NATIONAL INSTITUTE OF TECHNOLOGY,
TIRUCHIRAPPALLI

SOPHISTICATED INSTRUMENTATION FACILITY

ACTIVITY SUMMARY 2021-24

I. Background

Sophisticated Instrumentation Facility (SIF) at NIT Trichy was established in August 2021 to support researchers, scientists, students, startups, and MSMEs by providing advanced testing and characterization services across various science and engineering disciplines at nominal charges**,** similar to other Centrally Funded Research Institutes.

Currently, SIF hosts 15 high-end instruments and actively processes samples from both internal and external users. It has also been actively organizing workshops and hands-on training sessions for the research community.

Efforts are taken to expand the scope of the Centre through induction of more facilities, offer internships and facilitate UG/PG projects to develop skilled manpower in advanced techniques. Additionally, SIF coordinates all I-STEM-related initiatives on a regular basis.

II. People

Chairman: Dr. M. Umapathy

Scientific Officer: Dr. C. Roobala

Technical Assistant: Ms. Akhila A K

Senior Technician: Mr. Sundar M

Technician: Mr. Rajesh N

Dr. M. Umapathy **Chairman, SIF**	• Engages with the administration, oversees fund management, and provides strategic direction. • Reviews all documents/files and issue approval upon ensuring the correctness and relevance of data • Regular meeting with Scientific Officer and provides guidance on the works
Dr. C. Roobala **Scientific Officer, SIF**	Responsibilities: • Manages daily operations, coordinates facility activities, and ensures smooth execution of key initiatives. • Ensures real-time monitoring of equipment status, utilization, and operational efficiency. • Maintains accurate and up-to-date records on equipment status, availability, operational needs, and utilization across various departments and Centres of Excellence/Labs. • Creation of manuals and standard operating procedures (SOPs), log books, work records to improve the efficiency. • Reviews and validates all technical data shared from SIF with internal/external users and offices.

- Identifies scholar requirements, assesses equipment demand, and coordinates vendor interactions.
- Handles all procurement processes, prioritizes purchases, assigns tasks to staff, and ensures day-to-day follow-ups and necessary interventions.
- Organizes OEM-based training and facilitates free sample testing for new equipment validation.
- Identifies and resolves equipment issues through procurement, service coordination, and technical interventions.
- Works with service engineers and vendors for equipment services and upgrades
- Meets with the technical support team from equipment manufacturers to understand the technical requirements for the revival of facilities that require service and maintenance.
- Conducts hands-on sessions and free sample testing for facilities not available in the institute by actively engaging with equipment providers and dealers.
- Established a mechanism for integrating more equipment from department to SIF through interaction with faculty and HoD of the department
- Regularly interacts with the I-STEM team, contributing to portal utilization, portal updates/feedbacks for making it more user friendly
- Contributes to I-STEM activities like equipment data updates, publication data, patents, Samavesha, Catalyst Centre, and ambassador/expert recognition

Proposal Development:

- Develops proposal themes and structures in alignment with funding objectives.
- Dissects proposals into key sections, identifying relevant data and structuring content effectively.
- Strengthen the proposal with supporting documents and annexures

Workshops & Training Programs:

- Conceptualizes and organizes workshops, identifying and securing grant opportunities.
- Plans meticulously to provide participants with a comprehensive and high-value learning experience.
- Collaborates with faculty, experts, and key stakeholders to ensure impactful sessions.
- Management of logistics, execution, and outreach, ensuring workshops run smoothly and effectively.

Other Responsibilities:

- OPAL Technical works (2024 - Present) – FRS, Wifi, CCTV implementation in OPAL and BERYL

	• **IPR Cell (2024 – Present)** – Workshops, Software training, SPRIHA call, MSME IPFC, Kapila scheme. • **Recruitment Cell (2022 – Present)** – Assisting in staff (temporary/regular) recruitment processes. • **Internal Complaints Committee (ICC) (2021 – Present)** – Actively involved in ICC-related duties. • **Institution's Innovation Council (IIC)** – Organized events as per the IIC calendar schedule, Prepared Annual report for FY 2023-24 • **Data Insight Team (2020 – 2023)** – ARIIA data, Institute day award evaluation, Impact, QS Ranking, NIRF Innovation 2024. • **R&C Assignments** – R&C brochure, booklet, intern works, DST SATHI phase I & II assignment, MSME

Roles & Responsibilities of the Staffs of SIF:

