceComm'18 India, a Swissnex India conference, National Centre for Biological Sciences (NCBS), Bangalore, 27 Sep 2018.

Attended a STEM Teacher Training Workshop on Research Based Pedagogical Tools (Level-2), Centre of Excellence in Science and Mathematics Education, Indian Institute of Science Education Research, Pune, 17-19 Jan 2019.

### **Dr. S Venketesh**

Attended the 10<sup>th</sup> Annual meeting of Proteomics Society, India (PSI) & International Conference on Proteomics for Cell Biology and Molecular Medicine, National Centre for Cell Science (NCCS), Pune, 12-14 Dec 2018.

## Food and Nutritional Sciences

### **Prof. (Mrs.) B Andallu**

Invited lecture on Isolation, identification and bioactivity assessment (in vitro) of phytochemicals at the UGC-sponsored National Seminar on Current Status and Future Prospects in Life Science Research, Dept. of Biotechnology, School of Herbal Studies and Natural Sciences, Dravidian University, Kuppam, Andhra Pradesh, 28-29 Mar 2019

Chairperson for a Scientific Session at the UGC-sponsored National Seminar on Current Status and Future Prospects in Life Science Research, Dept. of Biotechnology, School of Herbal Studies and Natural Sciences, Dravidian University, Kuppam, Andhra Pradesh, 28-29 Mar 2019.

### **Dr. (Mrs.) Ambati Padmaja**

Paper Presentation (and First Prize) on Extraction, Analysis and Utilisation of Passion Fruit Peel Pectin presented at the National Conference on Challenges and Sustainable Approaches towards Food and Nutrition Security - A Global Perspective, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, Tamil Nadu, 7-8 Dec 2018.

### **Dr. (Ms.) Meera Manikkavachakan**

Best poster Presentation on Development and Quality Evaluation of Pea Flour Incorporated Millet Cookies, India's Transition from Food Security to Nutrition Security, 50<sup>th</sup> Annual International Conference of Nutrition Society of India, ICMR - National Institute of Nutrition, Hyderabad, 15-17 Nov 2018.

### **Dr. (Miss) N Srividya**

Attended an International Symposium on Understanding the Double Burden of Malnutrition for Effective Interventions, International Atomic Energy Agency (IAEA), Vienna, Austria, 10-13 Dec 2018.

Attended an International Symposium on Fats in Maternal and Child Health Nutrition - Indian Context, ICMR - National Institute of Nutrition, Hyderabad, India, 18 Sep 2018.

### **Dr. (Mrs.) M Srijaya, Dr. (Ms.) Meera Manikkavachakan**

Attended an International Symposium on Fats in Maternal and Child Health Nutrition - Indian Context, ICMR - National Institute of Nutrition, Hyderabad, India, 18 Sep 2018.

## Management and Commerce

### **Sri S Sai Manohar**

Resource Person, Induction programmes for M.B.A. and M.Com. students, G T Institute of Management Studies and Research, Bangalore, 14 Nov 2018.

Invited Speaker, Orientation program for students, Sai Samskruti Vaibhavam, College of Nursing and Allied Health Sciences, Sri Sathya Sai Institute of Higher Medical Sciences (SSSIHMS), Whitefield, Bangalore, 5 Sep 2018.

#### **Prof. (Miss) Ch Radhakumari**

Received Excellent Paper award for Best Content and Presentation for the research paper, Development of Ethereum-based Blockchain for Implementation in Housing Sector, International Conference on Business Management & Social Innovation, Bangalore, 4 Nov 2018.

#### **Dr. Sanjay Mahalingam**

Invited to conduct a workshop for executives, Inside Out: Spirituality at workplace, Thryve Digital, Chennai, 5 Oct 2018.

#### **Dr. Sayee Manohar K**

Attended a symposium on Rethinking of Globalization: Economy and Development, Awareness in Action, Hyderabad, Bangalore, 30 Jun 2018.

Attended a National-level Workshop on Data Analytics using R Studio, Dept. of Management Studies, Kongu Engineering College, Erode, Tamil Nadu, 10-12 Aug 2018.

Attended a Faculty Development Programme on Case writing and Analysis, CMS Business School, JAIN (Deemed to be University), Bangalore, 27-28 Nov 2018.

Attended a Faculty Development Programme on Design Thinking, A Management Perspective, RV institutions and HEM&RA Consulting, Bangalore, 29 Mar 2019.

#### **Sri S Sai Manohar**

Attended a Faculty Development Programme on Blended Learning Pedagogy using MOOCs, Indian Institute of Management, Bangalore, 23 Feb 2019.

#### **Miss Aparna V**

Attended a Faculty Development Programme on Hands-on Data Analysis using 'R' in Journal Publication, Shri Dharmasthala Manjunatheshwara Institute for Management Development, Mysore, 8-9 May 2019.

### **Economics**

#### **Dr. G Raghavender Raju**

Peer Reviewer for the journal, Journal of Economic Policy and Research, 23 May 2019.

#### **Sri Dinesh Kumar Choudhury**

Resource Person, Workshop on Economic Analysis for Managerial Decision Making, K L N College of Engineering, Pottapalayam, Madurai, Tamil Nadu, 24-25 Sep 2018.

#### **Sri Rajabhushan Jagadish Nayak**

Attended a workshop in Frontiers of Research in Indian Economy: Emerging Issues, Theoretical Approaches, Data and Methods, Institute of Development Studies, Kolkata, 11-15 Mar 2019.

### **English Language and Literature**

#### **Dr. (Miss) P L Rani**

Invited Talk on Education: Its Power and Purpose as Guest of Honour, Sri Chaitanya Degree College, Anantapur, Andhra Pradesh, 7 Mar 2019.

#### **Dr. Aruna Kumar Behera**

Resource Person, ELTAI Chapter Members' Conclave, Sambhram Academy of Management Studies, Bangalore, 16 May 2019.

Attended ICON-2018 - a Multidisciplinary International Conference on Innovative & Creative Strategies for Sustainable Growth, New Horizon College, Bangalore, 16 Oct 2018.

Attended an Orientation Workshop on Debilitated English Learner Syndrome (DELS) and the role of Neuro-Linguistic Programming in Language Teaching, Regional Institute of English, South India (RIESI), Bangalore, 8 Aug 2018.

### **Education**

#### **Dr. (Mrs.) P Lavanya**

Attended a Refresher course on Gender studies, UGC-HRDC, SV University, Tirupati, 25 Feb - 16 Mar 2019.

### **Sub-departments and Languages**

#### **Dr. N Venkatesha Rao**

Received a special award, Vyasaraja seva dhurina, Navavrindavana, for Popularizing classical Sanskrit works of Vyasa-tirtha (Raja guru of Krishnadevaraya) with special reference to Vyasa-traya, by Sri Vyasaraja Samsthanam, 25 Mar 2019.

#### **Dr. (Mrs.) M Praphulla**

Resource Person to speak on the topic, Balkavisaranyamu - Rachanoddesamu, National Seminar on Telugu Bhasha Sahithyalu - Gidugu Seva, Andhra Pradesh Central University, Anantapur, 29 Aug 2018.

Resource Person to speak on the topic, Kandukurivari Abhijnana Sakunthalamu, the National Seminar on Kandukuri Sahithyam - Samskaranodyamam, Andhra Pradesh Central University, Anantapur, 1-3 Mar 2019.

## Doctoral Research Scholars

### Mathematics and Computer Science

#### Sri V Sai Raam

Participated in the Doctoral Consortium, The Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP), Hyderabad, 18-22 Dec 2018.

#### Sri Rahul Raju Pattar

Participated in NCMW Contact and Symplectic Geometry, Indian Institute of Science Education and Research (IISER) Bhopal, 3-14 Dec 2018.

#### Sri Hirak Doshi

Invited Talk on Robust Optical Flow Implementations, International Workshop on Modeling Dynamics, Statistical Inference and Prediction of Infectious Diseases (MODSIP), 12-15 Aug 2018.

### Physics

#### Miss Lavanya Rathi P

Attended a workshop, X-Raydiat Hyderabad, Hyderabad Central University (HCU), Hyderabad, 14 Nov 2018.

Poster Presentation, International Winter School on Frontiers in Materials Science, Jawaharlal Nehru Centre for Advance Scientific Research (JNCASR), Bangalore, 3-7 Dec 2018.

Attended a workshop on Science and Engineering of Materials using Ion Beams and Gamma Rays, Variable Energy Cyclotron Centre (VECC), Kolkata, 28-29 May 2019.

#### Sri P Saijagannadha Bharadwaj

Attended the International Winter School on Frontiers in Materials Science, Jawaharlal Nehru Centre for Advance Scientific Research (JNCASR), Bangalore, 3-7 Dec 2018.

