



विज्ञान एवं प्रौद्योगिकी विभाग
DEPARTMENT OF
SCIENCE & TECHNOLOGY

NATIONAL INSTITUTE OF TECHNOLOGY WARANGAL

Warangal - 506 004, Telangana

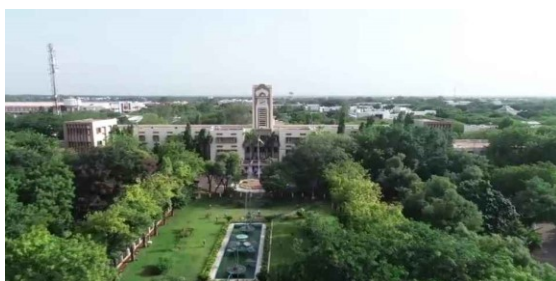
Synergistic Training Program Utilizing the Scientific and Technological Infrastructure (STUTI)

Call for Registration and Participation Training Program on R&D Equipment

Theme: Advanced Material Characterization

Program Dates: 30/01/2023 – 05/02/2023

Venue: National Institute of Technology, Tiruchirappalli



Register before: 13th Jan 2023



**Scan to
Register**

No Registration Fee

Click to Register: <https://forms.gle/XXA1kqEgLroQMVAk8>

Objectives of the Program:

To enable the participants to understand the principles, applications, and hands-on experience on sophisticated analytical instruments.

To gain knowledge about the in-depth analysis of the characterization techniques using high-end analytical instruments.

To interact with eminent professors/scientists/ industrial research personnel and discuss real-time research and make collaborations.

To encourage the participants to utilize the facilities and enhance the research temper.

To create a research-friendly atmosphere by letting the creative minds of the country exchange ideas and share their knowledge among their fellow participants.

Eligibility Criteria:

Persons of Indian origin. Faculty / Scientists / Post-Doc Fellows / Ph.D. Fellows / Industry Persons / M.Sc. students/ MTech. Students who are actively involved in research and development (R&D) in the fields of Physics, Material Sciences, Chemical Sciences, Mechanical/Metallurgical/Chemical/Energy and Electrical Engineering.

Important Instruction:

Fill in the prescribed bio-data form attached with this brochure and get it endorsed by the head of the institution. And keep the scanned copy ready, which needs to be uploaded during registration.

Organized by

National Institute of Technology, Tiruchirappalli (Spoke) & NIT Warangal, Telangana (Hub)

Funded by **DST, Govt of India**

About National Institute of Technology, Tiruchirappalli:

National Institute of Technology, Tiruchirappalli established in 1964 is one of the best Technical Institutes in the country ranked position 8 for the engineering category in the NIRF ranking 2022. NIT Trichy has 17 academic departments and offers 10 bachelors, 40 master, and 17 doctoral programs. This 58-year-old institute graduates annually an average of 2000 students and about 150 PhD grandaunts. The Institute has to its credit close to 6500 sci-indexed articles, citations of 1,00,000 with a H-Index of 105. NIT Trichy has a very vibrant campus with an active IPR cell, Startup and Incubation Centre, Innovation Facilitation Centre, Centers of Excellence in thrust areas, state-of-the-art research laboratories.

About NIT Warangal:

National Institute of Technology Warangal, formerly known as Regional Engineering College, was established in 1959. Over the years it has developed into a premier institute of higher learning and is ranked among the top technical education institutions in India. There are 14 Departments offering eight undergraduate, 35 post-graduate programs and guiding 952 PhD scholars besides post-doctoral programs. About 6864 students across the country including international students' study on the campus. It is a fully residential campus spread across 250 acres with excellent infrastructure in the form of state-of-the-art library, seminar halls, guest houses and research laboratories.

STUTI Team:

Chairman

Prof. N. V. Ramana Rao,
Director, NIT Warangal

Co-Chairman

Prof. Somasekhar V. T.,
Dean (R&C), NIT Warangal

Principal Investigator

Prof. N. Narasaiah,
*Dept. of Metallurgy and
Material Engineering*

Coordinators

Dr. T K Sai,
*Principal Scientific
Officer, NITW & Co-PI,
STUTI*

Program Coordinators

Sri Harish Madupu,
*Technical Officer, CRIF, NIT
Warangal*
Sri D. Ravikumar,
*Technical Officer, CRIF, NIT
Warangal*

NIT Trichy Team:

Chairperson

Prof. G. Aghila
Director, NIT Trichy

Co-Chairperson

Prof. V. Sankaranarayanan
Dean (R&C), NIT Trichy
Prof. M. Umopathy
Chairman, SIF, NIT Trichy

Organizing Team

Prof. A. Chandra Bose
Dept. of Physics, NIT Trichy
Prof. R. Justin Joseyphus
Dept. of Physics, NIT Trichy
Prof. S. Suresh
*Dept. of Mechanical
Engineering, NIT Trichy*
Prof. K. Muthukumar
*Dept. of Chemical Engineering,
NIT Trichy*
Dr. D. Ruben Sudhakar
*Dept. of Energy & Environment
Engineering, NIT Trichy*
Dr. Ganesh C. Nandi
Dept. of Chemistry, NIT Trichy
Dr. C. Roobala
*Sophisticated Instrumentation
Facility, NIT Trichy*

Note:

- The shortlisted candidates will be intimated through mail. All the selected participants have to submit the uploaded bio-data form physically for the confirmation of participation.
- Non-local participants are eligible for boarding/ lodging at National Institute of Technology, Tiruchirappalli on double sharing basis.
- For domestic travel of participants, the reimbursement for train/bus tickets is allowed as per actual up to 3AC fare (for outstation participants only).