Category	Akhila A K	Sundar M	Rajesh N
Trained Equipment	TGA, DSC, FTIR, UV-Vis Spectrometer, Force tensiometer, Rheometer, C Therm Thermal Conductivity Analyzer, Electrochemical Workstation	Rheometer, LFA, TGA, DSC, Contact Angle Meter, FTIR, UV-Vis Spectrometer, Force tensiometer, C Therm Thermal Conductivity Analyzer, Electrochemical Workstation, Thermal Cycling Chamber	LFA, TGA, DSC, Contact Angle Meter, FTIR, UV-Vis Spectrometer, Rheometer, Force tensiometer, C Therm Thermal Conductivity Analyzer, Electrochemical Workstation, KD2 pro, LCR Meter
Mapped Equipment	ICP-MS (opening soon for consultancy), TGA, DSC, Electrochemical Workstation	Rheometer, TGA, LFA, Contact Angle Meter, Force Tensiometer, Thermal Cycling Chamber	LFA, FTIR, UV-Vis Spectrometer, DSC, Contact Angle Meter, C Therm Thermal Conductivity Analyzer, KD2 pro, LCR Meter
Office Works	• Creates professional presentations and documents. • Initiate all the documentation works. • Webpage maintenance and design • Preparation of booklets, brochures • Oversee the inward/outward files and monitoring of file movement	• Manages testing charges, pricing strategies, and subsequent modifications. • Estimates revenue and budgets for purchases • Financial data maintenance • File numbering procedures • Monthly GST data reports • Digital record creation of all the completed	• Maintains user database • Compiles the feedback forms • Assists in networking with potential users and stakeholders. • IMPREST processing • Monthly Attendance report • Execute purchase and bill passing for all the equipment mapped

	• Allocation of tests on day to day basis • Execute purchase and bill passing for all the equipment mapped • Updating the testing charges for mapped equipment • Works for the Data Insight Team for NIRF-Innovation Ranking • Works for Data Insight Team for NIRF-Sustainability Ranking	tests, which includes entering the user details, sample details, test details and payment details into excel sheet • Execute purchase and bill passing for all the equipment mapped • Preparation of provisional invoice for the requesting users • Updating the testing charges for mapped equipment	• Maintenance of Gate pass register and its issuance • Maintenance of Consumable and Non-consumable Register • Executing annual chemical and consumable purchase
Proposal	• Preparation of the draft of the proposal and identifies the requirement of the proposal and map it to the team • Identified the relevant equipment and scope • Interacts with technical staffs of other CFTIs	• Overall Budget estimates • Financial projections, and revenue possibilities.	• Prepares a database of potential beneficiaries. • Supports outreach and collaboration efforts.
Workshop	• Designs workshop materials and documentation. • Prepares professional reports	• Preparation of the schedule of the workshop • Manages participant data (participation attendance, guest house). • Handles financial estimates and logistics.	• Procurement of all necessary consumables for the conduct of the workshop • Manages the finance of the workshop • UC/SE preparation • Coordinates multiple aspects, reaches out to participants. • Coordinate the evaluation of the participants through a review exam/quiz • Compiles and organizes participant feedback.

