



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: A One Week Training Program on Advanced Research Instruments**

**Program Dates: 6<sup>th</sup> – 12<sup>th</sup> February 2023**

**Venue: Dr. B. R. Ambedkar National Institute of Technology Jalandhar**



**Register before: 25<sup>th</sup> Dec 2022**



**Scan to  
Register**

**No Registration Fee**

Click to Register: <https://forms.gle/3yYvy1Md5nNEzTE8A>

#### **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/ M.Tech. Students who are actively involved in research and development (R&D) in the fields of Material Sciences, Chemical Sciences, Life Sciences or any relevant area.

#### **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**  
**Dr. B. R. Ambedkar National Institute of Technology Jalandhar (Spoke)**  
&  
**NIT Warangal, Telangana (Hub)**

**Funded by**  
**DST, Govt of India**

## About NIT Jalandhar:

Dr B R Ambedkar National Institute of Technology was established in the year 1987 as Regional Engineering College and was given the status of National Institute of Technology (Deemed University) by the Government of India on October 17, 2002 under the aegis of Ministry of Education (MoE), New Delhi. (Earlier Ministry of Human Resource Development) Government of India has declared the Institute as “Institute of National Importance” under the act of Parliament-2007. The institute offers B. Tech. programmes in nine Engineering disciplines. In addition to B.Tech. programmes, the Institute offers MBA, MSc, M.Tech and Ph.D. programmes in all nine Engineering disciplines (PhD Full time with teaching assistance and part-time PhD programmes for working professionals).

## 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:

#### Patron

**Prof. Binod Kumar Kanaujia**

*Director, NIT Jalandhar*

#### Chairman

**Prof. N. V. Ramana Rao,**

*Director, NIT Warangal*

#### Co-Chairman

**Prof. Somasekhar VT,**

*Dean (R&C), NIT Warangal*

#### Principal Investigator

**Prof. N. Narasaiah,**

*Dept. of Metallurgy and Material Engineering*

#### Convenors

**Dr. T K Sai,**

*Principal Scientific Officer, NITW & Co-PI, STUTI*

**Prof (HAG) S P Singh,**

*Dept of Civil Engineering, NITJ*

**Dr Raman Bedi,**

*Associate Professor, Dept of Mechanical Engineering, NITJ*

**Dr Pramod Kumar,**

*Associate Professor, Mechanical Engineering, NITJ*

**Dr S Bajpai,**

*Associate Professor, Dept of Chemical Engineering, NITJ*

#### Coordinators

**Dr Sumit Sharma,**

*Assistant Professor, Department of Mechanical Engineering, NIT J*

**Dr Ashok Kumar,**

*Assistant Professor, Department of Mechanical Engineering, NIT J*

**Sri D. Ravikumar,**

*Technical Officer, CRIF, NIT Warangal*

### 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 NITJ 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:

**Dr. Sumit Sharma-NIT Jalandhar**  
8146871758, [sharmas@nitj.ac.in](mailto:sharmas@nitj.ac.in)

**Dr. Ashok Kumar-NIT Jalandhar**  
9650632885, [baghaak@nitj.ac.in](mailto:baghaak@nitj.ac.in)

**Dr. T. Srinivas-NIT Jalandhar**  
01815037715, [srinivast@nitj.ac.in](mailto:srinivast@nitj.ac.in)

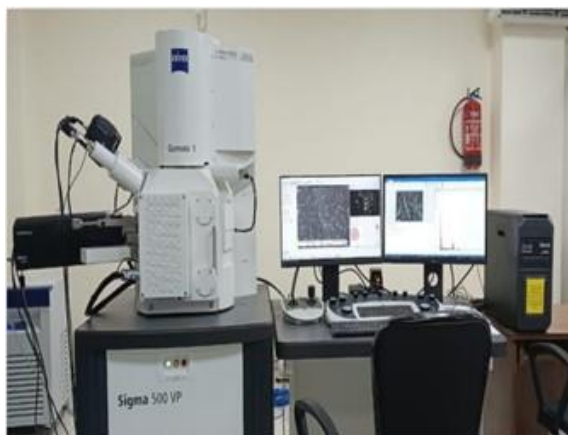
**Sri D. Ravikumar, NIT Warangal**  
[office\\_stuti@nitw.ac.in](mailto:office_stuti@nitw.ac.in)

## 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:

- Field Emission Scanning Electron Microscope
- Powder X-Ray Diffractometer
- Rapid Chloride Permeability Tester (RCPT)
- Differential Scanning Calorimetry
- Atomic Absorption Spectrophotometer
- Triple Quadrupole ICP-MS
- PARTICLE SIZE ANALYZER
- ION CHROMATOGRAPH
- 100 kN/250 kN Close Loop Servo-controlled Actuator System
- PARTICLE SIZE ANALYZER
- MTS Servo Hydraulic 250 kN Fatigue Testing System
- Concentrated Solar Air Heater with Passive Tracking Mechanism and Corrugated Receiver
- Tower Type Hybrid Vapour Compression Refrigeration (VCR) and Humidification-Dehumidification (HDH) Desalination Plant
- Hybrid Micro Electro Chemical Machining