Poster Presentation, 63<sup>rd</sup> DAE Solid State Physics Symposium, Guru Jambheshwar University of Science & Technology, Hisar, Haryana, 19-23 Dec 2018.

#### Miss Anjana Biswas

Poster Presentation, International Winter School on Frontiers in Materials Science, Jawaharlal Nehru Centre for Advance Scientific Research (JNCASR), Bangalore, 3-7 Dec 2018.

Attended a workshop on Science and Engineering of Materials using Ion Beams and Gamma Rays, Variable Energy Cyclotron Centre (VECC), Kolkata, 28-29 May 2019.

### Chemistry

#### Miss Sai Kiran M

Poster Presentation on Defluoridation using polymer metal composites, International Winter School on Frontiers in Materials Science, Jawaharlal Nehru Centre for Advance Scientific Research (JNCASR), Bangalore, 3-7 Dec 2018.

#### Sri Nitesh Tamang

Recipient of the National Fellowship and Scholarship for Higher Education of ST Students, Jun 2018.

#### Sri Prashant Rai

Attended a Workshop on Advanced Pharmaceutical Analytical Techniques, Dr. Reddy's Institute of Life Sciences (DRILS), Hyderabad, 8-9 Apr 2019.

#### Sri Ram Murthy

Attended a National Conference on Applied materials and Applications Corrosion Inhibition of Mild Steel in Hydrochloric Acid Solution of novel Organosulfur Compounds, Auxillium Women's College, Vellore, Tamil Nadu, 7 Sep 2018.

#### Sri Sai Prasad Nayak

Poster Presentation on Detection of a relevant cancer biomarker using plasmonic silver nanoparticles, International Winter School on Frontiers in Materials Science, Jawaharlal Nehru Centre for Advance Scientific Research (JNCASR), Bangalore, 3-7 Dec 2018.

#### Dr. K Naga Sai Visweswar

Attended a Hands-on training for Development of HPLC Methods, at Centre for Process Research and Innovation, Dr. Reddy's Institute of Life Sciences (DRILS), Hyderabad, 28 Jan - 8 Feb 2019.

#### Sri Rokkam Siva Kumar

Attended a Workshop on Advanced Pharmaceutical Analytical Techniques, Dr. Reddy's Institute of Life Sciences (DRILS), Hyderabad, Telangana, 8-9 Apr 2019.

#### Sri Swayamsiddha Kar

International Patent: Swayamsiddha Kar, Nageswara Rao G., Srinivas Nanduri; Spirobibenzopyrans and Analogues as Multitherapeutic Agents; Publication number: WO/2018/229665; Publication date: 20 December 2018. URL: <https://patentscope.wipo.int/search/en/search.jsf>

Recipient of Senior Research Fellowship (SRF) from the CSIR sponsored project, Synthesis of Novel Andrographolide Derivatives as Potential Anticancer & Antibacterial Agents (No.02(O304)/17/EMR-II)

**Sri Chelli Sai Manohar**

Attended the International Winter School on Frontiers in Materials Science, Jawaharlal Nehru Centre for Advance Scientific Research (JNCASR), Bangalore, 3-7 Dec 2018.

**Biosciences****Sri Aiyer Kartik Satyanarayan**

Attended the 4<sup>th</sup> Asia Pacific International Society of Microbial Electrochemistry and Technology (AP-ISMET) Meeting on Bioelectrochemical and Electrochemical Approaches for Decentralized Sanitation, BITS Pilani, Goa, 13-16 Nov 2018.

**Sri Thota Sai Manohar**

Poster Presentation on Multimodal Imaging of Huntington's Disease using Radiological Techniques, ISMRM Workshop on Accessible MRI for the World, India International Centre, New Delhi, 29-31 Mar 2019.

Plenary talk on Metabolic Re-wiring Modulates Amyloid Formation in Huntington's Disease, Bangalore Neurological Society Meeting, Bangalore, 2 Feb 2019.

**Food and Nutritional Sciences****Miss Ashrita C Haldipur**

Attended an International Symposium on Understanding the Double Burden of Malnutrition for Effective Interventions, International Atomic Energy Agency (IAEA), Vienna, Austria, 10-13 Dec 2018.

Attended an International Symposium on Fats in Maternal and Child Health Nutrition - Indian Context, ICMR - National Institute of Nutrition, Hyderabad, 18 Sep 2018.

**Miss N Saiharini**

Paper Presentation (and First Prize) on Extraction, Analysis and Utilisation of Passion Fruit Peel Pectin presented at the National Conference on Challenges and Sustainable Approaches towards Food and Nutrition Security - A Global Perspective, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore, Tamil Nadu, 7-8 Dec 2018.

**Management and Commerce****Sri Saikrishnan S**

Attended the TAPMI-MAX PLANCK-SOTON Winter School on Bounded Rationality, T A Pai Management Institute (TAPMI), Manipal, 14-20 Jan 2019.

**Sri U Pranav**

Attended the Management Development Programme on Machine Learning Algorithms for Business Decision Making, Christ University and Analytics Society of India, Bangalore, 15-16 Dec 2018

Undertook a course on Data Science, Analytix Labs, Bangalore, Jul-Nov 2018.

**Miss Padmalalitha T V**

Attended a National Level Workshop on Research Methodology, Statistical Data Analysis and Interpretation, Institute for Statistics and Analytical Research, Chennai, 21-23 Sep 2018.

Attended the Management Development Programme on Machine Learning Algorithms for Business Decision Making, Christ University and Analytics Society of India, Bangalore, 15-16 Dec 2018

**English Language & Literature****Miss Priyamvada C**

Completed a Swayam NPTEL Online Certificate course, Introduction to Literary Theory, affiliated to the Indian Institute of Technology, Kanpur, Aug-Sep 2018.

**Miss Ponapalli Prasanti Prabha**

Completed a Swayam NPTEL Online Certificate course, Introduction to Literary Theory, affiliated to the Indian Institute of Technology, Kanpur, Aug-Sep 2018.

Completed a Swayam NPTEL Online Certificate course, Postmodernism in Literature, affiliated to the Indian Institute of Technology, Madras, Feb-Apr 2019.

**Miss Swathi Metla**

Completed a Swayam NPTEL Online Certificate course, Postmodernism in Literature, affiliated to the Indian Institute of Technology, Madras, Feb-Apr 2019.

**Miss Umadevi V S**

Completed a Swayam NPTEL Online Certificate course, Introduction to Literary Theory, affiliated to the Indian Institute of Technology, Kanpur, Aug-Sep 2018.



## Students

### Organizational Visits

At the end of each academic year, final year graduating students from various departments go on official visits to reputed organizations to get a feel of how what they learn in the classroom is applied in the real world. Students are accompanied by a few faculty members on these trips. During the academic year 2018/19, these included:

#### Physics

*I M.Tech. in Optoelectronics & Communications students, Bangalore, 16-17 Apr 2018.*

**Organizations visited:** CISCO, Tejas Networks Ltd., FCI OEN Connecters Ltd., Analog Devices India.



#### Food & Nutritional Sciences

*I and II M.Sc. in Food and Nutritional Sciences students, Anantapur Dist., Andhra Pradesh, 11-14 Mar 2019.*

**Organizations visited:** National Institute of Nutrition, Institute of Hotel Management Catering Technology & Applied Nutrition, Indian Grain Storage Management and Research Institute, Apollo Health City, The Telangana State Dairy Development Cooperative Federation Ltd., Telangana Foods, Heemankshi Bakers Pvt. Ltd., State Food Laboratory, CFTRI-CSIR Resource Centre.



#### Management & Commerce

##### Anantapur Campus:

*I M.B.A. students, Hosur, Tamil Nadu & Bangalore, 9-10 Aug 2018.*

**Organizations visited:** TVS Motors, Sai Vishram Business Hotel

*I and II M.B.A. students, Tamil Nadu, 26 Dec 2018.*

**Organizations visited:** Villages adopted under the Srinivasan Services Trust (SST) of TVS Motors for inclusive development. The villages included Pedhakondapalli and Muthur in the Krishnagiri district.

*I M.B.A. students, Puttaparthi, Andhra Pradesh, 5 Mar 2019.*

**Organizations visited:** Caseificio Italia, a cheese manufacturing factory.

##### Prasanthi Nilayam Campus:

*I M.B.A. students, Hosur, Tamil Nadu & Bangalore, 10 Aug and 1 Sep 2018.*

**Organizations visited:** TVS Motors, Sai Vishram Business Hotel.



## National Examinations

A high percentage of SSSIHL postgraduate students qualified in national exams such as the GATE/JEST or the CSIR-UGC NET in 2018/19. The list below includes the national rank for each exam.