III. Facilities Under SIF

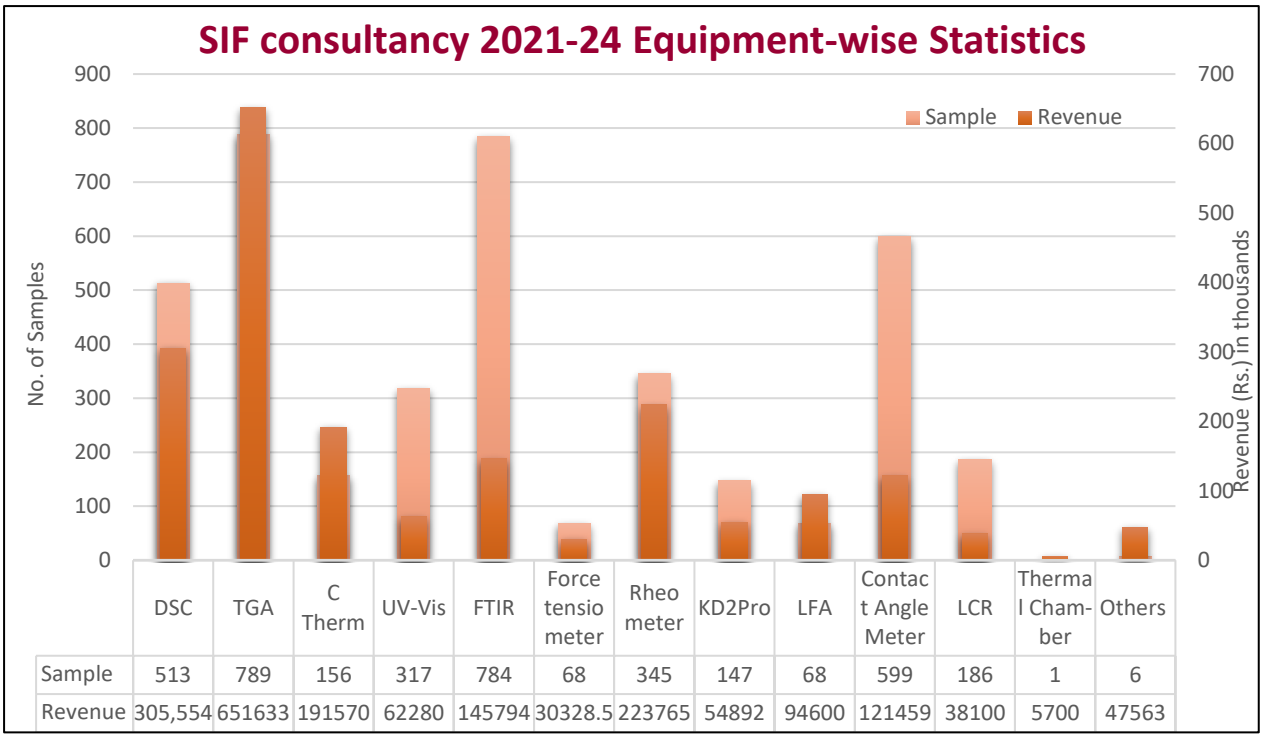
The following table provides a summary of key high-end equipment available at SIF, highlighting their year of procurement, cost, and funding source. These instruments support advanced research and analysis across multiple disciplines and has been procured through various funding sources such as Plan Fund, HEFA, and DST.

Name of the Equipment	Year of Purchase	Purchase Amount (in Lakhs) (Rs.)	Source of Fund
Inductively coupled plasma mass spectroscopy (ICPMS)	2014	84.90	Plan Fund
Atomic Force Microscope	2013	99.99	Plan
C-Therm Thermal conductivity measuring instrument	2021	39.25	HEFA
Simultaneous thermal Analyser (DSC/TGA)	2021	54	HEFA
Differential Scanning Calorimetry (DSC)	2021		HEFA
UV-VIS Spectrophotometer	2021	21.55	HEFA
Spectrophotometer FTIR	2021		HEFA
Force tensiometer	2021	25.96	HEFA
Rheometer	2021	12.98	HEFA
Thermal cycling chamber	2021	18.34	HEFA
Laser Flash Apparatus (LFA)	2016	33.00 (36,450 USD)	DST
Contact Angle Meter	2016	12.95	DST
KD2 Pro Thermal Conductivity Meter	2011	5.00 (6095 USD)	DST
Electrochemical Workstation/ Multichannel Potentiostat	2013	37.60	Plan Fund