### Field Emission Scanning Electron Microscope

**Make:** ZEISS

**Model:** SIGMA 500VP

**Applications:** It is used for Microscopic feature measurements, Corrosion evaluations, Striation measurements for high-cycle fatigue fractures, Coating evaluations, Characterization of very fine specimen features and surface contamination analysis

### Powder X-Ray Diffractometer

**Make:** PANalytical

**Model:** Empyrean

**Applications:** This instrument is used to determine phase identity, crystal structure. Approximate percentage phase composition etc. characteristics of crystalline compound.



### Rapid Chloride Permeability Tester (RCPT)

**Make:** GERMANN INSTRUMENTS

**Model:** ASTM 1202

**Applications:** It is used to measure the resistance offered by concrete to penetration of chloride ions. The resistance to chloride ions is measured in terms of charge passed through the concrete specimen in terms of 'Coulombs'.

### Differential Scanning Calorimetry

**Make:** Perkin Elmer

**Model:** DSC 8000

**Applications:** This instrument is used to study the phase transition temperatures, glass transition in polymers, composites metals, and other mixtures, thermodynamic reactions.



### Triple Quadrupole ICP-MS

**Make:** The Agilent 8900 triple quadrupole ICP-MS (ICP-QQQ) is the world's most successful and widely used tandem ICP mass spectrometer.

**Applications:**

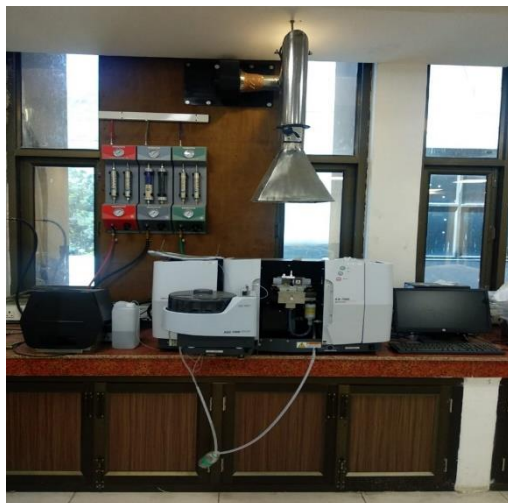
1. Analysis of radioactive iodine-129 using MS/MS with oxygen reaction mode
2. Study on the analysis of radioisotopes
3. Determination of trace and Measurement of neptunium in the presence of uranium

## PARTICLE SIZE ANALYZER

**Make:** Kruss Scientific

**Model:** DSA-25

**Applications:** Used to determine the hydrophilicity and hydrophobicity of the surface by the measurement of the contact angle of a sessile drop and the surface tension of a pendent drop. Almost all type of surfaces including polymers, metals, thin films and nanoparticles



## ATOMIC ABSORPTION SPECTROPHOTOMETER

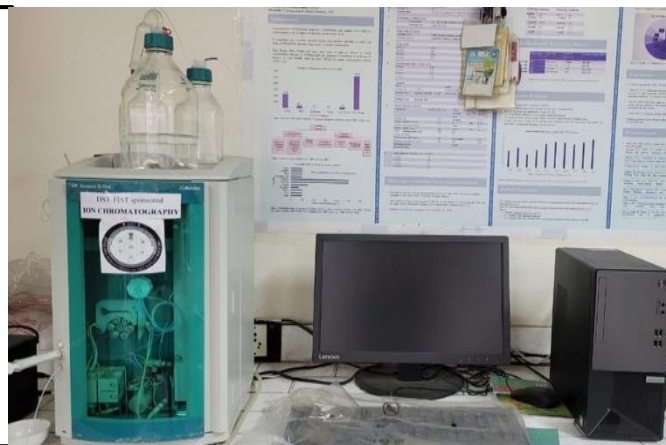
**Make:** Shimadzu AA-7000 with flame, graphite furnace and hydride vapour generator for trace level analysis

**Applications:** LAW and REGULATORY BODIES – To determine concentration of 16 toxic heavy metals like As, Hg, Cr, Cd, Pb, Co, Cu, Mn, Zn, etc. in groundwater.  
2. CHEMICAL and DYE INDUSTRIES – To estimate concentration of various chemical elements in aqueous solutions

## ION CHROMATOGRAPH

**Make:** Metrohm IC Flex 930

**Applications:** It is used to measure the concentration of cations (sodium, lithium, calcium, etc.) and anions (bromide, fluoride, sulfate, chloride, etc.) and polar substances in the range of 100µg/L to 20g/L.





### 100 kN/250 kN Close Loop Servo-controlled Actuator System

**Make:** Materials Test System, USA

**Applications:** It is a versatile system used for conducting static and cyclic flexural and compression tests. The system can run in displacement/strain/load control modes.