**Artatrana Suna (Mathematics)**

(GATE) 102 (CSIR UGC-NET for JRF)

**K D S S Murari (Mathematics)**

438 (CSIR UGC-NET for JRF)

**Jitendra Kumar Chadar (Computer Science)**

11708 (GATE) (CSIR UGC-NET for JRF)

**Geeth Govind S (Computer Science)**

10710 (GATE) UGC-NET (LS)

**T R Sai Natarajan (Computer Science)**

713 (GATE)

**A V S Bharadwaj (Computer Science)**

27 (CSIR UGC-NET for JRF)

**Sai Pramod (Computer Science)**

3415 (CSIR UGC-NET for JRF)

**Vasista Durga Prasad (Computer Science)**

5318 (CSIR UGC-NET for JRF)

**J Kaushik (Physics)**

746 (GATE)

**Amar M V (Physics)**

2095 (GATE)

**Sreeram S (Physics)**

2095 (GATE)

**Judhistir Shamal (Physics)**

2298 (GATE)

**Hariharan M (Chemistry)**

529 (GATE) 58 (CSIR UGC-NET for JRF)

**M S Vijaya Bhaskar (Chemistry)**

947 (GATE)

**Sumiran Tamang (Chemistry)**

6892 (GATE)

**Sudam Bhoi (Biosciences)**

155 (CSIR UGC-NET for JRF)

**Kesavan M (Computer Science)**

UGC-NET (LS)

**Ediguttu Saikiran (Computer Science)**

80 UGC-NET (LS)

**Sandeep Sahu (Computer Science)**

48 UGC-NET (LS)

**Atulya Mahanta (Management)**

UGC-NET (JRF)

**Jagadeeswara C B (Management)**

UGC-NET (JRF)

**Medapati Mounika (Management)**

UGC-NET (LS)

**Yerragunta Rahul Reddy (Management)**

(NET-LS)

**Rinil Khatri (Management)**

(NET-LS)

**Manasali Sai Kumar (Management)**

(NET-LS)

**Pranay Sai Bharadwaja S (Management)**

(NET-LS)

**Saikrishnaa R (Management)**

(NET-LS)

**Sai Aditya D (Management)**

(NET-LS)

**Sai Shankar Pradhan (Management)**

(NET-LS)

**S Sai Shyam Sundar (Management)**

(NET-LS)

**Saiprashanth G (Management)**

(NET-LS)

**Atulya Mahanta (Management)**

(NET-LS)

**Jagadeeswara C B (Management)**

(NET-LS)

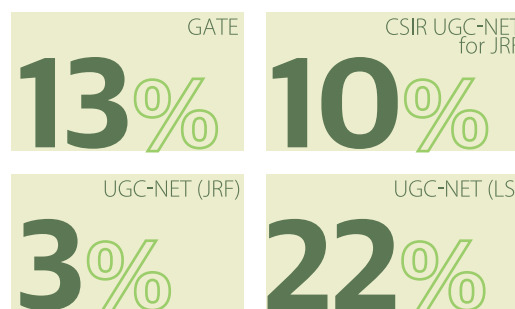
**Munthala Sri Sai Kiran (Economics)**

(NET-LS)

**Suraj Kumar Das (Economics)**

(NET-LS)

**CSIR** (Council of Scientific & Industrial Research) | **JRF** (Junior Research Fellowship) | **NET** (National Eligibility Test) | **LS** (Lectureship) Graduate Aptitude Test in Engineering



### National Exams

This data pertains to final year postgraduate students who attempted these exams

GATE: Graduate Aptitude Test in Engineering

CSIR: Council of Scientific & Industrial Research  
UGC: University Grants Commission  
NET: National Eligibility Test

# Research Highlights

## Sciences

### Mathematical Modelling

In the mathematical modelling area, research was carried out on ecological models with specific applications to pest control and biological conservation. For example, additional food supplements as a tool for biological conservation of Predator-Prey Systems was studied extensively. Predictive modelling for disease dynamics and control measures specifically with diseases such as Dengue and Leprosy was done.

### Artificial Intelligence (AI) and Actuarial Techniques

A framework integrating both AI and Actuarial Techniques was proposed and the fraud detection model was developed using Gradient Boosting Method. The results obtained were quite promising with the F1-Score of 98.05% and an accuracy of 99.68%. The results were validated using extreme value theory (EVT), an actuarial technique. Initially, the model was developed for motor insurance and later the same was customized for health insurance.

Neural networks with two fully connected layers were used for analyzing and predicting the factors which were used for calculating the Key Performance Indicators (KPIs). The KPIs were obtained for the projected factors and the inference was done for five different non-life insurers in India, based on the public disclosure data available with insurance supervisors.

### Machine and Deep Learning

Research was conducted on Deep Neural Networks Architectures to reduce huge amount of computation during the training phase, minimize the effect of overfitting, etc. Novel architectures and strategies for regularization were proposed keeping in mind the trendy applications in the area.

Studies have been done using Convolutional Neural Network (CNN) models such as U-net and Alexnet on renal dataset for segmentation and classification of renal images. Data preprocessing on kidney images has been carried out using U-net architecture. A detailed study on fine tuning the hyper parameters that govern the model performance and test accuracy has been carried out. A dice coefficient of 83% in creating masks for renal data using U-net was achieved. Experiments were performed on AlexNet and the best accuracy achieved was 94.75%.

It has been accepted that the various facets of medicine are not deterministic. Clinicians must weigh not just a set of fixed benchmarks while determining optimal patient care, but

must also incorporate a growing set of health data generated by their patients. The future of personalised healthcare lies in predictive analytics that utilizes algorithmically-derived probabilities to augment patient care. Such an approach has immense potential in a condition like Chiari 1 malformation (CM1) that is characterized by heterogeneous presentations, management options and post-surgical outcomes. Various predictors were identified and reviewed in relation to CM1 and Machine Learning algorithms were employed for predicting outcome after CM1 surgery.

### Small Area Imaging Gamma Camera (SAI-GC)

Nuclear Medical Imaging is a special branch of Radiology which gives the functional imaging of the internal organ that is being examined for diagnostic purposes. Small Area Imaging Gamma Camera (SAI-GC) has been designed and fabricated as a part of ongoing DST funded project. This portable and higher resolution Gamma Camera, based on CZT detector technology, has been initially validated using the geometric and organ phantoms to study the real time issues. Subsequently, all the issues related to real time patient imaging were resolved. The SAI-GC was further validated and verified on the clinical front at HCG Cancer Hospital, Bangalore, after obtaining the necessary Ethics Committee approvals. Validation of SAI-GC has been completed on 32 Thyroid subjects to identify malfunctions such as Thyroid cancer, Nodal Goiter, Hyper thyroid, Hypo Thyroid, Graves' Disease, Thyrotoxicosis and Thyroiditis.

### Optical Coherence Tomography (OCT)

Optical Coherence Tomography (OCT), based on the principle of low-coherence interferometry, is an attractive non-invasive imaging methodology which has found wide acceptance in Ophthalmology since the 1990s, and in Cardiology in the 21st century. High costs limit OCT instruments to well-equipped tertiary care centers and research labs. Novel computational and acquisition techniques have been developed to enhance the utility of low-cost OCT devices. Two low-cost table-top OCT devices have been assembled, one suitable for ex-vivo static samples, and the other one was designed for imaging the eardrum. The cost of commercial OCT instruments lies in the range of ₹50-100 lakhs. The prototypes fabricated at SSSIHL are 50 to 100 times cheaper than commercial instruments, and mass production will help drive down the cost further.

### Functional Materials and Composites (for piezoelectric, magnetic, thermoelectric and sensor based applications)

Novel Piezo-resistive polymer nanocrystal composites that could be used for sensor and transducer applications with superior performance were designed and fabricated. High

electrical energy storage density was achieved in materials using Ferroelectric fillers in functional polymer matrices along with low dimensional carbon nanostructures. Clay blended polymer nanocrystal composite films were fabricated and found to show enhanced Photorefractive properties. These films could be used as passive optical components utilizing their intrinsic nonlinear optical response.

Electronic structure calculations using density functional theory and the calculation of band structure dependent thermoelectric transport properties using the semiclassical Boltzmann transport theory were carried out in Full Heusler and Half Heusler alloys, Quaternary chalcogenides and Brownmillerites.