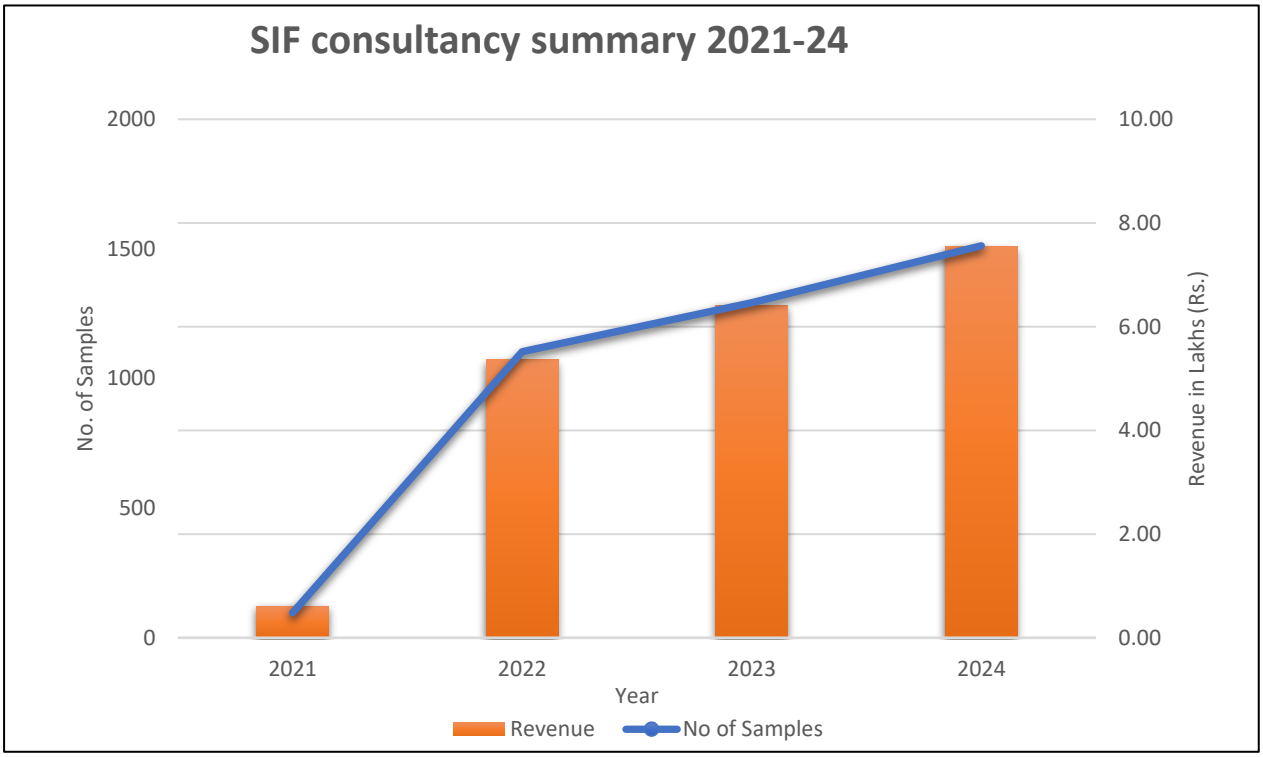
IV. Revenue Generation Data

The table below presents a year-wise breakdown of testing activities conducted at the facility, including the number of tests performed each month and the corresponding revenue generated. The data highlights the growth in testing services, reflecting increased utilization of instrumentation and industry engagement. Over the four-year period (2021-2024), the facility has conducted a total of 4,004 tests, generating a cumulative revenue of ₹19,92,000.76. This trend underscores the facility's role in providing essential analytical and characterization services.

Month\ Year	2021		2022		2023		2024	
	No. of Test	Amount (Rs)	No. of Test	Amount (Rs)	No. of Test	Amount (Rs)	No. of Test	Amount (Rs)
January	-	-	46	29886.00	14	10776.00	82	50421.5
February	-	-	41	9966.00	65	34922.00	160	104677.92
March	6	7350.00	51	15039.00	190	105857.5	75	51596.00
April	2	3200.00	130	48158.00	142	51034.04	110	43650.10
May	-	-	92	39415.00	169	80490.14	157	68093.22
June	-	-	113	69077.00	60	37091.52	67	70588.21
July	-	-	110	74515.00	136	63977.75	332	141259.06
August	-	-	131	67384.25	113	62830.69	96	44665.34
September	-	-	143	69902.00	95	47141.20	80	23513.01
October	10	1500.00	53	22840.00	121	84222.15	111	62400.00
November	20	24800.00	78	46258.66	94	25075.50	125	47202.00
December	58	23898.00	115	43544.00	94	37283.00	117	46500.00
Total	96	60748.00	1103	535984.91	1293	640701.49	1512	754566.36
Total Amount Generated from 2021-2024: Rs. 19,92,000.76								



	DSC	TGA	C Therm	UV-Vis	FTIR	Force tensio meter	Rheo meter	KD2Pro	LFA	Contac t Angle Meter	LCR	Therma l Cham- ber	Others
Sample	513	789	156	317	784	68	345	147	68	599	186	1	6
Revenue	305,554	651633	191570	62280	145794	30328.5	223765	54892	94600	121459	38100	5700	47563



Strong and consistent growth in testing demand and revenue indicates the increasing relevance of SIF in research and consultancy services. With the incorporation of more high-end facilities beginning in 2025, a minimum of1.5 times increase in revenue is expected**,** further solidifying SIF's role as a key research and testing hub. Samples are received from institutions spanning Kashmir to Kanyakumari, including IISc Bangalore, IIT Tirupati, NIT Suratkal, NIT Puducherry, Pondicherry University, ARCI Hyderabad, Godrej.

- Total number of tests conducted from 2021-24**:** 4004
- Total number of users benefitted from 2021-24**:** 720
- Total revenue generated from 2021-24**:** 20 Lakhs

V. Operating Modes

V.a) For Internal Users

Internal users make slot booking through the Google Form available on the SIF website and make payments via the SBI Collect portal. Users receive a receipt upon successful payment. While the I-STEM portal is also accessible, internal users are advised to use SBI Collect for direct transactions to the R&C account, as the I-STEM portal currently supports only GST-based payments for external users.