Contact Us:

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Sri D. Ravikumar, NIT Warangal
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Dr. C. Roobala, NIT Trichy sif@nitt.edu,
9489394853

About STUTI:

The Scheme 'Synergistic Training program Utilizing the Scientific and Technological Infrastructure' (STUTI) is intended to build human resource and its knowledge capacity through open access S&T Infrastructure across the country. As a complement to the various schemes of DST funding for expansion of R&D Infrastructure at academic institutions, STUTI scheme envisions a hands-on training program and sensitization of the state-of-the-art equipment as well as towards sharing while ensuring transparent access of S&T facilities.

Instruments covered for training:

1. High Resolution Transmission Electron Microscopy (HR-TEM).
2. High-Resolution Mass Spectrometry (HRMS)
3. Vibrating Sample Magnetometer (VSM)
4. Gas Chromatography–Mass Spectrometry (GC-MS)
5. Ion Chromatography
6. Hyphenated Thermogravimetric Analyzer (TGA) with FT-IR
7. Bomb Calorimeter
8. Laser Flash Apparatus (LFA)
9. Contact Angle Meter



Equipment Name: High Resolution Transmission Electron Microscopy (HR-TEM)

Make: FEI

Model: Tecnai 300 kV, G2-30 STwin

Applications: TEM could be used to obtain the morphology, particle size distribution, crystal structure of materials and their correlation to the physical properties. It helps in the development of new materials with improved properties in the areas of biomedicine, energy, nanotechnology etc.

Equipment Name: High Resolution Mass Spectrometry (HRMS)

Make: AGILENT

Model: 6545XT

Applications: This equipment is used to measure the exact mass of the sample with very high resolution and accuracy.



Equipment Name: Vibrating Sample Magnetometer (VSM)

Make: Lakeshore, USA

Model: 7404

Applications: To measure the hysteresis loops of magnetic materials and to find the saturation magnetization, coercivity and remanence. The soft and hard magnetic nature of the materials could be identified. Studies such as coercivity mechanisms and exchange coupling could be used to develop high-performance magnetic materials.



Equipment Name: Ion Chromatography

Make: Metrohm

Model: Eco IC

Applications: Used for the analysis of drinking water and its pollutants, determination of anions and cations (in terms of ppb) and in the analysis of various food, beverages and pharma products. The samples used in the instrument is of liquid in nature with the solutes less than $0.45\mu\text{m}$.

Equipment Name: Gas Chromatography Mass Spectrometer (GC-MS)

Make: Agilent Technologies

Model: 7890B (GC); 5977B (GC/MSD) - ALS

Applications: Used in the profiling of metabolites, detection of lipophilic and aromatic amines, identification of volatiles, quantitative determination of various plant, animal, microbes and environmental samples. It can be analyzed either in the liquid (or) gas form (without moisture).





Equipment Name: Hyphenated TG-IR

Make: Perkin Elmer

Model: TGA 8000 coupled to a Frontier FT-IR spectrometer with a TL 8000

Applications: Identify the temperature onset of chemical changes (functional group changes & disappearance) on solid materials (e.g., biomass, coal) can be precisely studied, with 0.1°C accuracy. Hyphenated TG-IR solution facilitates in identification of elements in the sample.

Equipment Name: Bomb Calorimeter

Make: IKA

Model: C5003

Applications: It is used to determine the calorific values of liquid and solid sample.



Equipment Name: Laser Flash Apparatus (LFA)

Make: NETZSCH

Model: LFA467

Applications: This instrument is used to measure thermal diffusivity and calculation of Thermal conductivity of different materials.



Equipment Name: Contact Angle Meter

Make: Apex Instruments

Model: ACAM-D3

Applications: Contact angle measurements for thin film or solid with smooth surface. can be estimated to identify the degree of hydrophobicity or hydrophilicity. Surface Tension Measurements using Pendent drop method can also be performed.

BIODATA FOR STUTI-21 DST TRAINING PROGRAM

NAME Prof./Dr./Mr./Ms.																			

DESIGNATION																			
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ORGANIZATION																			

DATE OF ENTRY IN SERVICE																			
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CATEGORY (GENERAL / SC / ST / OBC)																			
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DATE OF BIRTH																			
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SEX (M/ F)		
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COMPLETE ADDRESS (OFFICE)																			

COMPLETE ADDRESS (RESIDENCE)																			

CONTACT DETAILS	PHONE (O)	PHONE (R)	MOBILE No.	E-MAIL

EDUCATIONAL / PROFESSIONAL QUALIFICATIONS (GRADUATION ONWARDS)					
Sr. No.	EXAMINATION/ DEGREE	UNIVERSITY/ INSTITUTE	YEAR	SUBJECT	DIVISION/PERCENTAGE OF MARKS

EXPERIENCE					
Sr. No.	NAME OF THE ORGANISATION	DESIGNATION	FROM	TO	DUTY PERFORMED

TRAINING ATTENDED				
Sr. No.	YEAR	NAME OF THE TRAINING PROGRAMME	NAME OF THE INSTITUTE	DURATION

RESEARCH EXPERIENCE				
Sr. No.	YEAR	TOPIC OF RESEARCH	SPONSORING AGENCY	GIST OF RESEARCH

PAPER PUBLISHED / PATENT FILED/OBTAINED				
Sr. No.	YEAR	TOPIC OF PAPER/ BOOK	GIST OF PAPER	NAME OF JOURNAL/ MAGZINE/ PUBLISHER

Briefly give details of significant contribution made by you in the field of Science & Technology during your career. (100 words)

Date:
Place:

(Signature of the Participant)

(Head of the Institution)