Simple ion-exchange method was used to grow metal nanocrystals in silicate and borate glass matrices. Silver (Ag), copper (Cu) and their binary, Ag-Cu nanocrystals were embedded successfully in glass matrices. The nonisothermal crystallization kinetic studies on Ag-ion exchanged silicate glasses have been carried out using differential thermal analyses (DTA). In order to understand the nuclear radiation effect on lead-free functional materials and their polymer composites, lead-free piezoelectric micro rods and their PVDF composites were prepared. Glasses, glass-nanocrystal composites and polymer composites are prepared for gas sensing applications. Highly dense ( $>7$  g/cc) and transparent binary bismuth borate glasses were prepared and their gamma ray shielding properties were investigated. The gamma radiation shielding of transparent bismuth borate glasses was close to metallic lead and other lead-based glasses. Coffee-ring effect by different clay colloidal systems was investigated.

Tin doped nanomagnetites,  $\text{Sn}_x\text{Fe}_{3-x}\text{O}_4$ , were synthesized with various concentrations of  $\text{Sn}^{2+}$  ions ( $x = 0.0, 0.2, 0.4, 0.6, 0.8, 1.0$ ) by co-precipitation method. XRD, VSM, TG-DTA, SEM-EDX and UV-Vis were used to characterize the structural, magnetic, thermal, and optical properties of  $\text{Sn}_x\text{Fe}_{3-x}\text{O}_4$  nanoparticles. XRD confirmed the formation of the cubic spinel phase; Rietveld refinement of the XRD patterns revealed the cationic distribution. The M-H curves exhibited changes in saturation magnetization, coercive field, remanent magnetization and susceptibility, with increasing concentration of non-magnetic  $\text{Sn}^{2+}$  ions. The optical bandgap measurement of 3.9 eV classifies these materials to be semiconductors.

Titanate nanobelts were proved to be promising nanosorbents for defluoridation of drinking water. For quick and efficient removal of fluoride from water, high surface area titanate nanorods were found to be more efficient. Low cost 1-D nanotubes and their use in defluoridation of water were demonstrated. Surface modified,  $\text{H}_2\text{Ti}_3\text{O}_7$  nanotubes with  $0.1\text{M Fe}^{3+}$  and  $0.05\text{M Zr}^{4+}$  ions for efficient fluoride removal from aqueous media at neutral pH were fabricated and characterized.

The design and development of functionalized graphene oxide-polymer composite as a versatile tool for oil spill removal, defluoridation, heavy metal adsorption, organic dye removal, and electrochemical sensor applications were carried out.

## Point of Care Devices for Clinical Use

As a part of the ongoing projects on perinatal depression, neonatal jaundice, early detection of cardiac malfunction and dengue detection, more than 700 patients from Sri Sathya Sai General Hospital (SSSGH), Prasanthi Nilayam, Sri Sathya Sai Institute of Higher Medical Sciences (SSSIHMS), Prasanthigram and SSSIHMS, Whitefield have been enrolled. The blood, saliva and urine samples from these patients were collected after obtaining informed consent. These samples were processed and stored appropriately. These samples were analyzed using standard hospital protocol/equipment and gold standard-HPLC to know the actual value to be compared with that from our proposed devices.

Dengue and heart disease detection devices underwent testing of their alpha models. The feedback was noted and appropriate modifications have been implemented in the fabrication of the beta version. The neonatal device was deployed at SSSGH, Prasanthi Nilayam for field trials. The device for monitoring depression is under fabrication and is planned to be deployed for field trials by the end of this year. Apart from this, new novel materials for SPCE emission enhancements were studied and the mobile phone-SPCE platform was optimized for the detection of Tannic acid in water sources. Simple, candle soot-based fractal nano carbon islands were coated and shown to be better spacer layers than other nanomaterials that are less ecofriendly due to their synthesis protocol.

## Studies on Andrographolide

*Andrographis paniculata* is an Ayurvedic herb known as Kalmegh. It is also known as Nelavemu. Andrographolide, the main constituent of *Andrographis paniculata* (Acanthaceae) exhibited several promising biological properties. It was reported that andrographolide and its analogues possess anti-cancer, anti-inflammatory, anti-bacterial, anti-diabetic, anti-HIV, FXR antagonists and hepato-protective properties. In a recent study, it was found that Andrographolide possesses very good anti-venom properties through PLA2 inhibition.



## Sequential Progressive Mutations Associated with Acquisition of Nitrofurantoin Resistance: A Study in Clinically Isolated Gram-Negative Bacteria

Nitrofurantoin is the drug of choice to treat uncomplicated UTIs. In this study, nitrofurantoin resistance and possible underlying mechanisms among 100 clinically isolated bacteria (53 resistant, 31 sensitive and 16 intermediate resistant to nitrofurantoin), comprising multiple gram-negative bacterial species were investigated. These isolates (44 *Escherichia coli*, 12 *Acinetobacter baumannii*, 6 *Enterobacter spp.*, 33 *Klebsiella spp.*, 2 *Proteus mirabilis* and 3 *Citrobacter koseri* isolated from SSSIHMS-Wfd) were analysed for the presence of *nfsA*, *nfsB*, *ribE*, *oqxA* and *oqxB* genes by PCR amplification. Further, a nitrofurantoin sensitive *E. coli* (NS30) was in vitro exposed to increasing concentrations of nitrofurantoin to understand the sequential progression of mutation accumulation through induction.

PCR amplification showed concordance with the resistance phenotype of the isolates. The analyses confirmed that colonies of NS30 had a surge in MIC from 32 µg/mL to ≥512 µg/mL due to sequential, stepwise induction of resistance with exposure to increasing concentrations of nitrofurantoin. Sequencing of *nfsA*, *nfsB* and *ribE* gene amplicons in the sensitive and resistant variants of NS30 revealed several mutations that were progressively acquired in the coding sequences of the resistant isolates including a stop codon in *nfsA* and *nfsB* genes. Acquisition of mutations in *nfsA* and *nfsB* genes with increasing concentrations of nitrofurantoin might have led to the emergence of nitrofurantoin resistance among previously sensitive bacteria.



**Agar art:** ATCC *Escherichia coli* 35218 (pale orange lines) and ATCC *Staphylococcus aureus* 25923 (white lines) streaked by using Nichrome loop on Luria bertani agar

## Nutritional Biology and Metabolomics-based Investigations for Mitigating Life Style Disorders and Double Burden of Malnutrition

Metabolite profiling of nutrients and health promoting compounds in novel and indigenous food crops such as culinary and herbal microgreens; and pigmented rice varieties were carried out. Enzyme based mechanistic and in vitro assays have been also performed. Pigmented Indian rice varieties namely, Kattuyanam, Karupu kavani, bamboo rice and few others were ascertained to be beneficial for life style disorders such as diabetes. For addressing double burden of malnutrition, various microfarmed greens and herbs have been examined. Studies initiated using agronomic biofortification has resulted in enhancing the micronutrient density of radish and roselle microgreens.

Nutritional composition of wild edible mushrooms from the North Eastern regions of India was studied and found to be rich in protein, fiber and iron. These mushrooms also showed antioxidant, hypoglycemic and hypocholesterolemic activity under in vitro conditions.

## Bio-Potential of Food Processing Waste for Value Addition in Foods

Culinary microgreens rich in micronutrients such as ascorbic acid, zinc, selenium, calcium etc. have been identified. Agronomic fortification has been successfully employed to enhance the micronutrient density of these novel crops with special reference to calcium in radish and roselle microgreens.

Nutritional and protein quality evaluation of 'Sai Protein' based formulations indicated that they could be used as a low-cost supplementary food for addressing malnutrition. It was found suitable to be used in government feeding programmes. The nutritionally enhanced SSSIHL-SAI protein formulation has been shared with Sri Sathya Sai General Hospital (SSSGH), Prasanthi Nilayam and is being distributed regularly to needy children visiting the paediatric ward.

Plant food processing waste (such as peel, seed and pomace from fruits and vegetables) by-products have been explored



as promising sources of biological active compounds. Studies have been done on characterizing the extracts and isolates from *Passiflora edulis* fruit for their chemical composition and biological activity. Naturally coloured jelly was prepared utilizing the extracted pectin from peel.

### **Evaluation of Antioxidant, Anti-Inflammatory and Antibacterial Potential of the Endophytic Fungi Isolated from *Bauhinia Purpurea***

The target of the study is to evaluate whether biomolecules produced by the endophytic fungi inhabiting this plant have anti-inflammatory, anti-bacterial, anti-oxidant properties. Sixteen endophytic fungal strains belonging to Ascomycetes were isolated from the leaves of *Bauhinia purpurea*. Morphological identification of all these sixteen fungi was done. They were found to be belonging to genera *Diaporthe*, *Colletotrichum*, *Phyllosticta*, *Fusarium*, *Xylaria* and *Alternaria*. Since four isolates showed reasonable anti-oxidant activity, their identification based on 18S rDNA sequencing was done. On that basis, they were identified as *Diaporthe phaseolorum*, *Diaporthe foeniculina*, *Alternaria citri* and *Fusarium graminearum*.