V. b) For External Users

Since March 2022, all external users have been directed to book slots and make payments via the I-STEM portal. Upon payment completion, the portal generates an invoice based on the details provided by the user. The GST report is compiled by the portal at the end of each month and submitted to the Dean R&C office by the 10th of the following month.

Future Updates: To accommodate non-GST payments for internal users, SIF has requested I-STEM to enable this provision. The request has been acknowledged and is under consideration for future implementation.

VI. I-STEM Activities

- Our Institute has been actively participating in the I-STEM activities since March 2020 and has been undertaking consultancy through I- STEM portal since March 2023.
- 365 equipment has been uploaded from all the departments and CoEs and mapped with respective in-charges/coordinators
- 80 patent data have been entered
- 900 consultancy tests completed for a total revenue of Rs. 6.25 Lakhs
- Allocated one-hour session for introducing ISTEM in all the workshops conducted by SIF till date
- Represented NIT Trichy in the I-STEM Technology Management Conclave in 2023
- Samavesha, a flagship event of I-STEM was hosted by SIF at NIT Trichy on the occasion of National Science Day
- NIT-T has attended two ISTEM organized meetings of the heads of all IITs and NITs and NIT Trichy was acknowledged for active participation in I-STEM portal
- SIF was invited by the I-STEM to publicize any three potential and active equipment via I-STEM hoardings
- Considering the valuable activities of SIF on popularizing the I-STEM portal, an invitation was received by the SIF to make NIT Trichy as an I-STEM catalyst center. This is only in the initial phases of discussion.

*"Since it is a small college, we've extensively used all the sophisticated instruments at I-STEM here and it has been very helpful to both my students and for me. I'd also like to mention that using these facilities from I-STEM; especially, the scanning electron microscope as well as the x-ray photoelectron spectroscopy instrument.....**Scan the image to watch the complete video.**"*

Fostering Interdisciplinary Research: The portal encourages interdisciplinary collaborations by connecting researchers with diverse expertise to each other and fostering innovation. Ms Roobala, a Scientific Officer at Sophisticated Instrumentation Facility, NIT Trichy speaks about her experience interacting with like-minded researchers she came across through the I-STEM portal.

*"I was always looking for an opportunity to interact with like-minded people who are working in the central research facility type of avenues and this was the first time that at I-STEM.....**Scan the image to listen more from her.**"*

Empowering Women: The I-STEM portal is making strides in promoting gender diversity and inclusion in research. **Women in Engineering, Science & Technology (WEST)** face various challenges such as unequal opportunities stemming from gender biases, financial constraints, and many other socio-economic vices. The I-STEM portal has launched a slew of initiatives to close such gender gaps. These include offering skill development programmes, access to R&D resources, and opportunities to speak on a global platform to scientifically-inclined young women. It also seeks to establish a digital consortium for discussing and resolving regional issues while involving local scientists and researchers. Now, let's hear Ms. Varnitha recount her experience of the I-STEM portal below:

*"I recently received the catalytic fund of 1 Lakh from I-STEM which has been very useful for me. I-STEM did not just give me funding. It was also a platform to collaborate with many institutions with many people who work on similar work and I was able to go to Vivo level within two and a half years of research which is very rare and I believe.....**scan the image to listen to the rest of her testimonial.**"*

The I-STEM portal has not only helped the researchers but has also been beneficial to government research institutes and agencies that have invested huge funds to procure and set up world-class facilities and infrastructure which at times go underutilised, resulting in wastage of valuable resources. Resource sharing facilitated by the I-STEM portal has ensured optimal utilisation of publicly-funded R&D infrastructure while also ensuring that researchers can conduct their research on time. The below-mentioned statistics showcase how the I-STEM portal has

Cited in December 2023 Edition of Vigyan Dhara: The Office of the Principal Scientific Adviser to the Government of India's- E-Newsletter

VII. Date Resource Management

- SIF has developed and maintained multiple databases for efficient management of instruments, usage patterns, and research needs.
- Regular surveys are conducted to assess testing requirements and guide Centre expansion.
- A comprehensive database of colleges, universities, and institutes across Tamil Nadu is maintained for information dissemination.
- Workshop registrations consistently exceed 150 participants, reflecting strong engagement.
- Over the years, SIF has built an extensive equipment database, enabling better understanding of researcher needs, equipment status, and service improvements
- SIF provides data support for equipment-related queries and facilitates seamless research services when adequate funding is available.
- A booklet and brochure detailing SIF facilities has been prepared.
- The SIF webpage is regularly updated with equipment availability and utilization details.