### PARTICLE SIZE ANALYZER

**Make:** Microtrac S3500

**Applications:** The Microtrac S3500 is a widely preferred Laser diffraction analyzer, ideally suited for various particle characterization needs. It is the foremost particle size analyzer that uses three precisely placed red laser diodes with multi detection and multi angle optical capability, to accurately characterize particles



### MTS Servo Hydraulic 250 kN Fatigue Testing System

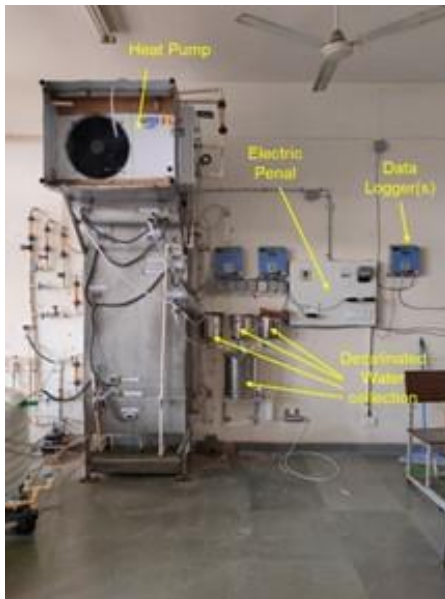
**Make:** MTS Systems USA

**Applications:** The machine has the capability to carry out static as well as fatigue tests on a range of materials like Metals, Composites, Ceramics, Polymers etc. It is a high end research equipment with acceptability and installations in industries all over the world.

**Concentrated Solar Air Heater  
with Passive Tracking Mechanism  
and Corrugated Receiver**

**Make: Fabricated setup**

**Applications:** This tracking mechanism has been developed to drive the linear focused solar thermal collectors without the use of electricity for accurate, continuous and smooth operation.



**Tower Type Hybrid Vapour  
Compression Refrigeration (VCR)  
and Humidification-  
Dehumidification (HDH)  
Desalination Plant**

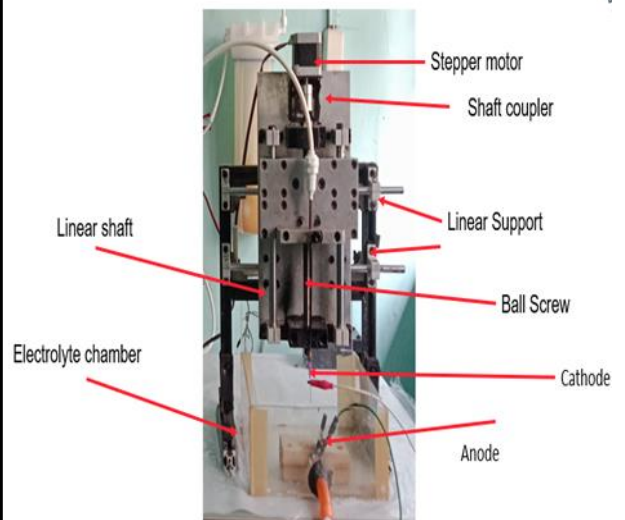
**Make: Fabricated setup**

**Applications:** It has been developed for the simultaneous generation of heating, cooling, and freshwater.

**Hybrid Micro Electro Chemical  
Machining**

**Make: Fabricated setup**

**Applications:** Hybrid Micro Electro Chemical Machining (HECMM) is one of the types of advanced manufacturing practices successfully employed for machining of materials that are difficult to cut. This method has been applied in modern manufacturing to enable high precision machining, slice complicated form and enhance surface conditions.



# **BIODATA FOR STUTI-21 DST TRAINING PROGRAM**

Program Dates: 6th – 12th February 2023

Organized by

Dr. B. R. Ambedkar National Institute of Technology Jalandhar (Spoke) &  
NIT Warangal, Telangana (Hub)

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

DESIGNATION																			
-------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

ORGANIZATION																			

DATE OF ENTRY IN SERVICE																			
--------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

CATEGORY (GENERAL / SC / ST / OBC)																			
------------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

DATE OF BIRTH																			
---------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

SEX (M/ F)		
------------	--	--

COMPLETE ADDRESS (OFFICE)																			

COMPLETE ADDRESS (RESIDENCE)																			

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



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

<b>EXPERIENCE</b>					
Sr. No.	NAME OF THE ORGANISATION	DESIGNATION	FROM	TO	DUTY PERFORMED

<b>TRAINING ATTENDED</b>				
Sr. No.	YEAR	NAME OF THE TRAINING PROGRAMME	NAME OF THE INSTITUTE	DURATION

<b>RESEARCH EXPERIENCE</b>				
Sr. No.	YEAR	TOPIC OF RESEARCH	SPONSORING AGENCY	GIST OF RESEARCH

<b>PAPER PUBLISHED / PATENT FILED/OBTAINED</b>				
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)