Crude extracts of these were also evaluated for antibacterial activity using resistant strains of *Escherichia coli* and *Pseudomonas aeruginosa*. The synergistic activities of these extracts in conjunction with antibiotics was evaluated.

Molecular docking studies were conducted with 45 known metabolites of *Diaporthe* species to evaluate their potential as RND efflux pump inhibitors.

### **Disease Biology**

Multidisciplinary and multifaceted approaches were used to carry out an integrative analysis of patients suffering from Huntington's Disease and model system. In particular, biochemical, haematological, multimodal MRI imaging (MRI, MRS, DTI, ADC), PET Scan, EEG and VEP were used to understand changes in the brain. The results showed clinical changes in the brain that is characteristic of Huntington disease. MRS and PET Scan show metabolic deregulation in the affected region of brain. Yeast and mammalian cell culture and embryonic stem cell models were used to understand the mechanistic aspects. Metabolomic analysis of patients and model system showed changes in metabolomic profile compared to control. Using metabolic addition experiments and gene knock out a role for metabolites in modulating amyloidogenesis has been conceived.

## **Management & Commerce**

### **CSR in Secondary Education**

One of the key areas that received impetus under Corporate Social Responsibility (CSR) was the promotion of education. While many companies have enthusiastically undertaken various activities in this area, a study of the annual reports of various companies has highlighted that a deeper connect is within the ambit of the corporates under CSR.

To achieve a higher degree of involvement of corporates with the secondary education sector, it is imperative that the challenges of the secondary education sector be identified and addressed. A meta-study of 70 articles shortlisted through systematic literature review to identify the challenges of the secondary education sector in India was carried out. The key challenges were classified under five major stakeholders of secondary education viz. students, teachers, infrastructure, leadership and administration, and community.

It was found that the key challenges identified could effectively be addressed through CSR as companies have the necessary expertise. The study, thus, identified available opportunities for corporates to have more meaningful engagement in the secondary education sector in India and contribute to national development.

### **Corporate Environmental Reporting**

Corporate Environmental Reporting (CER) demands the disclosure of financial and non-financial indicators in corporate reporting, thus institutionalising the triple-bottom-line reporting approach (economic, environment and social). A study considering the information over a period of three years (2015-2018) along with thirty companies with a pollution index score of 40 and above was carried out to analyse the content of corporate environmental disclosures in annual reports of companies with respect to the Global Reporting Initiative (GRI) environmental indicators and to compare the application of GRI environmental indicators among select companies.

Thematic content analysis of the 90 annual reports of 30 companies indicated that the environmental reporting in India is unsystematic and non-comparable. Based on these findings an attempt was made to develop a framework to emphasise the inclusion of GRI Reporting principles at different stages of reporting, in order to bring in a structured approach while reporting data.

## Sustainable Rural Development

A study was carried out by collecting data from 120 villages in the state of Andhra Pradesh for understanding the procedure of achieving sustainable development, in practice, and address the problems faced by people at the bottom of the pyramid, keeping income levels as the primary objective.

The findings from the study reinforced the thought that sustained rural development can only be achieved when the aspects of economic stability, infrastructure challenges, education, healthcare and social service are addressed.

## Behavioural Aspects of Health Insurance

A scoping review of the field of behavioral economics that focused on health insurance was carried out using the five-stage framework provided by Arksey and O'Malley. A total of 120 studies were identified that met the eligibility criteria. From these studies, information pertaining to consumer behavior in health insurance market and means to channel consumer behavior were extracted.

The state of research of the field and found that 93% of the studies are based on samples drawn from western countries, 5% of the studies have used field experiments, 97% of the studies have used positivist research paradigm and more than half the studies have focused on just 5 behavioral factors. Building on these observations, the study provided directions for future research

## Ibsenian Bildung: From Passivity to 'Constructivity

This work was guided by the perception that unlike most of the studies which rightly justify Ibsen as a champion of individual rights, he should be given enough credit as a curator of social institutions as well. Therefore, the findings re-establish the enduring relevance of Ibsen's social vision through a thematic study involving a close analysis of the timeless characters of a few select plays from a fresh perspective. As a tangential approach among Ibsenian scholarship, this exploration unravels patterns of collective culture in which interdependence accentuates personal identity. This perusal through the kaleidoscope of Indian spirituality adds a different hue to the light of Ibsenian world.

# Economics & Humanities

## Financial and Macroeconomic Modelling

Financial and Macroeconomic Modelling relying on leading-edge techniques in statistics and econometrics has been employed to analyze India's Balance of Payments, Capital markets, Agricultural, Industrial and Services sectors, Global Financial Crisis on the Indian economy, Financial Development and Economic Growth in BRICS economies.

Systematic investigations were done in the area of Fiscal Consolidation and Sustainable Public Debt, taking India as a case study. The major thrust of the work was to examine the sustainability of fiscal policy by linking it with public debt. The study used macroeconomic modelling framework to attain its objectives: to examine and evaluate the size and growth of public debt, the way it is related to economic growth and how appropriate policies can be designed to moderate its adverse consequences. Focused on India for the period 1980 through 2016, the major thrust of the work was to examine the sustainability of fiscal policy by linking it with public debt.

# Funded Research Projects

**SSSIHL continues to pursue needs-based research that will help alleviate problems affecting the poorer sections of society.**

**During the academic year 2018/19, the total value of ongoing projects at the University was ₹8.54 Crore.**

## Mathematics and Computer Science

**Big Data Analytics and High Performance Computing**  
Maestro Technology, USA

## Physics

**FIST (Fund for Improvement of Science & Teaching Infrastructure)**  
Department of Science & Technology (DST)

**Design and Development of Small Organ Imaging Gamma Camera System**  
DST

**Femtosecond laser Enabled Micro-fabrication of Micro-Total-analysis Optofluidic Systems (FEMTOS)**  
DST

**FLAP-MED: Femtosecond laser Assisted Prototyping Micro Electro-Optofluidic Devices**  
DST

**Design and development of Glass based optofluidic platform by Femtosecond Laser Micromachining**  
DST

**Development of nanoadsorbents for treating fluoride contaminated water in and around the area of the University**  
Kurita Water and Environment Foundation, Japan

## Chemistry

**Water Treatment of Identified Physico-chemical parameters in the three mandals of Ananthpur district of Andhra Pradesh**  
4S Foundation

**Synthesis of Novel Andrographolide derivatives as potential anticancer and antibacterial agents**  
CSIR

**Surface Plasmon-Coupled Emission based Benchtop**

**Device for Cardiac Troponin T Quantification**

DST - Instrumentation Development Programme (IDP)  
Technology Development Programmes (TDP)

**ANIRVID: A Cellphone based Point-of-Care Diagnostic Device to Evaluate the Effect of Alternative Therapeutic Interventions on Depression and Heart Ailments**  
Tata Education and Development Trust

**Hand-held mobile for non-invasive monitoring of Bilirubin in neonates**  
Indian Council of Medical Research

**Mobile Dengue Diagnostic Technology (m-DDT): A Smartphone-based Point-of-care Diagnostic Device**  
Defense Research and Development Organisation (DRDO)

**Monitoring cardiac health in post-myocardial patients**  
Ramana and Manju Healthcare Inc., USA

**SONEERA: Surface-water quality observation 'N' elimination of effluents using radio-frequency transmitter technology**  
Prasanthi Trust, USA

## Biosciences

**Augmenting Postgraduate Teaching & Research Facilities in Dept. of Biosciences**  
DST FIST

**Perturbation in Metabolic pathways might drive Avascular Necrosis of Femoral Head by modulating bone biology: Mechanisms, Potential biomarkers and therapeutic targets**  
DST



# Research Publications

## Sciences

### Publications in peer reviewed Journals

1. K S P Sowndarya, Y Lakshmi Naidu, Perfect Domination for Bishops, Kings and Rooks Graphs on Square Chessboard, **Annals of Pure and Applied Mathematics**, 18(1), 59-64, (2018). DOI: dx.doi.org/10.22457/apam.v18n1a8
2. J Bhanu Teja, Phani Krishna Kandala, Srivarun Vallampatla, Poorna Viswanadha Sravan Nukala, Pallav Kumar Baruah, Satya Sai Mudigonda, SSSIHL Data Cleaning Framework Using HADOOP, **International Journal of Scientific & Engineering Research (IJSER)**, 10(3), (2019).
3. Sampath Lonka and Rajat Tandon, Zero Weight Space for Tori Inside a Division Algebra, **Journal of Ramanujan Mathematical Society**, 33(4), 435-454, (2018).
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## Special Annual Events