VIII. Capacity Building Initiatives

SIF has actively organized and participated in national-level knowledge-sharing platforms, including:

- Equipment Hands-on Session (2024): A two-day state-of-the-art training on advanced analytical techniques in collaboration with Malvern Panalytical and SINSIL India.
- SERB Karyashala Workshop (2024): Advanced training on nanomaterial characterization.
- Samavesha 2024: A regional event with participation from 130 colleges to introduce I-STEM activities. This was conducted on the occasion of National Science Day 2024.
- Perkin Elmer Academia Forum (2024): Health inspection of 30 Perkin Elmer equipment installed across various departments.
- DST STUTI Workshops (January & June 2023): Hands-on training on advanced material characterization.
- I-STEM Technology Management Conclave (2023): Represented NIT Trichy alongside IITs and NITs to showcase SIF at a national forum.

VIII. a) SERB Karyashala

The seven days High end workshop organized at NIT Trichy was a rich blend of theory and hands-on sessions providing a comprehensive overview of the characterization tools necessary for nanomaterial research. The workshop was inaugurated by Prof. Ranjith Ramadurai of IIT-H in presence of Dean SW Dr. R. Karvembu, Dean Academic Dr. S. T. Ramesh, SIF Chairperson Dr. M. Umapathy and Head of COEHST Dr. S. Suresh.

- Dates: March 18-24, 2024
- No.of Participants: 30
- Experts involved:
    - Prof. Ranjith Ramadurai, IIT Hyderabad
    - Dr. Ayyappan Sathya, Sastra University
    - Dr. Nanda Gopala Krishna, IGCAR
    - Dr. Karickeyan, GCE Srirangam
    - Dr. Shibu Eappan, STIC Cochin
    - Mr. G.Sivakumat, Inkarp
    - Dr. Sriram, ICE NITT
    - Shri. Mohan, Sinsil International
    - Dr. Santhosh, Physics, NITT
    - Shri. Thipperudraswamy, CSIR-CECRI
    - Shri. V.Prabhu, CSIR-CECRI
    - Dr. M.Premalatha, NIT Trichy
    - Dr. Devendiran, PerkineElmer
    - Shri. Senthil, Malvern
    - Dr. Karthik Ramaswamy, IISc

VIII. b) Samavesha

NIT Trichy and I-STEM Bangalore proudly organized the successful joint organization of Samavesha 2024, an initiative aimed at promoting I-STEM on National Science Day 2024. The event, held under the theme of "Uniting Minds, Igniting Innovations," witnessed a remarkable inauguration by Padmashri Mylswamy Annadurai, Distinguished Space Scientist, alongside esteemed dignitaries including Dr. Harilal Bhaskar, COO of I-STEM, and Dr. Umapathy, Chairperson of the Sophisticated Instrumentation Facility (SIF)

- Dates: February 28, 2024
- No.of Participants: 200+
- Experts involved:
    - Padmashri Mylswamy Annadurai, Space Scientist
    - Dr. Harilal Bhaskar, COO of I-STEM
    - Prof. Sudhir K Sinha, Founder of Lab2Market
    - Shri P V Kannan
    - Dr. Srimathy Kesan
    - Dr. Balaji R
    - Dr. Sudhir K Sinha

VIII. c) DST STUTI Workshop 1

A seven-day workshop on 'Advanced Material Characterization' was organized at NIT Trichy in association with NIT Warangal under the DST STUTI Scheme during 30th January 2023 – 5th February 2023. This workshop has been aimed at training skilled manpower on high-end equipment procured through different DST grants.

- Dates: 30th January 2023 – 5th February 2023
- No.of Participants: 30
- Experts involved:
    - Experts involved:
    - Prof. A Chandrabose, NITT
    - Prof.R. Justin Joseyphus, NITT
    - Dr. D.Ruben Sudhakar, NITT
    - Prof. K. Jaganathan, BDU
    - Dr. Ganesh Chandra Nandi, NITT
    - Dr. Jyothi Sahu, NITT
    - Dr. V.M.Jaganathan, NITT
    - Dr. Padmanabhan, LCGC
    - Mr. Jegan, Agilent
    - Dr. Devendiran, PerkinElmer

VIII. d) DST STUTI Workshop:

A seven-day workshop on 'Advanced Material Characterization' was organized at NIT Trichy in association with NIT Warangal under the DST STUTI Scheme during 21st June 2023 – 27th June 2023. This 7-day workshop was designed with integrated theory talks and hands-on sessions. Experts from NIT Trichy, Bharathidasan University, Application Engineers from Original Equipment Manufacturers have been invited to deliver the technical talks and participants spent elaborate time in each equipment with the guidance of research scholars and technical staffs.