**There are five special annual events that relate to the devotional, cultural, physical and service dimensions of Sri Sathya Sai Values-based Integral education. They are orchestrated to bring out the latent values and good qualities in students and teachers. A lot of planning and effort goes into each of these events. All students participate in these events in accordance with their individual skills and talents.**

### Summer Course in Indian Culture & Spirituality

2 Mar 2019

*Man can make genuine progress only when the idea that education is for earning a living is given up. Only one who realises this truth is a truly educated person. Knowledge does not mean mere booklore. It is not the transference of the contents of books to the brain.*

*Education is intended for the transformation of the heart. Man today is proud about the little knowledge he has acquired about the physical world and boasts that he knows all about the universe. True knowledge is that which establishes harmony and synthesis between science on the one hand and spirituality and ethics on the other. Man, therefore, should at the outset determine the true value of education.*

**Sri Sathya Sai Baba  
Revered Founder Chancellor, SSSIHL**

Benedictory Address, SSSIHL Annual Convocation,  
22 November 1985

The Summer Course in Indian Culture & Spirituality marks the beginning of every student's journey at Sri Sathya Sai Institute of Higher Learning. Blessed by Bhagawan Baba in the current format of three days, this induction programme exposes students of the University to the rich cultural and spiritual heritage of Bharath. Moreover, it orients students into Bhagawan Baba's educational philosophy and gives them deep, first hand insights into how they can directly benefit from this unique institution.

The event in 2018 took place from 8 to 10 June 2018 at Prasanthi Nilayam. Over 2500 students, 200 teachers and 75 research scholars of all the four campuses of the University, as well as Sathya Sai Mirpuri College of Music, Sri Sathya Sai Higher Secondary School, Prasanthi Nilayam (Class XI and Class XII) and Sri Sathya Sai Gurukulam English Medium School, Rajahmundry participated.

The morning sessions of the event consisted of talks (Living with Divinity is True Education and Atmano Mokshartham Jagat Hitaya Cha - Striving for One's Emancipation and Welfare of the World), panel discussions (Daiva Preeti, Paapa Bheeti, Sangha Neeti - Love for God, Fear of Sin, Morality in Society and Self Confidence to Self-Realization), a dramatic presentation (Dharmo Rakshati Rakshitah - Dharma protects those who uphold or protect Dharma) and a quiz on Bhagawan Baba's Life & Teachings. All of these elucidated key insights and lessons from the ancient Indian scriptures, spiritual personalities and concepts. The sessions also featured a short video show on Bhagawan Sri Sathya Sai Baba.

In the afternoons, students and teachers from all four campuses have breakout sessions where they discuss teachings and lessons from Bhagawan Baba's discourses. This year, the main theme was Discipline, Duty and Devotion, based on a Divine Discourse delivered by Bhagawan Baba on 19 June 1996.

The evening sessions on the first two days of the event consisted of three talks by students and teachers of individual SSSIHL campuses, along with veda chanting and bhajans at the Sai Kulwant Hall. The topics of talks were Bharatiya Culture, The Significance of Prayer and Sai Vibhuti.

Students of Sathya Sai Mirpuri College of Music gave a wonderful musical presentation on the theme Sam Gaccham - Let us move together.

The post-dinner parayanam sessions consisted of invited speakers—typically alumni and senior teachers of the university—sharing their unique and divine experiences in the physical presence of the Revered Founder Chancellor of the University, Bhagawan Sri Sathya Sai Baba.

### Prasanthi Vidwan Mahasabha 13-19 October 2018

Dasara or Navaratri is a ten-day festival, usually falling in the month of October, and is celebrated all over India in the worship of the Divine as the Mother principle. Since the early sixties, the festival of Dasara in Prasanthi Nilayam has been closely associated with the Veda Purusha Saptaha Jnana Yagna. This yagnam is a week-long worship conducted in the Divine Presence in the Poornachandra Auditorium in Prasanthi Nilayam each year for the welfare of the whole world. The yagnam commences on the fourth day of Dasara and concludes with the Poornahuti - the final oblation that is offered on Vijayadasami, the tenth day.

The evening programmes during the seven days of the yagnam are held in Sai Kulwant Hall, under the auspices of



the 'Prasanthi Vidwan Mahasabha', where many speakers—primarily students and functionaries of Bhagawan's educational institutions—address the gathering on topics concerning spirituality and philosophy, Bhagawan's teachings and experiences of devotees.

The topics for Prasanthi Vidwan Mahasabha 2018 were: Dasara at Prasanthi Nilayam, Love for God, Jagat Janini - The Divine Mother, The Feminine Aspects of Divinity and, Shirdi Sai and Sathya Sai.

## Annual Convocation

**22 November 2018**

Sri Sathya Sai Institute of Higher Learning (SSSIHL) (Deemed to be University) held its 37<sup>th</sup> Annual Convocation at Sai Kulwant Hall, Prasanthi Nilayam, Andhra Pradesh in the Divine Presence on 22 November 2018 at 10:30 a.m.

The grand ceremony saw the Honourable Chancellor, Sri K Chakravarthi, IAS (Retd.), admit 471 candidates to their degrees. This included 282 undergraduate, 82 postgraduate, 99 professional and 8 Ph.D. awardees.

SSSIHL was honoured to have Dr. Renu Swarup as the chief guest of the ceremony. Dr. Renu Swarup is currently the Secretary, Department of Biotechnology (DBT), Ministry of Science & Technology, Government of India.

The format, planning and execution of the SSSIHL convocation ceremony is second to none. The ceremonial procession was led by the University brass band, two students carrying the University Standards on either side of the Registrar (who carried the Ceremonial Mace). Other members of the procession included the Chancellor, Vice-Chancellor, Deans and the Heads of Departments along with the Chief Guest, members of the Sri Sathya Sai Central Trust and the Board of Management.

Following the invocatory veda chanting, the Vice-Chancellor, Prof. K B R Varma prayed to the Revered Founder Chancellor to declare the convocation open. The Convocation was then declared open in the Divine voice of Bhagawan Baba.

The programme included speeches by the Vice-Chancellor, the Chief Guest and the Revered Founder Chancellor (video broadcast of a previous Convocation Address).

## Annual Convocation Drama

This year's drama was creatively named Watch the WATCH. It depicted the fact that time is the most precious gift that each one of us possesses. Everyone has the same 24 hours in a day, whether we are rich, poor, young or old. It is how we spend this day that defines us.

It narrated the story of Mr. Beejoy Das, a watch maker for the past 65 years in the city of Kolkata. Even at the age of 90, he still repaired watches. Mr. Das had been an ardent devotee of Bhagawan Baba from his young days. Bhagawan Baba had presented Mr. Das and his son with two identical watches. When He put the watch on Das's wrist, Bhagawan Baba said, "Watch Your Watch. Watch your Word, Action, Thought, Character and Heart." Mr. Das has even named his shop 'Watch Your Watch!'







One day, something very unfortunate happens in Mr. Das' life, and that day he forgets to obey His Lord's command. To his surprise, for the first time, his watch stops. He tries all methods to repair it, but to no avail.

Mr. Das narrates these experiences of his life to Aarush, a journalist. The drama unfolded the dilemma that Mr. Das then found himself in. Will he be able to correct the past? What are his expectations from life at 90? What is heavier for him, a heart that has learned its lessons, a soul that is looking for redemption or the wisdom that dawned late?

### All-Round Gold Medallists

#### Ragini K R

Anantapur Campus – Bachelor of Arts

#### Pradyumna M

Prasanthi Nilayam Campus - Master of Science in Mathematics

#### Mayur Mukhi

Brindavan Campus - Bachelor of Science (Hons.) in Biosciences

#### Prayag Lepcha

Muddenahalli Campus - Bachelor of Business Administration

### Gold Medallists

#### Ravula Raghavendra

Master of Business Administration

#### Angu Sewa

Master of Technology in Optoelectronics and Communications

#### Abhinay B

Master of Technology in Computer Science

#### Ayyagari Ranga Shaarad

Master of Science in Mathematics

#### Kocherlakota Sai

Master of Science in Biosciences

#### Seemesh Bhaskar

Master of Science in Chemistry

#### Karan K H M

Master of Science in Physics

#### Arun Sai Rankireddy

Master of Arts in Economics

#### Sourin Karmakar

Bachelor of Computer Applications

#### Shiva Rama Krishna Naidu K

Bachelor of Business Administration

#### K Sai Krishna Aravind

Bachelor of Commerce (Honours)

#### Rohit Kumar Rajak

Bachelor of Arts (Honours) in Economics

#### Kotha Hridhay Keerthana

Master of Science in Food and Nutritional Sciences

#### Amrutha Varshini S

Master of Arts in English Language and Literature

#### Saieswari A

Bachelor of Education

#### Priyadarshini Srirambalaji

Bachelor of Science (Honours) in Mathematics

#### V Sai Soumya

Bachelor of Science (Honours) in Physics

#### Aiswarya Shree

Bachelor of Science (Honours) in Chemistry

#### Shraddha Jha

Bachelor of Arts

## Ph.D. Awardees

### **Sri Srinath M S** (Computer Science)

Isogeny-based Quantum Resistant Undeniable Blind Signature and Authenticated Encryption Schemes

### **Sri K M Ganesh** (Chemistry)

Water quality indexing of groundwater on a GIS platform and a study of adsorption methods for fluoride removal

### **Sri Naga Sai Visweswar K** (Chemistry)

Bio-synthesis and Applications of Cyclic  $\beta$ -(1 $\rightarrow$ 3),(1 $\rightarrow$ 6)-Glucans Extracted from Bradyrhizobium Japonicum Bacteria

### **Sri Thota Sai Praneeth** (Chemistry)

Enzymatic Hydrolysis of Groundnut Shell to Sugars and Biomass-derived Carbon Nanomaterials for Renewable Energy Applications

### **Sri Aswath Narayanan S** (Biosciences)

Avascular necrosis of femoral head: Molecular Pathogenesis and Biophysical Characterization

### **Ms. Bhavani M** (Microbiology)

Mechanisms Involved in the Emergence of Antibiotic Resistance among Pseudomonas aeruginosa and Strategies to Predict and Prevent Nosocomial Infections

### **Ms. Niranjana Mahalingam** (Microbiology)

An insight into the antibiotic resistance mechanisms employed by gram negative bacteria (Escherichia coli and Acinetobacter baumannii) and development of an antibiotic resistance prediction model for patients with urinary tract infection

### **Ms. Divya Goyal** (English Literature)

Ibsenian Bildung: From Passivity to 'Constructivity'



## Annual Sports & Cultural Meet

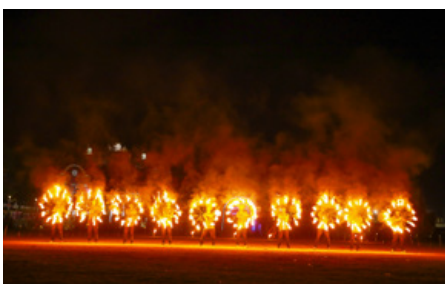
11-15 January 2019

The Sri Sathya Sai Educational Institutions held the main event of the Annual Sports & Cultural Meet on 11 January 2019 at Sri Sathya Sai Hill View Stadium, Prasanthi Nilayam, Andhra Pradesh.

The event is a culmination of various sports, cultural and fine arts competitions held at all campuses of the University and other Sai educational institutions throughout the academic year. The Sri Sathya Sai educational institutions include all the four campuses of Sri Sathya Sai Institute of Higher Learning, Sri Sathya Sai Primary and Higher Secondary Schools, Smt. Eswaramma High School and SSSIHMS College of Nursing and Allied Health Sciences.

It showcases an array of physical and cultural presentations by over 3000 students of the institutions spread across two sessions, morning and evening. Preparations, which began a month in advance, involved thousands of combined practice hours by all students and teachers of the institutions.





### Process over outcome

The Annual Sports & Cultural Meet brings to the fore several qualities of human excellence in students. With only a few weeks to perfect their presentations, and with academics and other daily pursuits, students have to make every minute of preparation count. The challenges of the process go beyond time, however. Very quickly, students need to have clarity of their outcomes, work in teams with unity (often with colleagues they have never worked with before), surmount the mental and physical obstacles that may seem impossible, and so on.

All this is accomplished on a shoestring budget that leaves the teams to make their final props and other event items with available and existing resources at the hostel. It not only helps them be thrifty, but forces them to think out of the box and bring in an element of creativity much beyond their current model of the world.

As D-Day approaches, failure and disappointments give way to a sense of determination to achieve excellence despite challenging circumstances. This ultimately leads to Self Confidence, when they go out and perform despite fears, doubts and self-limitations.

It is at this crucial juncture where the man-making experiment at Sai educational institutions truly succeeds. Tens of thousands of alumni are privy to this. The experiences during the Sports Meet preparations and hostel life in general have helped them navigate the toughest of situations in the working world and family life.

Why does it work? Why go through this effort willfully? It is for one simple reason: to please Bhagawan Baba and make Him proud. The entire gamut of the Annual Sports and Cultural Meet for the students boils down to this singular focus. Bhagawan Baba—with His divine vision—reciprocates this and makes sure that these pure feelings of Love are translated into the pursuit of excellence in every facet of the students' evolution.

As Bhagawan Baba often said, The End of Culture is Perfection.

### Sports Meet Presentations

11 Jan 2019

- o Anantapur, Prasanthi Nilayam, Brindavan and Muddenahalli Campuses presentations: Rhythmic Synchronisers, Natyobics, Twirling Spinners, Lion Dance, Prasanthi Strikers, Wheel Wizards, Dream Team, Body Percussion, Shaolin Echoes, Drumebaaz, Red Stallions and Igniters

### Cultural Meet Presentations

12-15 Jan 2019

- o Drama presentation by students of the Brindavan Campus: Drama presentation - The Life and Message of Saint Tulsidas
- o Musical Presentation by students of the Anantapur Campus: Krishnaarpanam
- o Drama presentation by students of the Muddenahalli Campus: The Way Back to You
- o Drama presentation by students of the Prasanthi Nilayam Campus: Jnana Prasthanam - Pathway to wisdom

## Prize Distribution Ceremony

15 Jan 2019

The Prize Distribution Ceremony celebrated the excellent performances in sports and cultural events during both the Annual Sports and Cultural Meet and the academic year 2018/19 by students of each Sai educational institution.

Apart from awarding the cups and prizes to the students of all Sai educational institutions, it also included brief speeches by a teacher of SSSIHL and several students highlighting the significance of the event.

### Athletic Champions

**Maddireddy Meghana**

Postgraduate, Anantapur Campus

**R Pavithra Reddy**

Undergraduate, Anantapur Campus

**Chandan Kumar Rajak**

Postgraduate, Prasanthi Nilayam Campus

**Thota Sujendra**

Undergraduate, Prasanthi Nilayam Campus

**Uttam Kumar**

Brindavan Campus

**Krishnapuram Anil Kumar**

Muddenahalli Campus



### Cultural Champions

**Dalli Jayasree Reddy**

Postgraduate, Anantapur Campus

**Shreelakshmi B**

Undergraduate, Anantapur Campus

**Yashwant Mukhia**

Postgraduate, Prasanthi Nilayam Campus

**Vedant Monger**

Undergraduate, Prasanthi Nilayam Campus

**S Sai Shriram**

Brindavan Campus

**Ajay Mukund S**

Muddenahalli Campus



### Fine Arts Champions

**Alisha Pradhan**

Postgraduate, Anantapur Campus

**Sumani Rai**

Undergraduate, Anantapur Campus





# Community Service

**Each year, students and teachers of the University work with local communities around the campuses throughout the year. Many of these service activities are initiatives by students themselves. Inspired by the example and precepts of our Revered Founder Chancellor, Bhagawan Sri Sathya Sai Baba, they reflect the impact of the unique blend of secular and spiritual education they receive here. Examples of these from 2018/19 include:**

## Cheyutha (Educational Support)

*Anantapur Campus, ongoing*

Cheyutha project is an initiative by the postgraduate students of the Anantapur Campus, SSSIHL to tutor the Campus contingent workers' school going children and semi-literate adults, in an effort to enhance the academic standard of the children and to aid in completing their home assignments (as majority of their parents are not literates). Adults are trained in basic reading, writing and arithmetic skill development. Over time (the project commenced two years ago), they have seen positive results in the workers' confidence and relationship with their children.

## Narayana Seva

*Anantapur Campus, every month*

Each month, food packets are distributed to the needy poor in the slums around Anantapur town. The monthly Narayana Seva activity sees a team of cooks, campus workers, rickshaw drivers and students come together to deliver 25 kg of Pulihora (approximately 270-300 packets) to these marginalised citizens of society.