- Dates: 21-27 June, 2023
- No.of Participants: 30
- Experts involved:
  - Dr. Sanjeev, COO, ISTEM
  - Dr. M.Premalatha, NITT
  - Dr. Adithya Kumar, NITT
  - Mr. K.Balamurugan, IKA
  - Dr. Devendiran, PerkinElmer
  - Dr. Manikarthik, ARCI Hyderabad
  - Dr. V.M.Jaganathan, NITT
  - Dr. D.Ruben Sudhakar, NITT
  - Dr. Rinku Kumar, NIT Jamshedpur
  - Dr. Karickeyan, GCE Srirangam
  - Dr. S.Suresh, NITT
  - Dr. Karthik Vaidyanathan

VIII. e) Perkin Elmer Academia Research Forum 2023

Perkin Elmer Academia Research Forum 2023 conducted on September 27,2024 in collaboration with DEE featuring technical talks and health inspection of 25 equipment. Two equipment were revived back to operation.

Press Release: https://pib.gov.in/PressReleasePage.aspx?PRID=1963872

- Dates: 27 September, 2023
- No. of Participants:
- Experts involved:
    - Dr. Rajesh Bellad, Sr Product Specialist, Perkin Elmer
    - Dr. M. Perumalsamy, Nodal Officer, Swachhatha 3.0 Campaign
    - Dr. Manohar Rao, Product Manager
    - Mr. Suman N., Product Specialist
    - Mr. Mallesh Addagattu, Field Application Specialist
    - Dr. Devendran Mani, Field Application Specialist

VIII. f) Equipment Training Sessions by Malvern

One day hands on sessions were conducted for research scholars of the Institute on Zetasizer and XRF in collaboration with Malvern Analytical. During the session, scholars obtained free testing of their samples in particle size analysis, surface potential testing, XRF data of samples from department of Chemical Engineering, Energy & Environment, Civil Engineering, Mechanical Engineering and MME.

- Dates: 19 July, 2024
- No.of Participants: 50
- Experts involved:
    - Dr. Sakthivel, Malvern
    - Dr. Senthilkumar, AIMIL

VIII. g) Equipment Training Sessions by Sinsil

One day hands on sessions were conducted for research scholars of the Institute Electrochemistry and Spectrochemistry experiments on techniques like electrochemical workstation, Solar simulator, Raman Spectrometer. The sessions included demonstration of all different modes and analysis of samples from scholars of department of Chemistry, Physics, Chemical, Energy and MME

- Dates: 23 July, 2024
- No. of Participants: 55
- Experts involved:
    - Mr. Ramesh Krishnamoorthy
    - Ms. Sindhu Krishnamoorthy
    - Mr. Gowda Byle
    - Mr. Mohanraj

IX. Proposal Works

IX. a) Sophisticated Analytical and Technical help Institutes (SATHI)

Phase 1: Application Stage (September 2022)
• A proposal was prepared for the Centre for Advanced Techniques and Facilities in Renewable Energy Materials (CATFREM) under the SATHI initiative, covering 21 equipment with a total budget of Rs. 33.64 crores. • The scope of work included equipment selection, vendor interactions, and detailed documentation, covering the proposed equipment, its scope, potential users, and revenue projections.
Phase 2: Presentation Stage (April 2023)
• The proposal was revised to Rs. 48.34 crores, restructuring the equipment list under specific domains to align with the renewable energy theme. • The revenue model was expanded, and a refined categorization of equipment was introduced. • This refinement of verticals for fabrication, characterization, testing and modeling was well appreciated by the DST Review chairperson
Phase 3: DST officials visit (June 2023)
• Several meetings to discuss, deliberate and consolidate the proposal with a focus on deliverable outcomes, product development, and commercialization. • Different work packages were identified mapped to the priority areas of the proposal • Extensive discussions were held with 25 vendors/suppliers to obtain quotations and strengthen the proposal with accurate pricing and technical details. • A 10-year revenue model was developed to ensure long-term sustainability.
Phase 4: Post Visit Work
• The proposal was further refined to focus on energy materials, considering feedback from previous review phases. • A comprehensive 250-300 pages document was submitted, incorporating consolidated inputs from faculty members: Dr. M. Premalatha, Dr. M. Ashok, Dr. S. Sivashankar, Dr. M. C. Santhosh Kumar, Dr. V. M. Jeganathan, and Dr. Sarthak Madal.

- Based on expert feedback, faculty members were invited to propose state-of-the-art research challenges that the Centre could address.
- The equipment list was further refined, and the budget proposal and business model were modified accordingly.
- A final presentation was made in Delhi, incorporating expert comments from previous phases.
- During all the four phases of SATHI proposal, detailed PPT and a revised proposal were compiled promptly, ensuring clarity on budget feasibility, equipment selection, and long-term sustainability.