## Adoption of Leper Colony

*Anantapur Campus, 1986 to date*

Project Love Stream is a long-standing example of service in action and how a little love and care have the power to create long lasting benefits to generations of families. The students and staff of the Anantapur Campus hostel have adopted a leper colony situated in the outskirts of the town of Anantapur since 1986, with the objective of making the inmates of the colony as self-sufficient as possible. As part of the project, each year, the students of the Campus made a variety of handicrafts like cards, bookmarks, rakhis and friendship bands. These are then sold to the inmates of the hostel and the amount thus raised is utilized to buy provisions for the residents of the leper colony on a monthly basis. Apart from contributing a small share to their basic requirements like provision of water connections, bathroom doors and fodder for the cows maintained by them, in 2018/19, thirty blankets were distributed to the residents.

## Village Empowerment Programme

*Anantapur Campus, 15 Sep 2018*

Following an initial field visit to identify and understand the major problems and needs of the village of Upparapalli, Dist. Anantapur, Andhra Pradesh, the M.B.A. students of the Campus, along with three teachers, took posters related to government schemes and agricultural practices which would be beneficial for the villagers. Interaction with villagers and the panchayat office bearers revealed problems like poor hygiene, high level of school dropouts, lack of opportunities to develop basic skills etc. Ongoing efforts are being made to empower the villagers appropriately.

## Celebrating Christmas with village children

*Muddenahalli Campus, Christmas 2018*

Similar to previous years, on the morning of 25 December 2018, the students of the Campus visited Muddenahalli village for Christmas celebrations. The nagar sankeertan that commenced from the hostel wound its way into the village. The students offered lighted candles to the children who participated in the bhajan session held at the local Hanuman temple. After the prayers, the children were all offered chocolates as Christmas gifts. Both the kids and the students enjoyed the heartfelt gesture.

## Old Age Home Visit

*Muddenahalli Campus, July 2018 and April 2019*

Students of the Campus, like earlier years, visited the Sai Dwarakamayee Vriddhashrama, an old age home at Sultanpet, Nandi village, about four kilometers from Muddenahalli. The resident population has now swelled to about fifty residents.

After a half hour bhajan session, the students spent about an hour interacting with the aged elders, during which they sang songs and listened to the experiences of the residents. The elders too enthusiastically sang and talked to the young students. For those residents who could not come to the prayer hall, the students visited them in their living rooms. The visit taught students the value of empathy and respect for elders. They were emotionally touched after listening to the stories of the elders.

## Grama Seva

*Prasanthi Nilayam Campus, Oct 2018 to Feb 2019*

*Give a man a fish, and you feed him for a day.  
Teach a man to fish, and you feed him for a lifetime.*

This is what the students, doctoral research scholars and teachers of SSSIHL Prasanthi Nilayam campus put into practice for several months when they made multiple visits to the villages of Narsimpalli, Bukkapatnam Mandal (Population: 2500), Bonthalapalli, Puttaparthi Mandal (Population: 2500) and Marlapalli, Puttaparthi Mandal (Population: 1000).



Just as the years gone by, when they would deliver food, clothing and love to villages around Puttaparthi and its surrounding mandals, this new initiative by the Prasanthi Nilayam Campus - with the kind support of the Sri Sathya Sai Central Trust - has renewed #GramaSeva and made it a more sustainable model.

The several teams of students and teachers (which included all students of the Campus), after multiple visits, made visible progress in various areas of the programme during the year. Some of these included:

**Sports and Fitness:** Prepared grounds by removing weeds. Played volleyball matches with the village youth. Conducted different races (such as sack race, lemon-spoon race, etc.) For children aged 5-10, conducted games based on jumping and balancing. They were also schooled in basic health areas and taught a few yogic postures such as the Surya Namaskar.

**Education:** Math, Science and fun games, as well as Bal Vikas for Primary school, II to X Std. kids. This included training in basic Mathematics activities using a geoboard. Students also made some educational kits and gifted them to the school.

**Music:** Bhajan singing, vedam chanting, flute renditions, teaching the basics of Music (by a teacher at the Dept. of Music), and teaching musical instruments, such as Kanjira and Talam.

**Cleanliness / Hygiene Drive:** Played 'Waste Plastic Picking Game' with all children of the villages. Students exhaustively cleaned walls of various temples and mosques in the villages, Anganwadis (rural child care centers), play areas and even wells that had been used as a rubbish dump for years! A handful of flowering plants were then planted across the villages. Villagers were also given basic education on the importance of hygiene and cleanliness.

**Greenery:** Plantation of trees and beautification of the village and surroundings

**Plumbing work:** Students took on a host of civil and plumbing duties. From changing of a 3-inch outlet pipe from the 2000-liter main storage tank to laying a CPVC pipeline for the school underground water storage tank, this is where the maintenance training they got as part of the Self Reliance activities at the hostel really kicked in. They fixed overhead tanks, constructed urinals and toilets (including tiling work), fixed leaking taps across the villages and also assisted in fixing mesh windows and doors to prevent unwanted guests such as insects and reptiles into washroom areas.

**Surveys:** Students split into different teams to conduct comprehensive individual and household surveys for issues such as the number of elderly folks and how to serve them better on future visits, what their immediate needs are, etc. They also conducted a data survey of all households of the villages to map the socio-economic and demographic challenges. The Chemistry students performed certain experiments as a preparatory phase to check for the efficacy of usage of ground shells at the villages.

As a result of this sustained care and effort, the villagers were really happy and joyful and full of appreciation. The long-term goal is help the villages achieve self-sustainability. Once the village is a model village, they will be able to help other villages achieve the same.

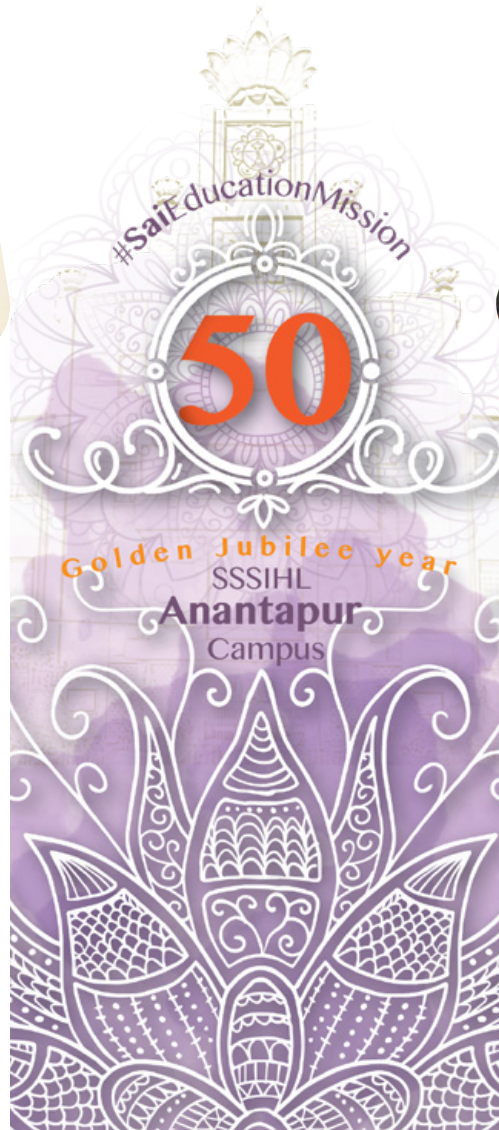
Love All, Serve All, as our Revered Founder Chancellor always taught us.





# SSSIHL ANANTAPUR CAMPUS @50

1968 – 2018



**SSSIHL Anantapur Campus Milestones**

**Early 1950s**  
Sri Sathya Sai Baba, at age 25, mentions that there will be a University in Puttaparthi, Andhra Pradesh (Population: 100)

**22 Jul 1968**  
Sri Sathya Sai Arts and Science College for Women at Anantapur is inaugurated (Student Strength: 125)

**8 Jul 1971**  
The new building of the Sri Sathya Sai Arts and Science College for Women, Anantapur is inaugurated

**10 November 1981**  
Sri Sathya Sai Institute of Higher Learning is declared as a Deemed to be University, under Sec. 3 of the University Grants Commission (UGC) Act, 1956

**DEGREE PROGRAMMES**  
Several degree programmes were inaugurated at the campus over the years:  
1969 – B.Sc. (Physics, Chemistry, Botany and Zoology)  
1972 – M.A. in Telugu  
1975 – B.Com.  
1976 – B.Sc. (Home Science)  
1982 – M.A. in English Language & Literature / Philosophy  
1988 – B.Ed.  
1991 – B.Sc. (Honours)  
1993 – B.Com. (Honours)  
2004 – B.Sc. (Honours) / M.Sc. in Biosciences  
2014 – M.B.A.

**27 May 2011**  
Inauguration of the second extension building at Anantapur Campus

**2017**  
Student Strength: 482







[sssihl.edu.in](http://sssihl.edu.in)

**The end of education is character**  
SRI SATHYA SAI BABA