SIF played a pivotal role throughout the proposal process by:

- Identifying suitable equipment aligned with research objectives.
- Estimating costs and refining the revenue model.
- Engaging with vendors to obtain quotations and technical clarifications.
- Conducting regular meetings with engineers and faculty to fine-tune the proposal.
- Managing extensive communication via emails, phone calls, and documentation to ensure accuracy and compliance.

IX. b) Support for Upgradation, Preventive Repair and Maintenance of Equipment (SUPREME)

- Proposal Submitted on January 2023 for a grant worth of Rs. 45.9 Lakhs for the repair and maintenance of key equipment funded by DST.
- Detailed documentation work on usage pattern, publications and feedbacks for all the identified equipment were compiled.
- The identified equipment includes,
- Vibrating Sample Magnetometer (VSM) – Physics
- Atomic Force Microscope (AFM) – Chemistry
- Laser Flash Apparatus (LFA) – Mechanical Engineering
- Ion Chromatography (IC) and Gas Chromatography Mass Spectrometer (GCMS) – Chemical Engineering

IX. c) Proposal for BIS Empaneled Lab

- Proposed two BIS Empaneled labs on Steel Testing and Water Testing during November 2024
- BIS proposal was initiated based on a discussion meeting held with Mr. Anuj Bhatnagar, Head (MSD) on 20/3/2024 with all BIS department coordinators. The meeting covered discussion on implementing courses in curriculum, inauguration of standards club, BIS internships, Workshops and technical talks as well as the BIS funded lab scheme.
- The scheme aims to support other laboratories by creating or augmenting test facilities in critical areas for institutions of higher education for R&D
- Initially, a proposal was submitted for an Instrumentation Facility supported by BIS in November 2024
- The proposal was then divided into two primary themes—water testing and metal testing—based on recommendations made by the BIS experts.
- Water testing facility was proposed for a budget of Rs. 185 Lakhs and Metal Testing facility for Rs. 414 Lakhs.

IX. d) GAM 2025 Proposal

- A proposal worth Rs. 1.81 crores were submitted on the occasion of Global Alumni Meet 2025, to strengthen the research facility at NIT Trichy
- The budget was mainly requested under the heads of preprocessing facility, equipment maintenance/ Upgradation, Equipment augmentation and Manpower
- A presentation document was also created as per the comments from the scrutinizing committee and submitted for further actions.

IX. e) ANRF Proposal

- On February 14, 2025, SIF consolidated and shared the funds that were required for the upkeep of all of NIT-T's high-end and potential equipment, as well as the expansion of new testing facilities and manpower assistance, per instructions from the Dean R&C office.
- The total proposed budget was approximately Rs.20 crores

X. Plan for next 3 years

1. The number of available equipment will be increased from 15 to at least 30 over the next three years.
2. The current annual revenue is ₹6–7 lakhs, which will be increased to ₹12–13 lakhs per annum, ensuring a minimum monthly revenue of ₹1 lakh.
3. Workshops and training programs are currently conducted at an average of one every six months. This will be streamlined to one program every quarter (three months).
4. Regular promotional activities will be conducted to expand the Centre's user base.
5. NIT Trichy will be recognized as an 'I-STEM Catalyst Center' for this region.
6. Suitable grants will be secured to install high-end equipment, including X-ray Photoelectron Spectroscopy (XPS), BET Surface Area Analyzer, and Zetasizer, within the next two years.

XI. Conclusion

The Sophisticated Instrumentation Facility (SIF) is envisioned as a service department of the Institute, providing critical research support and technical expertise to faculty, researchers, and industry partners. Our goal is to establish SIF on par with the Central Research Facilities (CRF) of leading IITs, NITs, and other higher education institutions (HEIs).

Following the model of SAIF IIT Madras, SIF aims to become a strong testing hub for academic researchers, SMEs, startups, and industries, offering state-of-the-art analytical and characterization facilities. With a focus on accessibility, reliability, and excellence, SIF will play a pivotal role in enhancing the research ecosystem at NIT Trichy and contributing to national and global scientific advancements.

Through continuous infrastructure development, strategic collaborations, and an unwavering commitment to quality, SIF will position itself as an indispensable pillar of R&D support within the Institute, fostering innovation and accelerating scientific progress

Sophisticated Instrumentation Facility (SIF)
CEDI Building (Left Wing)
Opposite to Central Library
National Institute of Technology
Tiruchirappalli- 620 015
Tamil Nadu
India

9489394853

https://www.nitt.edu/home/rc/sif/